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In an uncertain world, two things you can be sure about are that constant change is here to stay, and what goes around comes around. Rest assured that whatever's in now will be out later, and then it will come back just when you least expected it...

Of course, this goes for hi-fi too. Right now we're in the middle of a vinyl revival that would have amazed even the format's most ardent fans – such as yours truly – five years back.

But perhaps even more surprising is the idea that low powered valve amplifiers have now become a routine part of hi-fi life.

When I was buying my first serious hi-fi system in the mid nineteen eighties, I used to look upon valves with a mixture of suspicion and awe. An alien breed, I was bemused about why anyone would want one, what with their vanishingly low power output and awful reliability record...

Or so I thought, because now we have brand new valve amps on sale at affordable prices with equal reliability to that of solid-state, and because the eighties trend for inefficient power-hungry speakers has waned, their low power outputs are less of an issue.

Power, you see, isn't directly related to volume, and never has been. In the same way that the acceleration of a car depends on both engine power and weight (a 200BHP engine in a Ford Fiesta will give rocket-ship performance, while in a Range Rover it will barely pull the skin off a rice pudding), so a system's 'sound pressure level' is a function of amplifier power and loudspeaker efficiency, and you can't realistically split one from the other.

While valve amplifiers haven't really got much more powerful, the move towards more efficient speakers has opened up a world of possibilities for any low powered amplifier, valve or solid-state. So much so that we're seeing oddballs like Sugden's pure Class A (transistor) amplifier winning ever more friends, as well as this month's integrated supertest on p15.

In the fifties, amplifier power was paltry, so efficient speakers were the order of the day. By the eighties this had all changed, and monster power outputs were omnipresent. Now though, we're going back (to the future), entering a new more eclectic era of audio where there's so much more choice and potential, as this month's *Hi-Fi World* shows. Enjoy!

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.

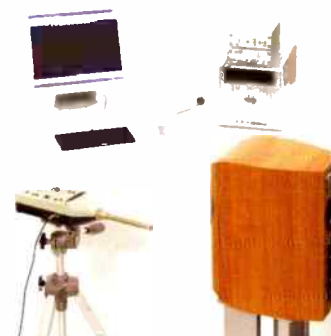
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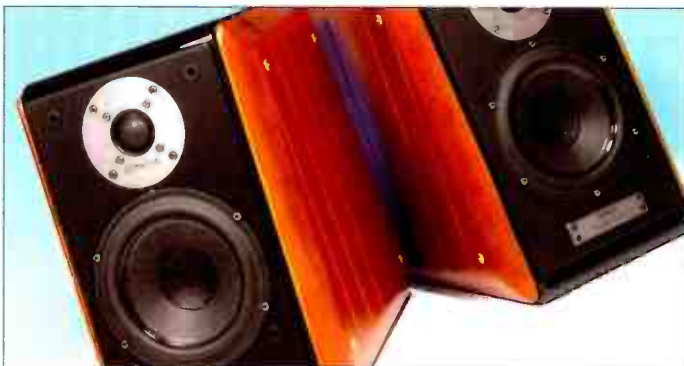
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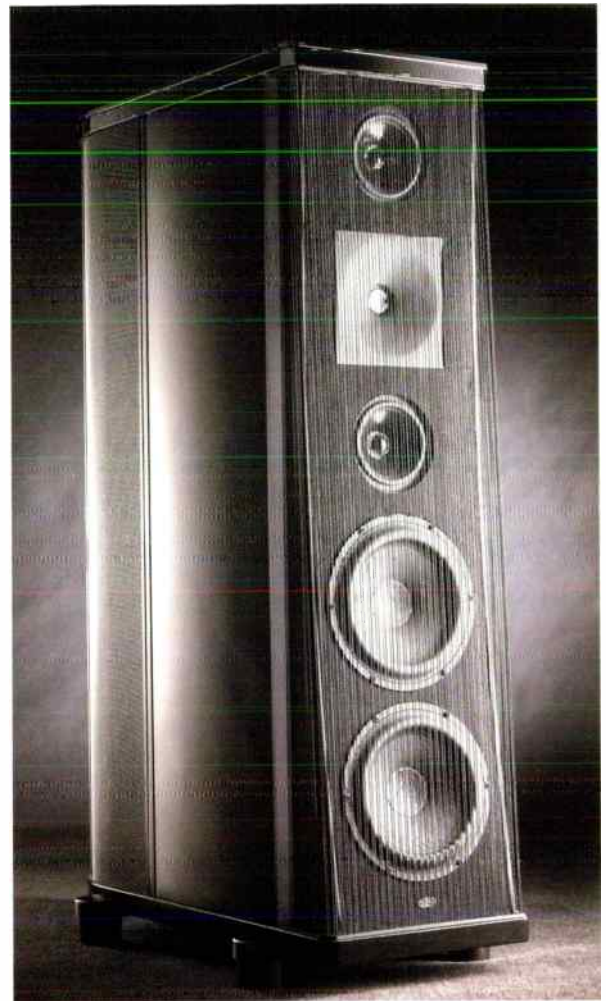
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NEW ATLANTIS

Gryphon's arrestingly styled Atlantis loudspeaker is claimed to "set a new standard for speaker performance in moderately sized rooms". With industrial design by Gryphon founder Flemming E. Rasmussen, it was developed by the same engineering team as the acclaimed Gryphon Poseidon, Trident and Cantata products. The handcrafted Atlantis employs specially developed dual 8" bass units in a tuned reflex chamber. The tightly focused, ultra-linear triple-magnet system of the dual 5" midrange drivers ensures total control of cone motion, says the company. For correct dispersion up to 32kHz, the ceramic high frequency driver is loaded with a proprietary Gryphon wave guide. The time-aligned, front baffle curvature ensures identical arrival time from all drivers at the listening position. A hand-adjusted, 4th order acoustical crossover is battery-biased for constant charge, resulting in "audibly improved stability and substantial gains in body, timbral colour and image coherence", it is claimed. Gryphon says the Atlantis has virtually unlimited finish options with replaceable side panels, and vital statistics are 390x1180x720mm and 85kg. Cost is a mere 22,000 Euros, plus tax. For a list of distributors, click on www.gryphon-audio.com.



ENIGMATIC

A new name joins the ever-expanding list of valve amplifier brands in the UK – Mystère. The company's new ia11 and ia21 amplifiers are claimed to, "combine the effusive warmth and fluidity for which valves are famous with unusual pace and drive", while their high-gloss, black piano lacquer finish adds an elegant look. Priced at £1,250 and £1,850 respectively, the ia11 and ia21 are a new brand to be distributed in the UK by Pistol Music – a division of Absolute Sounds Ltd. For more information, click on www.pistolmusic.co.uk.

AESTHETIC XPRESSION

Henley Designs Limited has announced the availability of Pro-ject's new Xpression III turntable. The £325 deck sports a machined acrylic platter mounted to a closely toleranced chrome plated stainless steel shaft on a polished ball bearing, while the motor is physically decoupled to reduce vibration to a minimum. The Xpression is fitted with the Pro-ject 8.6c tonearm, featuring inverted hardened stainless steel points and sapphire thrust pad bearings together with a carbon fibre tube and fixed aluminium headshell carrying an Ortofon 2M red cartridge. It is available in a dark grey piano lacquer finish with a clear acrylic dust cover. For details see www.henleydesigns.co.uk.





SALES OF THE CENTURY

Interesting new information on the state of the consumer electronics industry comes to us from respected market research company GfK, who report that sales of consumer electronics are showing continuous growth worldwide. In 2007, consumers are anticipated to spend 9% more on audio/video equipment, photographic imaging, IT and communication products than the year before, with the total global spend predicted to be approximately US \$580 billion. In Western Europe specifically, the outlook is also good with 5% growth forecast...

A look at the various regions of the world shows that with 12% value growth, Asia is at the top of the league table for 2007 to date, followed by North and South America with 9% and Europe, Middle East and Africa recording 7% growth. Globally, there is an upward market trend in the three major product categories: PCs (20% increase in value of sales), mobile phones (16%) and TVs (12%). These specific market segments, which collectively represent 60% of the entire consumer electronics sector, are innovation driven and this includes the move to notebooks, smart phones and flat screen TVs.

In the first six months of 2007, three countries in Western Europe accounted for 61% of the total sales in the region. The United Kingdom comes in on top with a 23% share, followed by

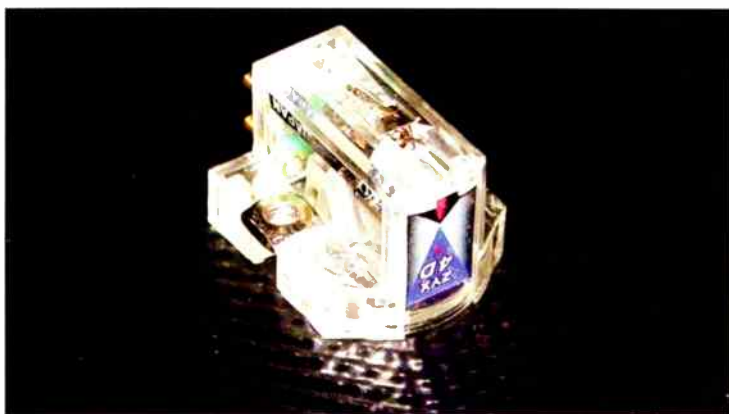
Germany with 21% and France with 17%. The remaining 39% is spread across seven other Western European countries.

The market for home audio remained virtually stable, with sales just 3% down on the same period the previous year. Again, customer demand for high value products had a strong impact and this applies in particular to Dolby Digital receivers, which represented 25% of retail sales, and loudspeaker boxes, which accounted for a remarkable 35% of sales in the 800 Euro plus price range. Compared to the first half of 2006, growth in these top end segments amounted to 12% and 5%. Home cinema systems also contributed an impressive 33% of sales in the 800 Euro plus range.

While growth in the digital portable audio and video player market slowed, it nevertheless achieved 22% in terms of units sold and 2% in value. Virtually all of today's audio players are flash memory products. This applies equally to the video player segment, where flash memory is now taking the lead and already accounts for 40% of total sales. Accessories such as docking stations and outdoor (micro) headsets, sales of which have grown by 20% in terms of value, are likely to continue to profit from the 40 million MP3 player sales which GfK is forecasting for Western Europe for the year as a whole.

DVD players and recorders weren't as popular in the first half of 2007 as in the previous year. Overall, 9% fewer units were sold, which equates to a 13% reduction in value terms. Even the DVD recorder segment stagnated, although the picture improves in the case of DVD hard disc devices, where the demand was up 23% in terms of units sold to account for one third of total sales in the DVD market. Around two in three HD buyers chose a device with a 160 Gb drive. Increased demand for more memory also stimulated sales in the 250 Gb segment, which has represented a 15% share of units sold. Based on sales to date, GfK is anticipating sales amounting to 6.7 million recorders for the year as a whole.

One of the results of the digitisation of consumer electronics is the growing demand for digital recording media, says GfK. Flash memory devices are experiencing particularly strong growth rates. While the number of memory cards sold was up 44% in the first half of 2007, sales of USB sticks were almost double their 2006 level (+89%). Together, these products accounted for 58% of total recording media sales, followed by blank DVDs (20%) and blank CDs (16%). For more information, contact GfK on www.gfk.com.



FOURTH DIMENSION

Japanese audiophile phono cartridge specialist ZYX has announced its new flagship moving coil – the 4D. Retailing for £2,250 in the UK, it boasts a dual layer armature of high permeability metal that is six times more efficient, resulting in a generator assembly with lower vibrations and higher output for a given number of coil turns. To reduce cartridge body resonances to the minimum, the 4D adopts skeletal structure – Zyx says “we believe that there is no body like no body”! By reducing the cartridge to the minimum there is less to store energy and reflect it back to the cantilever, thus colouring the sound. The result is said to be a cartridge with very clean, powerful bass and pristine highs. It is available with Copper(X), Silver(S) or Gold(G) coils, and in Low (0.24mV) or High (0.48mV) Output versions. For more information, call GT Audio on +44(0)1895 833099 or click on www.gtaudio.com.

THE FLAT PACK

Tired of your prized vinyl going up and down like a helter skelter as soon as you spin up your platter? Then Furutech have the answer in the shapes of the DVF-I Record Flattener! A one-stop, one-button solution to your drastic plastic problems, it uses a carefully controlled heating and cooling cycle to flatten all your warped records, even those with only slight irregularities that still unsettle your cartridge causing mistracking. Just unlock and open the DVF-I, place the LP on the spindle, close and tap a single button. An LCD keeps you informed of progress with a tone sounding when done. Right from the oven to your platter! Price is a very reasonable \$1,480...

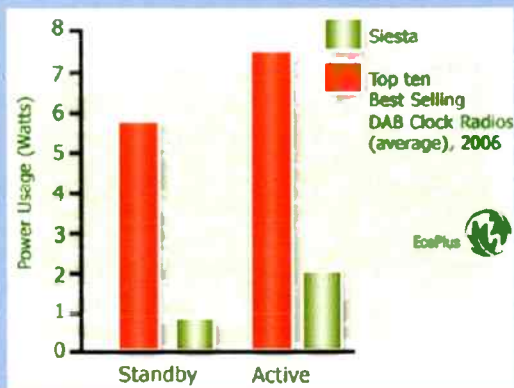
Contact Metropolis Music on +44(0) 1435 867438 or click on www.furutech.com



THE SECOND COMING

LG Electronics, the first company to introduce a dual-format high-definition disc player, today unveiled its second-generation LG Super Blu Player, the BH200. Available soon in the UK, it is capable of playing both Blu-ray and HD DVD discs, meaning customers can choose from the widest variety of high-def content regardless of

format. With full networked interactivity available from selected HD DVDs, and the capability to handle networked "BD-Live" interactivity in forthcoming Blu-ray discs, the player also accepts additional entertainment content via a network connection, making for an unmatched entertainment experience, says the company. In addition to supporting the latest high-def disc technologies, the Super Blu Player supports audio CDs and the ability to upscale standard DVDs to 1080p resolution. It plays various A/V formats, including MPEG-2, VC-1, H.264 video, MPEG1/2 audio, Dolby Digital, Dolby Digital+, DTS and DTS-HD audio. For more information, click on www.lge.com.



GREEN SMART SIDE

Wry observers may have detected the apparent contradiction between the BBC's sympathetic treatment of environmental issues and the way it has championed DAB – because the latter doesn't sit comfortably with the former, thanks to the prodigious current consumption of Digital Radios! As anyone who's ever tried to run a DAB portable on batteries will know, the units guzzle electricity like a Hummer gulps gas. With this in mind, it's nice to see Pure Digital addressing the issue – their so-called 'EcoPlus' project sets standards within Pure for reduced power consumption, use of materials from recycled and sustainable sources, packaging size and use of components with minimised environmental impact. Pure's Siesta was the first EcoPlus product to be launched, and since then Evoke IS, Tempus-IS and Chronos iDock have all been added to the EcoPlus family. The company says it has also made a significant commitment to reduce the power consumption of its existing products. See www.pure.com/ecoplus or call +44(0)1923 277 488.

BLACK HEAD

The range of Lehmann Black Cube electronic products has been extended with the launch of the USB Headphone Pre Amplifier, said to "turn a computer into a high end music source", no less! The USB input works with virtually all computers accepting connections from USB 1.0 onwards and working with sample rates up to 48kHz. There is an additional analogue input with gold-plated RCA and 3.5mm jack connectors with loop through, and input selection is automatic with the USB connection being



given priority. Via its zero global feedback Class A output stage, practically every high quality dynamic headphone available will show the best possible performance, be they easy to drive low impedance headphones or an inefficient pair of 600 Ohm studio cans, importer Henley Designs says. Carefully selected components and a highly sophisticated circuit design, including low-ESR electrolytic capacitors and Burr Brown audio grade components are used. The £750 Lehmann USB Headphone Pre Amplifier is housed in a high-quality non-magnetic aluminium case, and comes in a choice of anodised black or silver finishes. To find out more, visit www.henleydesigns.co.uk.

BURN IT UP

Atlas Cables has introduced a special CD for demagnetising hi-fi systems, components, loudspeakers and cables. The £10 'Burn-In and Demagnetising Disc' carries a continuous audio track which sounds like a series of tones rising and falling in amplitude and frequency. These have been calculated mathematically to remove magnetisation that builds up in components because of the asymmetric nature and sudden stops and starts of real music audio signals. The signal on this Atlas CD is a 'stressful' signal which exercises the system thoroughly, particularly the interconnect cables, says Atlas. The signal is continuous for nearly eleven minutes and so can be set to repeat in order to achieve the recommended several hours of burn-in for a system. To find out more about Atlas Cables call 01563 572666, or visit www.atlascables.com.

WEATHER REPORT

The new Boston Acoustics SoundWares are described as "the great sound anywhere loudspeaker", designed for indoors and outdoors, in a choice of seven colours. The unique polyhedron shape and articulated mounting brackets make them easy to fit in tight corners, while each speaker features a 4 1/2" driver and a powerful 3/4" tweeter built into a tough high-tech plastic cabinet. Vital statistics are 157x157x167mm and 2.22kg each, with 87dB claimed sensitivity and 100W power handling. For more information, click on www.bostonaoustics.com or call +44(0)1753 287 947.



Spaced Out

Until recently the Jupiter was Rega Research's flagship CD player, but now it's the Saturn. David Price is star-struck...



Some twenty five years after the digital audio disc touched down on planet Earth, new things are finally afoot in the Compact Disc cosmos. For some manufacturers at least, the days of sticking any old laser mechanism in a box with the latest and greatest DAC-and-digital-filter-on-a-chip are gone. As last month's sub £1,200 group test showed, there are some quite sophisticated designs around now, offering everything from bespoke mechs with clever 'lazy servos' to very elaborate upsampling systems...

Having spent a week besieged by sub-£1,200 CD players last month, I thought it only right that I should try Rega's brand new offering in this hotly contested section of the market. It too brings various clever tricks to the party, from the rare top-loading mechanism to a unique 'operating system' that optimises itself for each CD. Indeed the list is long, and it makes the player an extremely interesting bit of kit – as you'll see, it's not just another 'me too' design to field a product in a lucrative market sector...

First and foremost, the Rega Saturn looks and feels like no other

machine at or near the price. Its top loading mechanism works superbly – there's something very nice about dropping a disc down into a machine rather than 'posting it' via an invariably (at this price) cheap feeling disc drawer. The use of such a top-loading system removes at a stroke my biggest problem with its rival CD players – their nasty, noisy, wibbly-wobbly trays.

Rega calls the loader a "ball chucking" system. It found that, when using the old magnetic puck system, there was some misalignment between the CD and the motor spindle chuck, whereas the ball chuck ensures a tighter fit and alignment between the disc and motor spindle – this reduces the eccentricity of the CD on the mechanism motor spindle, says designer Terry Bateman.

Push a CD onto the spindle, drop the lid down (it's lightly damped, so you simply let it lower itself), and you're greeted by the word 'INITIALISING' on the wonderful red display (reminiscent of a nineteen seventies LED digital watch, the sort that wowed the world in James Bond's 'Live and Let Die'). Unlike many CD players these days which seemingly take ages to load because

they're simply DVD player mechs, the Rega takes its time because it is setting itself up for the exact disc inside it.

In Bateman's words, "the optical, focus and tracking servos and amplifiers are calibrated to the disc to get the best possible use of the 'range' available to the CD servos, amplifiers and decoders". Think of it as a sort of twenty first century 'Biotracer' system for the laser, which ensures that the Saturn can read any disc, new or old, mint or scratched to oblivion, in the optimal way – to give best data retrieval off the disc.

Next comes the master clock, which is provided by a high stability, low jitter crystal oscillator module. This runs an advanced error correction system, based around the forward reading of the CD. Rega says the Saturn runs typically eight to ten seconds in front of the actual disc play, letting the transport make multiple attempts to read the disc. The datastream is stored in a DRAM audio buffer while it's queuing to be played.

This is obviously derived from the 'shock protection' systems found in portable CD players (remember them?!). Bateman says, "there are



some advances in the technical design of portable players which can't be ignored... the Saturn's CD processor can be seen as a dedicated high performance DSP unit which has more in common with powerful computer processors than the more traditional CD's kit".

Moving on to the DAC section, we find two Wolfson WM8740 dual differential converters working in parallel, to improve both dynamic range and linearity. They're mounted on a large double-sided PTH PCB with generous ground planes, and as you'd expect from any serious audiophile manufacturer, care has been taken with powering these and the analogue section.

Indeed, there are two main power supplies courtesy of the chunky 60VA toroidal transformer. Digital and analogue sections of the player have their own secondary windings for good isolation between the two main supplies. These feed nine separate supplies for the CD processor, motors, user interface micro and DAC, etc. The filter and analogue output stage employ a Cascade pair discrete Class A amplifier using low base spreading resistance transistors, and are supplied from a low impedance supply via Nichicon Fine Gold audio-grade capacitors and fast rectifier diodes, along with Evox film capacitors.

The Saturn is visually identical

to its Apollo little brother, which means the same custom extruded aluminium case and 'Playschool' transport controls ("what's through the round window today?", etc.) The Saturn adds a solid aluminium front

AT3500 to justify its place in the great silver disc spinner scheme of things...

Well, it did – just. The new Rega Saturn is a very capable CD player, offering a different presentation to

"a stellar product that puts Rega back at the top of the affordable CD player stakes..."

panel, but both Rega players are an ergonomic triumph - the double hinged lid being smooth and slick in operation, and the lack of clutter on the front panel proves a beacon of light in a sea of miserable CD fascia designs. Finish is either satin black or satin silver.

Shame we can't say the same of the new handset, which isn't bad but – as I always say – isn't a patch on that supplied with the £250 Cambridge Audio 640C. Round the back, you're limited to RCA line level outputs and Toslink' and coaxial digital outputs plus a central IEC mains in – that's your lot!

SOUND QUALITY

Given the stellar performance of the similarly priced Astin Trew AT3500 in last month's CD group test, I thought it only fair to throw the Saturn into the deep end and do extensive A-B comparisons with it. Because the Astin Trew beat all comers, the Saturn would have to match the

the Astin Trew that some will prefer and others will not. Either way, it's fair to say that it's a super performer at the price, and a safe place to sink £1,298 if you're that way inclined.

I kicked off with an old favourite of mine, the Pet Shop Boys' 'Being Boring' from 1990's 'Behaviour'. A beautiful song with a slick production



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and a mix brimming with percussion and wah-wah guitar, I kicked off with the reference Astin Trew, and was rewarded with the big, fat, expansive sound that so impressed me last month. Moving to the Saturn, it was obvious which of the two machines had the tube output stage, as the solid-state Rega sounded obviously tighter and more accurate.

Whereas the AT3500 threw up a lovely mellifluous wall of sound, the Saturn was altogether more measured and precise – but no less musical. The soundstage fell back slightly; whereas the AT throws it all at you in one exuberant surge, the Rega is a tad more circumspect, imaging behind the plane of the speakers rather than in front, and weaving a slightly less joyful but more intricate picture of what's going on in the mix.

Most impressive for me was the delicacy of the Saturn. You get a less euphonic rendition of the music than the Astin Trew, with superior low level detailing. For example, it was easy to pick up on the drum machine running through the duration of the track, while with the AT3500 this seemed a tad lost in the deep and wide analogue synth pads running at the back of the mix.

While the AT3500 had an almost hypnotic immediacy with Sting's vocals in 'Wrapped Around Your Finger' from the new Police greatest hits CD package, the Saturn again seemed a little more reserved. Less emotionally free, it instead relied on its superior detailing, dimensionality and finesse to impress. Whereas that tube output stage adds a touch of silk to the Astin Trew, the Rega is an altogether more neutral sounding machine, closer - for example - to the likes of Cyrus's CD8x but with the superior insight you'd expect for the extra money. Stewart Copeland's machine-gun snare drum breaks were both finely etched and dynamic via the Saturn, while the reference AT3500 was no less impactful, but seemed to succeed through sheer brio rather than grip.

Donald Byrd's 'Streetlady' was a delight through both machines. Whereas the AT just got down and boogied, the Saturn told you fractionally more about what was really going on in the mix. I was also more impressed by the Rega's soundstaging; it was in absolute terms slightly less expansive left to right, but went considerably deeper and offered better accuracy in terms of image placement. The reference player painted vast brush strokes, giving a tremendously capacious sound but the Rega seemed

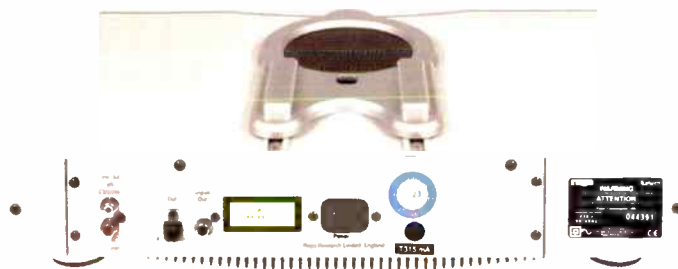
altogether more finessed, telling me exactly where every instrument was in the mix – albeit across slightly smaller canvas.

Tonally, the Saturn proved very neutral. Once again, with the Astin Trew you are aware you're listening to a CD player with a valve output stage (as per the Shanling CD-T80 and Eastern Electric Minimax, also thus equipped), whereas the Rega seemed less fulsome but tauter in the bass, and less sweet but more detailed in the midband. This was especially noticeable with classical programme material – the brooding choral music of Capella Nova's 'Tenebrae' (on Linn Records) was a points win to the Rega, which showed a breathtakingly deep recorded acoustic and voices with an eerily natural and haunting quality. Moving to Astin Trew, and it gave an equally enjoyable rendition, but left the feeling that it had airbrushed things a touch.

Downsides? Well, as I've said, it's not quite as huge left-to-right as the Astin Trew (but the latter is almost supernaturally wide, and you can't help thinking that tube output stage is gilding the lily somewhat here), and it doesn't have the strongest bass I've ever heard. Although it shouldn't be considered lightweight low down, it nevertheless fails to get truly subterranean like my long-time reference Marantz CD63 KI DP, or indeed approach its innate tunefulness or sense of ease. Still, this is not comparing like with like – at the price the Rega is virtually faultless.

CONCLUSION

The Rega Saturn is surely one of the finest CD players at the price. It has impressive grip, detail and finesse, and throws out a deep,



REFERENCE SYSTEM
 Astin Trew AT3500 CD player
 Marantz CD63 KI DP CD player
 Sugden IA4 integrated amplifier
 Yamaha NS1000M loudspeakers

capacious soundstage whilst stringing everything together in an unerringly musical way. The result is always a highly engaging performance across all musical genres that many will love. I also adore its operational quirkiness – everything from the retro digital display to the disc loading drawer – and feel its build to be very effective too. A stellar effort from Rega then, one which puts this charismatic British company right back at the top of the affordable audiophile CD player stakes.

VERDICT ●●●●●
 Highly charismatic design with a neutral and open yet highly musical sound. One of the very best CD players at the price.

REGA SATURN £1,298
 Rega Research
 +44(0)1702 333071
 www.rega.co.uk

FOR

- smoothness, finesse
- lucid midband
- excellent bass grip
- design, ergonomics

AGAINST

- nothing at the price

MEASURED PERFORMANCE

Measuring the frequency response of the Rega threw up some unusual difficulties. The Saturn would not reproduce a short impulse at all, unlike nearly all other players, but with a few exceptions (e.g. Pioneer's Legato Link). With a gliding tone it cut off at 16kHz, as our analysis shows, but with steady tones it reached 20kHz (-0.45dB).

There seems to be a time-related issue here, with short term or fast events not being processed. Whether this will be audible and subjectively consequential can only be decided in listening tests. This phenomenon apart, the Saturn has a flat frequency response within fine limits from 2Hz - 20kHz.

Distortion levels were a little above what's possible, the measured -60dB value of 0.24% being a trifle higher than ideal, resulting in an EIAJ dynamic range figure of 109dB, where 112dB is achievable.

Output was normal at 2.1V, and noise low at -108dB. Jitter from the digital output was also low, not as clean as some players (e.g. Cyrus, Arcam) but hovering around 10ps except below 100Hz and above 20kHz where levels of 50ps were reached.

Measurements show the Saturn differs from the norm in its digital processing, but it still measures well all round. I would expect a smooth sound, but possibly with less incision than usual.

NK

Frequency response (-1dB) CD	2Hz-20kHz
Distortion	(%)
0dB	0.005
-6dB	0.003
-60dB	0.24
-80dB	2.2
Separation (1kHz)	110dB
Noise (IEC A)	-108dB
Dynamic range	109dB
Output	2.1V

FREQUENCY RESPONSE

DISTORTION

THD	Input RMS	Frequency
CH1 0.0051057 %	30.01 dBu	1.00000 kHz
CH2 OFF	OFF	OFF

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Power Struggle

Despite the popularity of both multichannel sound and pre/power amplifier setups for two channel use, the humble integrated amplifier goes from strength to strength. Adam Smith lines up five candidates from Anatek Acoustics, NuForce, Cyrus, Roksan and Sugden to gauge just how healthy the breed is...

With the advent of the modern technologies that are wowing people, like Digital amps and High Definition Surround-Sound, it is a surprise to some that the humble, simple two channel amplifier is still holding its own in sales terms. Within the multi channel system, which hinges around a big A/V amplifier or receiver, the stereo amplifier is of little use. Unless you add extra channels to a stereo system, using the likes of a Yamaha DSP-E800 or similar, then you will probably have traded up from stereo to one of the aforementioned monsters and left your old two channel amp behind.

Even in two channel circles, the stereo amplifier has faced a healthy dose of competition. First there are the likes of the impressive all-in-one systems like the Arcam Solo, Shanling MC-30 and Consonance Forbidden City Ping, all of which add fine amplifiers to handy extra features and facilities that reduce your box count. Then, of course, the MP3-ers out there can consider an active loudspeaker system like the Audioengine 5s reviewed on P25, which take the output from your MP3 player and contain all the necessary gubbins to turn your files into music.

But, naturally, the amplifier is still thriving within hi-fi circles, right? Well, yes, up to a point. The trouble is that, as most audiophiles move up the audio ladder, one of those big steps invariably involves going from one amplificatory box to two (or more) in the form of a separate preamplifier and power amplifier. Obviously we all know the advantages that this brings, but I cannot help but feel that we may be missing a trick or two here...

You see, if you consider our reviews of the sublime Luxman L-550A back in the June 2007 issue of *Hi-Fi World*; the Sugden A21a Series 2 in August; the Almarro A318B and Plinius 9200 in September and the Shanling STP-80 last month, it is quite clear that the one-box integrated amplifier is not going to go quietly!

With this in mind, we decided to wheel the latest version of our old friend the Sugden, back in and have a listen to it against a few of its contemporaries around the £900-£1,600 price point. This is a region where you can indeed start to venture into pre/power territory so we were keen to find out just how well our contenders fly the flag for single box amplification...

REFERENCE SYSTEM

Pioneer PLC-590/SME M2-10 turntable
Ortofon Rondo Bronze cartridge
Anatek MC1 Phono Stage
Eastern Electric MiniMax CD player
Spendor S8e loudspeakers
Kibri Naima loudspeakers

THE CONTENDERS

Cyrus 8vs2	£800	p16
NuForce IA-7 V2	£875	p17
Roksan Caspian M1	£1,000	p18
Sugden A21a Series 2	£1,300	p19
Anatek A50R	£1,600	p20



CYRUS 8vs2 £800

A stalwart of the integrated amplifier market, the Cyrus 8 has been updated to 'vs2' status by virtue of a few internal improvements and tweaks, some of which were brought about by Cyrus making changes in order to meet RoHS compliance in both their manufacturing processes and materials used.

As a result, Cyrus state that "particular attention has been paid to every single signal processing component within the preamplifier stage" and claim considerable sonic improvement over the older Cyrus 8. With the company's traditionally svelte styling, the 8vs2 features six line level inputs, plus a tape loop and preamplifier output. There's a socket for the optional (£400) PSX-R power supply that cleverly divides up things so that it powers the preamplifier section, leaving the 8vs2's PSU to concentrate solely on the power stages. Measuring 75x215x360mm (HxWxD) the Cyrus is equally as neat as the NuForce but is a little heavier at 5.5kg, compared to the 3.6kg of the IA-7V2.

SOUND QUALITY

A very even-handed performer with a pleasing sound balance across the frequency spectrum, it offered great consistency with all types of music considering its lowly price (at least in the context of this group). Bass was fulsome, with excellent weight which could sometimes make its presence too obvious in the reference system.

Equally, the midrange offered excellent detail to vocals and instruments, which pushed out into the room with gusto - in the case of the Norah Jones disc, a touch too much! At the price, the Cyrus's soundstage was decently expansive but not quite up to the pricier rivals here - but the optional PSX-R really opens up the recorded acoustic beautifully, and is something for owners to seriously consider at a later date.

Where the Cyrus excelled was at the top end, with a sweet, melodious and insightful treble that never once

veered towards harshness, showing just how well solid-state design has progressed over recent years. Percussive instruments were light and agile, but with excellent form to them, the Cyrus well able to separate each cymbal strike from the next.

A fine design at the price then, with superlative build, great styling and an unerringly sweet and nicely detailed sound. By the standards of amplifiers costing several hundred pounds more, it wasn't quite there, but there's always that option of the PSX-R power supply to take it to the next level...

MEASURED PERFORMANCE

Cyrus amplifiers traditionally produce little distortion at any frequency and the 8vs2 follows this precedent. Measuring 0.0010% in the midband and 0.003% at 10kHz, distortion was very well suppressed at low levels. Better still, the distortion spectrum comprised mainly second and third harmonics, which at this level would be undetectable. Even at high powers the Cyrus was relatively distortion-free. An unusually high damping factor of 96 suggests that this is a high feedback design. Cyrus amplifiers always sound easy and relaxed, and this is likely one reason why.

Power output measured 85 Watts into 8 Ohms and 144 Watts into 4 Ohms, so in spite of the small case there is more than enough power for domestic hi-fi systems. Under test the amplifier got hot though, but there is thermal protection to prevent this causing damage.

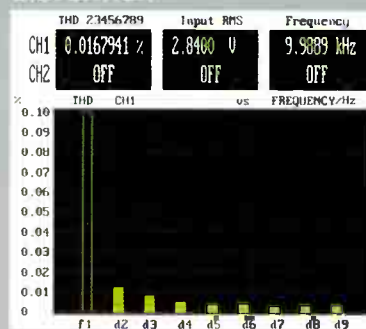
Low frequency response reached down to 0.4Hz, which is unusually low, whilst the high end reached 51kHz (-1dB). Input sensitivity was high

at 270mV and measured noise was pleasingly low.

The 8vs2 offers a neat measured performance reflecting how well liked this amplifier has become. NK

Power	85 Watts
CD/tuner/aux.	
Frequency response	0.4Hz-51kHz
Separation	70dB
Noise	-90dB
Distortion	0.003%
Sensitivity	270mV
Damping factor	96

DISTORTION



●●●●●

Pleasingly even-handed performer with unique styling and upgradeability, plus excellent build and finish.

CYRUS 8vs2 £800
 Cyrus Audio Ltd.
 (+44(0)1480 410900
 www.cyrusaudio.com

- FOR**
- sweet treble
 - fine detail
 - build quality
 - upgrade path

- AGAINST**
- loose bass



NUFORCE IA-7 V2 £875

The second version of NuForce's diminutive integrated amplifier, the IA-7 V2, shares the same stylish casework as its preamplifier and power amplifier brethren, measuring 56x215x395mm (HxWxD) but packs a goodly amount into that small space. Rated at a healthy 100 watts per channel, the IA-7 V2 makes good use of NuForce's digital amplifier technology in order to achieve this output without the side effects of inefficiency and the need for huge heatsinks.

The IA-7 V2 comes in two versions, both with four line level inputs. One has two through phono sockets and two through 3.5mm jack sockets, and has a pair of preamplifier outputs in addition. Our version has four pairs of phono inputs but number four can be internally reconfigured to act as a preamp output if you prefer. Instructions on how to do this are in the manual, and NuForce supply little stickers to suitably rename the input - a nice touch! Also supplied are control knobs in black, silver and gold to match your room, other equipment or mood.

The IA7V2 also comes with a small remote handset that covers the basic operational functions but, sadly, it's not the Globie-winning metal item that the P9 preamplifier uses.

SOUND QUALITY

My first observation was how dismally slow the IA-7 V2's remote volume control is - 26 seconds from zero to normal listening level no less! However, with the volume finally raised,

the wait proved to be worth it and the IA-7 V2 showed just how far the digital amplifier has come recently.

Most noticeable over the Cyrus was the midrange projection and nicely enveloping soundstage that the NuForce generated. Performers spread themselves out well and, although the midrange could become rather hard and a little steely when pushed, the IA-7 V2 gave excellent detail across the midband and treble, offering a smooth crispness to the

performance.

Bass was lighter than the Cyrus but offered up good levels of detail and remained taut at all times. Able to follow complex rhythms well, the NuForce has a dynamic and pacy nature, almost sounding like a turntable running slightly fast at times (in a good way!) It never fell over itself or became ragged and really hits the dynamic hotspot, yet it can slow down and play subtly when needed.

MEASURED PERFORMANCE

Like previous NuForce amplifiers, this one measures distinctively. Whilst distortion remains low in the midband at any power, at high frequencies it rises rapidly with power, hitting 0.5% at high output, and peaking at 0.8%, which is worse than conventional amplifiers. Mitigating this somewhat is the fact that the amplifier is very powerful, and if it isn't pushed hard distortion will remain below 0.3%. Unfortunately, the distortion harmonic structure is extended, not having the smooth decay of an analogue amp, so some glassiness may be evident in the treble.

Into an 8 Ohm load frequency response showed a pronounced high frequency lift, enough to be audible, measuring +1dB at 25kHz and reaching +1.3dB at 40kHz. Into a 4 Ohm load this lift in output lessened to +0.6dB, but may still add a sheen to the sound.

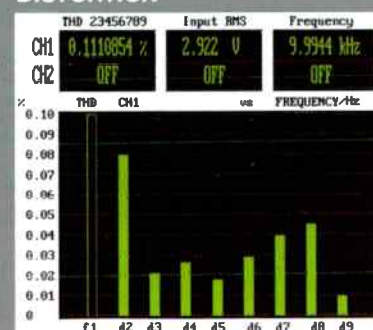
Input sensitivity measures a very high 80mV, so any source can be accommodated, and volume will rise quickly. Steady sine wave power measured 120 watts into 8 Ohms. Current limiting prevented steady sine wave power being measured into a 4 Ohm load, but with sine bursts, the NuForce delivered 144 watts into 8 Ohms and 240 watts into 4 Ohms, so it has plenty of welly. I should also mention that 26V D.C. exists on both output terminals, protection circuits

preventing blow up if either is shorted to ground.

The NuForce will likely sound bright and fast. At low volumes its high frequency distortion should not be noticeable, but this could change if it is driven hard, then the sound may harden up and become a little coarse, or edgy. Bass will be influenced by a low damping factor. NK

Power	120 Watts
CD/tuner/aux.	
Frequency response	8Hz-80kHz
Separation	74dB
Noise	-77dB
Distortion	0.07%
Sensitivity	80mV
Damping factor	12

DISTORTION



VERDICT ●●●●£

Dynamic, exciting sounding amplifier with compact dimensions and a good range of connectivity options.

NUFORCE IA-7 V2 £875

Distributed by HiAudio

+44(0)845 0525259

www.hiaudio.co.uk

FOR

- midrange and treble unity
- soundstaging
- power
- styling

AGAINST

- lightweight bass
- dismally slow remote volume!



ROKSAN CASPIAN M-1 £1,000

Although known initially for their turntables, Roksan have continued to impress over the years as their ranges of electronics go from strength to strength. The Caspian series was the top of the range above the Kandy series, until the recent launch of the Platinum models, and the range consists of a preamplifier, stereo and mono power amplifiers, CD player, tuner and phono stage, as well as the integrated amplifier under consideration here.

The Caspian M Series-I integrated is a very neat unit, measuring 70x432x330mm (HxVxWxD) and weighing a sturdy 12kg. It is available with both black and silver front panels, the black looking far nicer to my eyes. The Caspian is supplied with a remote control handset that allows full control of a complete Roksan system and, I have to say, is suspiciously similar to that of the Cyrus amplifier!

Input count is five at line level and there is a proper tape loop for those of you with cassette decks still going strong, as well as preamplifier outputs and a power amplifier input. Recent upgrades to the Caspian include higher quality capacitors and transistors, plus an improved power supply, from which Roksan promise further sonic benefits.

SOUND QUALITY

The Roksan has a traditional transistor-like presentation, but as it is a good one, this is definitely no bad thing. The Caspian has the heart of a rocker, pure and simple, and

is never happier than when getting down and dirty with a rock anthem or a dancefloor beat. That's not to say it cannot do soft and subtle - as it can, and does it very well - but it has the sort of presentation that will have you rummaging through your music collection looking for the noisy stuff!

Bass is plentiful and deep with excellent pace, however it could become a little bloated at times. This was noticeable on both the Spondor and Kibri loudspeakers, so it is part of the sound of the amplifier, rather than a damping factor issue. That said, however, low end detail was plentiful and the Caspian never sounded

overtly boomy.

Midrange insight was excellent, with the Caspian conferring good stability and emotion to vocals, and projecting absolutely everything, from the whisper of a flute to the pounding of a kick drum, right out into the room. Where it did lose out somewhat, however, was in depth behind the soundstage, as this was a little curtailed.

Treble was both sweet and crisp, with excellent top end insight. As mentioned, the Caspian has a definite transistor balance but does not sound hard or harsh at any time and it offers an enjoyably dry, clean sound that will suit many systems.

MEASURED PERFORMANCE

The Caspian develops 78 Watts per channel into 8 Ohms and 132 Watts into 4 Ohms, so it has plenty enough power for most purposes. Only those who want to play very loud in a big room are likely to need more. A high damping factor of 86 suggests it has plenty of feedback and distortion figures were low as a result.

Crossover distortion does exist, as would be expected from a traditional class AB design, but this is only at low levels, hovering around 0.02% at 10kHz, for example. This was as bad as it got, which isn't bad at all, so the Caspian has been well designed.

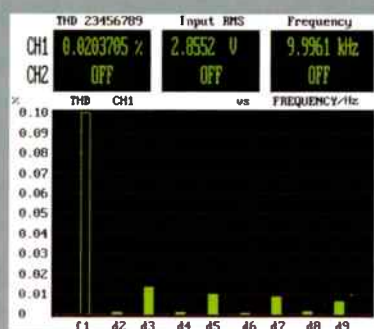
Measured frequency response was wide, stretching from a low 3Hz all the way up to 76kHz (-1dB). When considering that this is coupled with good power supply regulation and the high damping factor, the Caspian is likely to give tightly controlled bass and should offer a lively performance.

Input sensitivity measured a reasonably high 260mV, sufficient to match virtually all sources. There was no measurable hum and very little noise. In true Roksan tradition, the

Caspian's a tidy design that measured well in every area. It should sound dry, clean and punchy. NK

Power	78 Watts
CD/tuner/aux.	
Frequency response	3Hz-76kHz
Separation	81dB
Noise	-104dB
Distortion	0.018%
Sensitivity	260mV
Damping factor	86

DISTORTION



VERDICT

Very gutsy performer with an addictively rhythmic quality, plus fine build and neat styling.

ROKSAN CASPIAN £1,000
Henley Designs
 ☎ +44(0)1235 511166
 www.roksan.co.uk

FOR

- sonic gusto
- clarity and insight
- build quality

AGAINST

- bass occasionally flabby



SUGDEN A21a SERIES 2 £1,299

A perennial favorite with the whole *Hi-Fi World* team, the A21a Series 2 is the latest incarnation of the classic A21 class A integrated amplifier that can trace its heritage back to the late 1960s. Since then, the A21a has lost its teak case and mono switch, but gained much more, including more power, new power supplies and remote control!

Build quality is also superb, with a 10mm thick metal fascia, available in titanium or graphite, plus control knobs directly descended from the Masterclass series. The A21a Series 2 has five line level inputs, although one is labelled 'phono'. If you spend an extra £100, however, this can be internally converted to an MM/MC phono stage.

The sides of the amplifier are dominated by large heatsinks, necessary to dissipate the heat generated by Class A operation. These go a long way to explaining the fact that it weighs in at 11kg, despite modest dimensions of 92x430x50mm (HxWxD). This heat generation also means that it needs to be kept in a well ventilated location and away from inquisitive young fingers.

SOUND QUALITY

The Sugden is, in many ways, a quite different sounding beast to the other contenders on test, as it has eerie smoothness and insight. Midrange was open, inviting and emotive, endowing performers with a strong sense of stability in a soundstage that projects well out from the

loudspeakers and is impressively wide beyond them.

To back this up, the Sugden has a sweetness and clarity to its treble that is a delight to behold. The A21a really does offer startling insight into recordings but without the glacial hardness that can sometimes accompany this type of nature. It also has an almost intimate quality to its performances; you really do feel that you are alone with the musicians and that nothing should be allowed to interrupt their private performance

for you.

Bass is deep and tuneful but, thanks to its low damping factor, it can be a little bloated with underdamped loudspeakers such as the Spondors. Connecting the Kibri Naimas, however, removed this problem completely, and the A21a Series 2 proved to be a healthy groover when matched to the right partner. Bass lines were confident and flowing, with a spot-on sense of timing.

MEASURED PERFORMANCE

The A21a Series 2 is similar in performance to the original A21a, producing just 20 Watts into 8 Ohms over short periods; it was tested with tone bursts to avoid its overload protection. This is much as before, but power into 4 Ohms has risen to 32 Watts, twice as much as its predecessor. As loudspeakers commonly use 4 Ohm bass units these days, improved power output here is a help. Otherwise, the A21a Series 2 looks much like before. Sensitivity seems to have sunk a little, but it is still high at 200mV, meaning the amplifier continues to work with any source, even old valve tuners like the Leak Troughline. Lower gain has reduced measured noise levels.

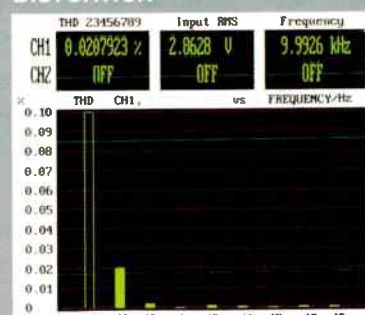
The amplifier still produces more distortion at higher levels than is common nowadays, especially into a low 4 Ohm load where THD reaches around 0.4% near full output. However, second harmonic dominates most of the time, as our analysis shows, and upper harmonics fall away smoothly in a natural decay pattern similar to that of musical instruments, which makes its presence difficult to detect. Interestingly, damping factor is on the low side at 16, much like Naim

amplifiers. This tends to make bass a little more obvious from most loudspeakers.

The A21a Series 2 offers much the same performance as before, but with greater current delivery into low loads. NK

Power	20 Watts
CD/tuner/aux.	
Frequency response	5Hz- 32kHz
Separation	80dB
Noise	-95dB
Distortion	0.02%
Sensitivity	200mV
Damping factor	16

DISTORTION



VERDICT

Sumptuous sounding amplifier with an open and inviting nature allied to an innate musicality that makes listening a pleasure.

SUGDEN A21A S2 £1,299

J.E. Sugden & Co. Ltd.

(C)+44(0)1924 404088

www.sugdenaudio.com

FOR

- treble sweetness
- midrange insight
- revealing nature

AGAINST

- runs very hot



ANATEK A50R £1,600

Anatek Acoustics are another small company that continue to make use of totally UK-based design and manufacturing facilities, and are becoming a force to be reckoned with as a result of their high quality preamplifier and power amplifiers, along with the rather spiffing MCI phonostage. New to the game, recently, however, is the latest version of their A50 amplifier, the A50R.

Incorporating several improvements over the older model, not least in terms of styling, the A50R is a neat unit with a very simple appearance, but a sturdy feeling to it, weighing in at 8kgs and measuring 100x440x330mm (HxVxD). Anatek make use of a patented output circuit which they claim gives the sonic benefits of Class A but without the penalties of heat and power consumption. This seems to work as the A50R never gets too hot when running.

Input count is six at line level, selected via an electronic rotary control, and Anatek supply a remote, which also adds an instant mute facility. One quirk noticeable during listening, which was also observed during measurement, was that the input sensitivity is low, requiring the volume control to be cranked up more than usual in order to achieve normal listening levels.

SOUND QUALITY

The Anatek immediately leapt into the fray with the best bass of the group. Its high damping factor no doubt helps here,

but through both the Spondor and Kibri loudspeakers, bass lines were absolutely rock-solid, lightning-fast and superbly controlled. It has a dizzying sense of grip and picks out absolutely everything at the low end, missing no rhythmical inflections in the process. Fortunately, things were just as good higher up the frequency range.

The A50R's midrange has a lovely sense of realism that sets up a pleasing sense of imagery to performances. However, vocals did seem a little more distant than usual but this actually had the side effect of

adding atmosphere to proceedings. Also noticeable was the fact that the Anatek seems to trade a little smoothness and insight for more dynamic gusto.

Treble is crisp and insightful, adding marvellous definition to the leading edges of instrumental notes. Firmly struck cymbals rang out with impressive clarity but without becoming splashy or glaringly hard. This amplifier strikes an excellent balance between offering emotion and insight, whilst also making sure that you miss nothing at all at the very top end.

MEASURED PERFORMANCE

The A50R delivers a modest 50 Watts into 8 Ohms, but this almost doubles to 90 Watts into 4 Ohms. As most loudspeakers these days use 4 Ohm bass units this is effectively their impedance where power transfer matters so the A50R will deliver healthy power in real life.

This amplifier has classic crossover distortion, even in the midband. Crossover is worst at low outputs and high frequencies and, sure enough, delivering just 1W at 10kHz the A50R produced 0.21% of crossover distortion - not an impressive performance by modern standards, as comparison with the other amplifiers shows. I would expect this to have some slight subjective effect, possibly as some lack of smoothness or refinement.

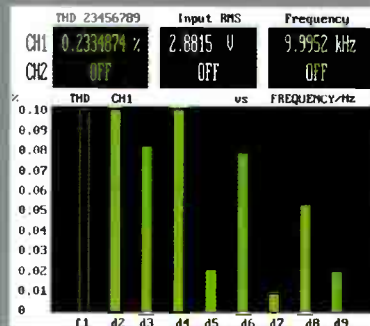
Input sensitivity is very low, at 0.84V too low for many sources, if satisfactory for CD. The volume will always be set higher than usual as a result. Output damping factor was high at 87, suggesting good loudspeaker control and fairly tight bass.

In measured terms the A50R is below what is expected nowadays from a modestly powered solid-state

amplifier. However, that doesn't write it off, as many factors affect sound quality. Listening tests are the best judge. NK

Power	50 Watts
CD/tuner/aux.	
Frequency response	3Hz-34kHz
Separation	66dB
Noise	-117dB
Distortion	0.21%
Sensitivity	840mV
Damping factor	87

DISTORTION



Verdict Fine integrated that combines a spectacular sense of bass grip and control with a pleasingly dynamic nature.

ANATEK A50R £1,600
Anatek Acoustics
 +44(0)1903 524602
 www.anatekacoustics.co.uk

FOR
 - bass control and detail
 - treble insight
 - dynamic nature

AGAINST
 - low input sensitivity



So the first question has to be - should you just save your money for a nice pre/power amplifier? On the evidence presented by the candidates in our test, my advice is don't be hasty. Yes, pre/power amplifiers have distinct advantages in terms of upgradeability and mixing and matching, but it would appear that the integrated amplifier is indeed alive and kicking...

The only complaints I can think of apply to all the amplifiers here and concern their remote controls - I cannot remember when I last saw a more depressing selection of cheap and plasticky units. Regular readers will know what I'm going to say next and so I shall merely issue a reminder that the cheapest unit here costs £800, and a Cambridge Azur 640A, with a proper custom-designed, metal-faced handset costs £300 - enough said, let's move on!

As far as the important stuff is concerned, namely the sound, this is a different matter. All the amplifiers in this test are fine units - there isn't a real duffer amongst them and all will do sterling service at the heart of a high quality hi-fi system. However, some are obviously better than others so let's go into more detail.

First to consider is the Cyrus 8vs2, the least expensive model on test. This is a very solid and well designed unit with a useful set of features and a fine performance. The fact that it can hold its own against contenders up to twice the price is of great credit to it but, ultimately, it does have one or two rough edges in terms of a loose bottom end and a slightly forward midrange that mean it needs sympathetic partnering to give of its best.

Next up is the NuForce IA-7 V2. In the current situation regarding carbon footprints and the like, this would be an obvious contender to

go for, on account of its efficient and powerful Class D amplification. It also sounds excellent: fast and dynamic with an enveloping soundstage and impressive midrange and treble clarity. Where it stumbles is in its rather lightweight bass performance which just fails to underpin that dynamic nature with a solid low end. Still, it is very worthy of serious consideration, given its overall performance and connection flexibility. Providing you can put up with that irritatingly slow volume control of course!

Next up is the Roksan Caspian. I always like reviewing Roksan equipment because you know exactly what you are going to end up with - a solidly designed, well built and fine sounding piece of machinery that offers a thoroughly enjoyable performance. The Caspian remains true to this theory and really does love to play a tune - pure and simple. Once again it does have a couple of mild rough edges but, through careful partnering, they can be accommodated. Take this carefully and you will be left with a fine amplifier.

However, there are two designs that stand out in this group, namely the Anatek A50R and, yes, our old friend the Sugden A21a S2. Considering the Anatek first, the A50R serves up the low end weight that others, notably the Roksan, come close to, but the it adds in a sense of grip, control and poise that puts it comfortably ahead of the pack. The Sugden, on the other hand, scores over the

A50R by offering that almost valve-like midrange and openness, but without the glossing over of some high frequency details that even the very best valve amplifiers can suffer from. Its bass is much improved over the older A21a but it still requires a modicum of care in loudspeaker matching to really optimise, whereas the Anatek will happily perform with virtually whatever you care to connect to it.

So which to choose? The grip, pace and verve of the Anatek, or the sheer, all-enveloping atmospheric loveliness of the Sugden? Ultimately, as I swapped between the two in order to decide, I realised the answer was staring me in the face. Every time I listened to the Anatek, I thought what a truly brilliant amplifier it was. When I plugged in the Sugden, I realised I was simply enjoying the music. The boys from Heckmondwike have done it again!

AND DON'T FORGET...

Just to complicate your decision even further, an honourable mention should also go to the Shanling STP-80. If you like your valves, you'll love it as it has that thermionic addictiveness and atmosphere by the bucketful. Add in excellent build quality and styling and a user-friendly layout and even valve doubters are highly likely to be persuaded; you would be daft to ignore it.

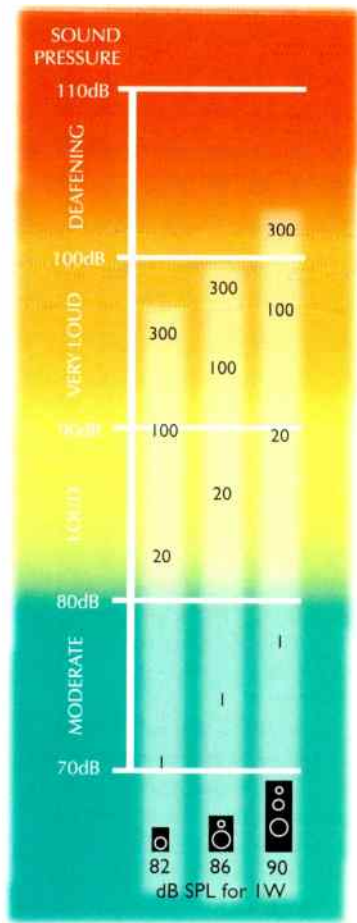
It does lack the bass control of the Anatek, requiring a degree of careful partnering due to a very low damping factor, and it misses out on the sheer lucidity and top end clarity of the Sugden but it's a lovely machine. It

also happens to have a high quality metal remote control handset which gives it an advantage straightaway in my book...



Power Games

Buying amplifiers just on the basis of their output power figures doesn't add up, says Noel Keywood...



Our diagram clearly shows how power requirement is affected by the loudspeaker and the maximum volume required...

POWER REQUIREMENT

Hi-Fi World isn't a magazine to place much emphasis on power output, for well worked out reasons. Our real life measurements simply confirm the common view developed long ago by people like Gilbert Briggs, founder of Wharfedale, that for most of the time we all listen at relatively modest powers of just a few Watts. Power jumps enormously, however, when volume is cranked from loud to very loud. Every time power is doubled you get a measly increase of 3dBW. So if I listen at 10 Watts (which I do), I need 20 Watts for a 3dB power increase, 40 Watts for 6dB, 80 Watts for 9dB and 160 Watts for 12dB. If I was listening at 90dB with 10 Watts, then I need 160 Watts for 102dB. Subjectively, this is a jump from loud to very loud, so a 12dB increase in volume doesn't seem so great, yet the power needed to produce it jumps massively.

Whereas with 10 Watts I could happily buy and use any amplifier in the market, including highly specialised valve single-ended types of typically around 9 Watts, directly I demand 102dB my choice narrows dramatically to a large solid-state design. So how loud you listen greatly affects what amplifier you can buy; just that little bit of extra volume can cripple choice.

An excellent way around this is to buy a sensitive loudspeaker, the drawback here being that sensitive loudspeakers are also big loudspeakers. The sensitivity figure to aim for is 90dB from 1 Watt, or higher and you can get this from a good, modern floorstander. Unfortunately, manufacturers are suspiciously sloppy when measuring

Last month we measured the large, but not impossibly big, Latvian RRR FS100s at 92dB, a very high sensitivity figure. Buy these and you can use low power amplifiers with ease. The Tannoy Yorkminsters I used measured 93dB and, sitting 5 metres away 15 Watt peaks were very loud, which demonstrates just how much loudspeaker sensitivity affects the issue of power requirement. If you are using an insensitive 84dB loudspeaker (say), then by all means aim for 100W or more, always bearing in mind that other issues start to creep in as power increases, such as the loudspeaker's ability to thermally dissipate high power in a small voice coil, and the extra distortion that arises from driving a small loudspeaker hard. Nothing comes for free!

AMPLIFIER TYPE

You are faced with three main categories here: conventional transistor amps, digital amps and valves. Conventional transistor amplifiers still do a great job and there is little intrinsically wrong with them at a technical level, when designed properly. Unfortunately, sound quality has, over the many years of their reign, been uninspiring, some have even been described as 'boring'. That was an accusation made in the late 1970s and, at that time, even 'perfect' amplifiers like the Hitachi HMA-7500 MOSFET amplifier I lived with for a short while sounded dynamically lifeless, one-dimensional in imaging and 'grey' in tonality. Nowadays, modern solid-state designs are greatly improved, mostly due to improved component quality, I suspect. This is now a recognised issue, whereas once it was specifically a non-issue, in order to allow aggressive cost cutting in the Bill Of Materials.

Read the small print and you will discover that transistor amplifiers come in many varieties. Most are push-pull, as it is most efficient. A pure Class B design runs cool when idling and doesn't need bulky (and expensive) heat sinks. In theory, Class

From being staid and unadventurous items, amplifiers have started to get 'interesting'. That's not to say good, as some digital wonders really aren't so clever whichever way you look at them, but for the most part there is now change and innovation taking place in amplifiers, after years of technological stagnation. But more choice brings a penalty: more confusion. The planet now seems awash with valve amplifiers - they've even made it into Harrods - where once they were a curiosity. Then there are 'digital' amplifiers, now springing up like mushrooms, with the odd toadstool amongst them. All this makes

"most of the time we all listen at modest powers of just a few watts..."

buying difficult in what has become a confused marketplace where old certainties have been overturned. Here is our advice, based on our experiences with the differing types.

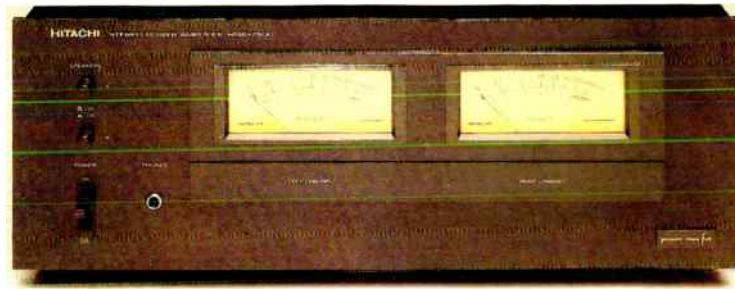
this important parameter, commonly over quoting by 2dB or so, our measurements show. Beware of small loudspeakers with a quoted sensitivity much higher than 86dB.

Bs suffer crossover distortion, but in practice it is often minimal. Adding in some bias current turns on the transistor pairs so they don't hard switch at low levels. This gives Class A/B working, which lessens crossover distortion, or so the theory goes. The drawback is you need bigger heat sinks to dissipate the heat produced by the idling current. Unfortunately, there are so many other variables that affect an amplifier's sound that it is difficult to link Class A/B working with a "better sound". Most hi-fi amplifiers are A/B, by the way.

If bias is cranked right up you get Class A working, streams of heat and limited power output. Class A amplifiers from Sugden, or substantially Class A from Luxman do sound good and are at the top of the solid-state tree. Expect an insightful and vivid presentation with amplifiers like this, often with good resolution of the timbral properties of instruments.

Over the last few years Class D switching amplifiers have become steadily more common. These are not truly digital, by the way, and D does not stand for digital. They actually use Pulse Width Modulation, that can conveniently be reconstituted back into analogue audio through a low pass filter placed after the output transistors. Class D is super efficient, so it produces little heat and has minimal heatsinking requirements. As a result Class D amplifiers are small, run cool yet produce a lot of power.

There are many different topologies, some more successful than others. Class D amps commonly produce large amounts of high frequency distortion, have a frequency response that is affected by the load provided by the loudspeaker, and d.c. on both output terminals. In use they can sound glassy, but often quite 'fast' and with clean bass. Not all Class Ds are equal though; the best I have measured is the Hypex



Hitachi HMA-7500 - arguably the world's first 'perfect' amplifier, launched in 1978. Designers have been trying to improve perfection ever since!

module as used by Channel Islands Audio. This sounds very civilised and measures a whole lot better than most Class Ds. There's little load sensitivity, little distortion and no d.c. on the outputs. This demonstrates just how Class Ds vary, meaning we cannot usefully generalise about them. Best to tread carefully: do try and get a long audition - and watch our reviews.

Modern transistor amplifiers, including those using MOSFETs, now sound very good - until you listen to a good valve amplifier, then the whole issue of sound quality is thrown into question. Irrespective of which is right and which is wrong, a valve amplifier is easier to live with and enjoy when long term, serious listening - to Rock or Classical - is involved. Most people agree on this, the issue becoming clearer as better valve amplifiers appear. The soft, warm and cuddly presentation often attributed to the breed was caused by shoddy output transformers.

Nowadays, massive transformers, possessing complex layered and sectionalised windings, avoid this. The result is clean, powerful bass and sparkingly clear treble, the basic balance sounding similar to that of a solid-state amplifier. However, valve amplifiers give appreciably deeper soundstaging, what is best described as liquid treble that lacks the

hardness of solid-state, and often a stunning sense of midband clarity that seems unforced and natural. After a valve amplifier, a solid-state amplifier can sound somewhat hard and sterile, in a way that doesn't sound natural. The drawbacks of valves are limited power, high cost and the need for maintenance, because output valves have a life of 3,000 hours or so.

Valve amplifiers fall into a wide variety of sub-categories, which I will outline. Most are push-pull, just like transistor amps., running in Class A/B. Modern designs use pentodes and tetrodes designed specifically for audio use, like the EL34 and KT-88. The KT-88 in particular gives a wonderfully clean, fast sound in a good amplifier. Many swear by the older triodes though, like the 300B, which was designed as a linear (distortion free) audio valve. Unlike transistors, it is so good it can be used without feedback. I choose to use a 300B push-pull amplifier with switchable feedback. Whilst 211s, 845s and 300B triodes are considered pure class in the valve world, they are expensive to replace - £80 a pop or more and there are four in a stereo amplifier. The amplifiers that use them are bulky and expensive too, of course.

A small sub-category within the valve world, not encountered with solid-state, is the Single-Ended or SE amplifier. This, by its nature, is pure Class A and completely free of crossover distortion. SEs have massive transformers and low power (less than 20 Watts), but in some respects offer benchmark performance, one that many listeners swear by. The Almarro A318B is a fine example, costing a reasonable £1,690.

There's certainly far more variety in amplifiers nowadays. At present we cannot say there are any great leaps ahead, but there is more choice and from within it an amplifier that should suit most tastes. Just listen carefully if possible, because appreciable differences in sound quality still exist, irrespective of the technology used.

Yesterday and today: at left a 300B audio power valve dating from 1938, in the centre a 1956 KT-88 tetrode and, right, an 80W Class D Hypex module representing the best of today's technology.





Diamond Life

David Price reviews Wharfedale's latest and greatest Diamond loudspeaker, the 75th anniversary edition, and looks back over the company's illustrious history...

It's one thing to design an amazing cost-no-object loudspeaker, another to make a superb speaker down to a price. That's why the Diamond ranks as one of Wharfedale's most impressive and surprising products from its seventy five year lifespan. Back in 1985, the company unleashed their stunning £80 mini-monitor on the market. It wasn't perfect, but it was far better than it should have been and duly became an iconic eighties loudspeaker, with audiophiles building very expensive systems around it.

Into a tiny (5.2 litre, 240x185x205mm) cabinet built on a rigid steel frame, went the treble and midrange range drivers from Wharfedale's flagship TSR102 floorstander - a 19mm Son Audax plastic dome tweeter and Wharfedale's own 120mm long throw polypropylene mid/bass unit, with practically no crossover to get in the way. Cabinets were thin chipboard, and a ducted port fired rearwards to give a semblance of efficiency.

The tiny Diamonds sounded striking, taking you to the heart of the music, but Wharfedale fast began to change formula. A year later the more balanced, sober sounding Diamond IIs came out, and thus followed the Super Diamonds complete with stronger, real wood cabinets and veneer, for nearly twice the price. The wee Wharfedales duly went through countless incarnations in the nineties, but none really hit the spot in the way that the original had, and indeed it wasn't until the Diamond 8.1 of 2001 that they came up with another gem.

By this time the company had left the protectorship of the Verity Group, had been bought by International Audio Group, and the company seemed very much on the rise again. This speaker was the first Diamond to use Kevlar in its mid/bass unit - an extremely strong material (so much so that it's used in bullet-proof jackets) and light too, making for a clean and fast sound. It was paired up with a silk dome tweeter (actually made from man-

made fabric) in a 298x198x181mm cabinet and sold for £120, proving justifiably popular.

DYNA MITE

Impressed as I was with the Diamond 8.1, it wasn't until its replacement, the 9.1, came out in 2005 that I really got back into the breed. This was surely the high point of the Diamond line, a far more balanced design than the original Diamond I of twenty years before, with a softer but obviously more sophisticated and expensive sound.

Weighing in at 5.4kg, they were solidly built for their largish (for a Diamond!) 296x278x194mm dimensions. A two way, magnetically shielded model, it featured a 25mm soft dome tweeter and 125mm mid/bass, crossing over at 2.3kHz. Power handling was claimed to be 20-100W, with 86dB sensitivity. Like the 8.1, the mid/bass unit was a Kevlar cone (now coloured black) with an open back diecast chassis. The cabinets were made from curved MDF with extensive bracing to reduce

resonances and prevent internal standing waves. The speaker also got rugged gold plated rear binding posts, and a surprisingly attractive vinyl wrap finish.

Now, to celebrate seventy five years of Wharfedale, there's this special limited edition of the Diamond 9.1 loudspeaker you see before you. These £180 mini-monitors come in a limited numbers of two thousand pairs for the world market, and are most easily distinguished by their real walnut veneer finished in 'wax-oil' (no, not the smelly stuff you spray on classic cars to prevent rust, but the same finish that is applied to the company's £14,000 flagship Airedale Heritage loudspeaker). Other features include an Airedale-style magnetic, flush-fitting 'heritage' grille, and there's champagne gold coloured alloy trim around the drivers.

Each pair is individually numbered and supplied with a certificate of authenticity, which is all very nice, but in the flesh it's the superior finish that really impresses. The wood is as good as you'll ever see on a £180 box, and the associated grilles are quality items. My only gripe, as with the stock 9.1, is that the drive units need a turn or two of an allen key to truly get them taut.

SOUND QUALITY

Suitably fettled on 24" Atacama stands, I hooked up the Diamond 75s to my reference system, currently including the Sugden IA-4 amplifier and Black Rhodium Tango loudspeaker cables, and let rip – with a pair of borrowed original Diamond 1s and stock Diamond 9.1s on hand for comparison.

Given their still modest price (pretty much the same as the original when counting inflation), the Diamond 75s proved a joy. They're couth and even-handed in a way that their eighties counterparts never were, offering better handling of highs and lows whilst maintaining a highly insightful and musical midband. Indeed, their problem is that they're almost too mature for their lowly status in life – which was never a worry with the original series !!

Kicking off with Electric Light Orchestra's 'Roll Over Beethoven' on vinyl, the Diamond 75s proved accomplished in the imaging stakes, throwing out the soundstage boldly into the room, but they never sounded hard or forward whilst so doing – unlike the originals which could err towards a slight shoutiness, especially at higher volumes. They tended to hang the images a little behind the plane of the speakers,

unlike the originals which seemed far more keen to imprint them on your cranium.

Likewise there was a subtle 'nasalness' to the original Diamonds that the 75s (and 9.1s) singularly avoided. Indeed, Jeff Lyne's voice can display this characteristic even with the best loudspeakers, such is its character, but the new Diamonds provided a surprisingly open sound. As per the original Diamond, both current variants proved most impressive in the vocal region – giving a real sense of connectedness to the song that made them a pleasure to listen to.

Moving down the frequency scale, and all the Diamonds proved limited. Importantly however, the 9.1s had the edge on the originals, with a fuller and more extended performance; indeed there seemed to be almost an octave extra in the tank. Still, what little the originals had was obviously tauter, showing that the newbies are a tad softer and voiced in a more beguiling manner. The original Diamonds reminded me of the old Linn Kans – super taut and tight but virtually devoid of bass until pushed hard against a wall with the volume turned up – whereas the 9.1s and 75s didn't sound like this at all.

Scritti Politti's 'The Word Girl' showed the 9.1s to be the least best compromise; the original Diamonds were lightweight but forcefully musical, whereas the new 75s were a tad softer and slower but taut enough to get the feet tapping. The 9.1 were fractionally softer still, and seemed less sure of where they wanted to go rhythmically. Still, a good time was had with all – I've heard £2,000 loudspeakers that were less enjoyable.

At the opposite end of the spectrum, again the new Diamonds ran away. The originals seemed just a tad too hard, yet rather curtailed at the same time, whereas the newer Diamonds were smoother and sweeter, with superior extension. Again the 75s pulled a fraction ahead, possibly due to the slightly stiffer cabinets, but the difference was marginal. Either way, a struck hi-hat from Donald Byrd's 'Street Lady' BlueNote reissue was a pleasant experience, the modern

"given their still modest price, the Diamond 75s proved a joy"

tweeter proving itself couther yet more insightful.

You might think then that it was an outright points win for the Diamond 75 (followed closely by the 9.1) but it was not quite so clear cut. Despite its greater colouration and more limited frequency extremes, a Deutsche Grammophon pressing of Beethoven's Pastorale Symphony (Karajan, Dresdner Philharmonic) flagged up the original Diamond as a brilliantly musical performer. The 75 was by far the better hi-fi speaker, telling you so much more about what was on the recording, but seemed a tad restrained when call on to convey subtle inflections in playing.

CONCLUSION

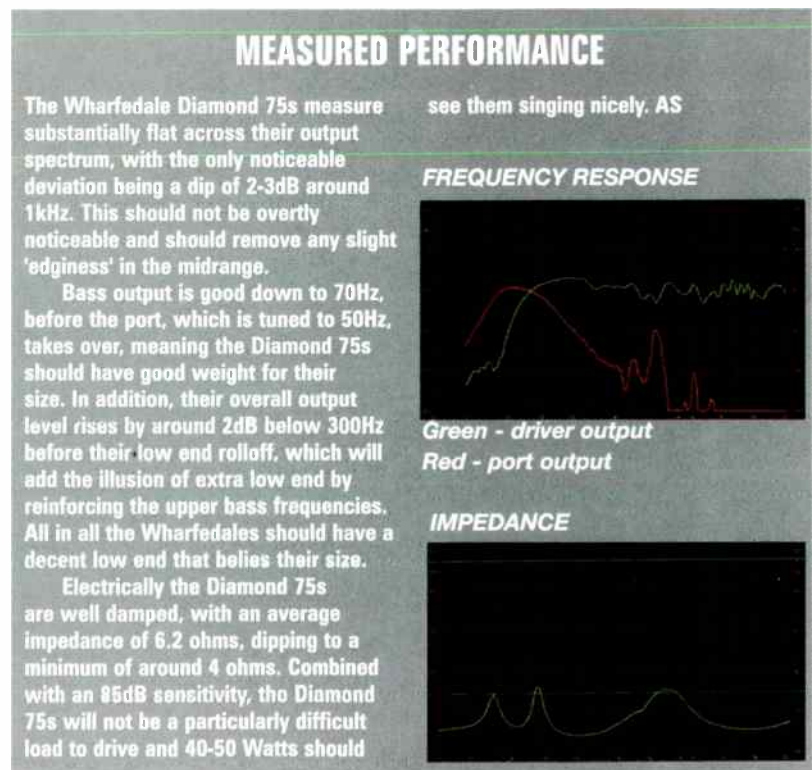
Overall though, the latest Wharfedale Diamond 75 won the day across most musics. Usher S-520 aside, I can think of nothing that has such a mature and sophisticated presentation at the price – it just plays music in an incisive, insightful yet smooth and polished way, largely devoid of the nasties that plague small boxes such as this. Is it worth the £30 over the already excellent Diamond 9.1? Well, probably not, as there's only a hair's breadth of performance difference, but that real wood is rather lovely and when are you going to see another one like it? Diamonds aren't forever, but these are good enough to last you longer than you think!

VERDICT ●●●●● £

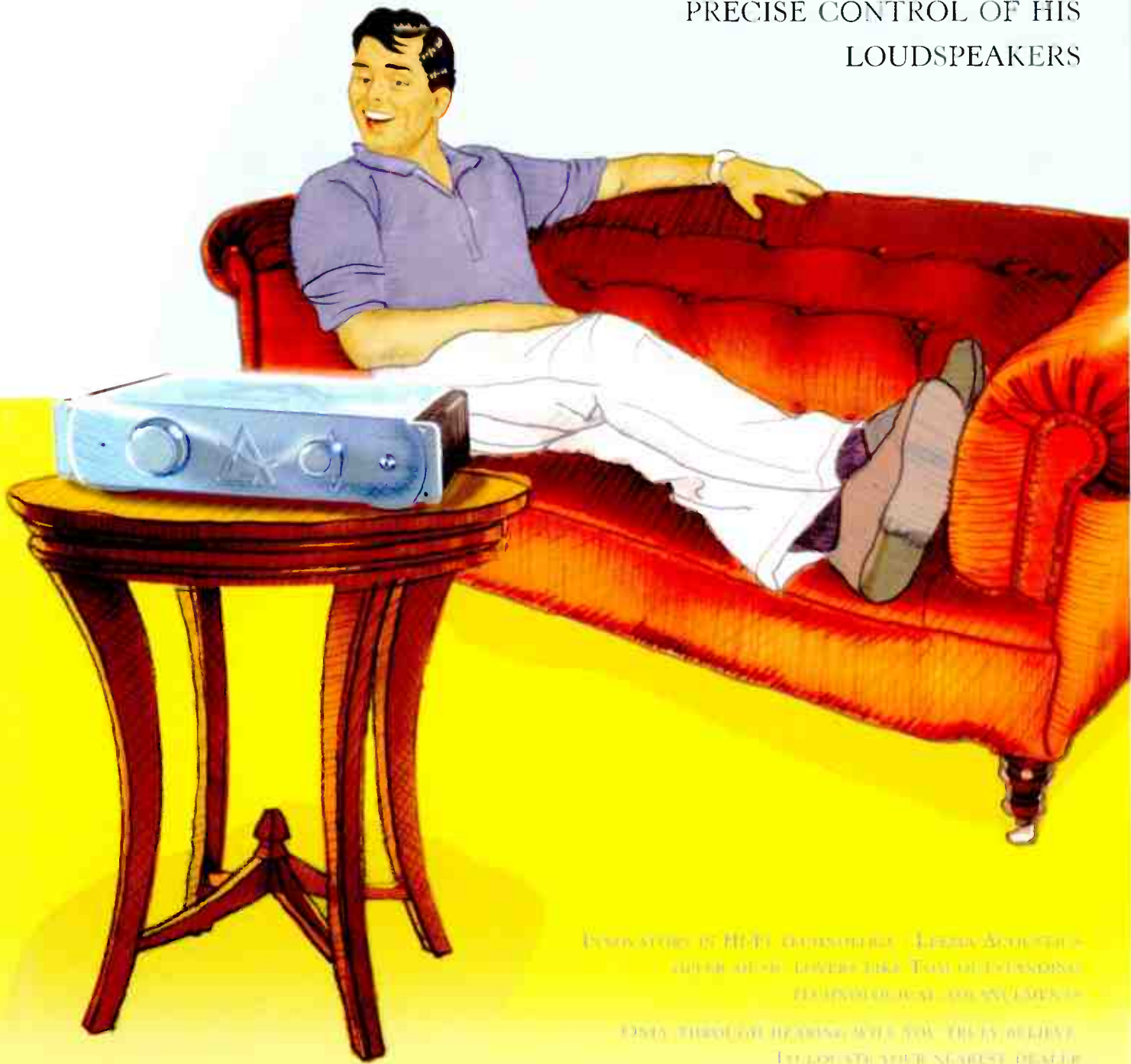
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TUCANA'S VICE LIKE GRIP AND
PRECISE CONTROL OF HIS
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history

From Peter Walker to Raymond Cooke, there have been a number of major British players on the global hi-fi scene - ones whose influence has stretched further than their products, distribution networks and retailers and into history and legend - and Gilbert Arthur Briggs is surely one of the most famous.

It was in his humble Yorkshire home in Ilkley that he built his first ever loudspeaker in 1932. Located in the valley of the river Wharfe, in an area known as Wharfedale, Briggs was to make the name famous around the world by the time of his passing, despite never having been formally trained in engineering. Instead, he began as a gifted, passionate amateur with a razor-sharp mind.

The one-time cloth seller set up a small factory a year later near Bradford, to build his very own loudspeaker drive units. It was a family run affair, his wife Doris hand wiring and winding coils. Wharfedale Wireless Works won their first major order of 'Bronze' drivers via a Bradford Radio Society competition, and demand rose up to 9,000 units per year by the beginning of World War II.

His company had outgrown its premises by 1936, and moved to a larger factory, while the onset of war saw it producing transformers for Marconi. By 1945, it had sold 40,000 from a team of just twenty people - and that same year the company introduced its first two-way loudspeaker. By modern standards it was odd - featuring a 10" driver and a vast crossover - but it set the blueprint for other speakers to follow. Later, products such as the Airedale (which sported a sizeable hexagonal cabinet with drivers running Alnico magnets and an upward firing 'ambience tweeter') proved best sellers.

His famous book, 'Loudspeakers: The Why and How of Good Reproduction', was published in 1948. A short tome, it nevertheless proved a great reference work for budding speaker designers and hi-fi enthusiasts alike, and was reprinted

many times. It proved so popular because it was written in plain English, making the black art of hi-fi reproduction and loudspeaker design in particular surprisingly accessible. Needless to say, a series of books followed...

In the fifties, the already high profile character started an audacious series of live events comparing live and recorded music. Using Wharfedale loudspeakers and Quad or Leak amplification to play back an acetate just cut (live) of a band playing, the first demonstration at the Royal Festival Hall was a great success. The concerts spun off into a number of locations, from Bristol Music Hall and the Philharmonic Hall to Carnegie Hall, New York, Portugal, Hong Kong and Canada.

These events used the largest of all Wharfedales, a three way 9 cubic foot corner speaker which was sand filled and reflex loaded, running a W15 woofer. Sitting atop was a discrete enclosure featuring (Linn Isobarik-style) ceiling-firing Super 8 and Super 3 drivers, both radiating forwards for an omni directional effect.

In 1958, the then sixty eight year old Briggs sold Wharfedale Wireless Works to the Rank Organisation, which led to the expansion of the brand into electronics. He retired seven years later, by which time he had overseen two major breakthroughs - the pioneering use of 'roll surrounds' around paper cones, and the launch of the first ever speakers using ceramic magnets.

The company went from strength to strength, and in 1967 announced its move to a vast 170,000 square foot factory in Highfield Road, Bradford. In the nineteen seventies,



Wharfedale grew strongly, with a range of finely voiced, affordable loudspeakers such as the Chevins, Dentons and Lintons, and introduced some interesting concepts such as the high efficiency 'E' series, as well as the popular 'Isodynamic' tweeter used in the high end SP series. By 1977, production of drive units was running at 800,000 per year.

Sadly, soon after his death, his factory and warehouse were destroyed by a flood, ruining all the plates for his books and all the remaining stocks of the books, but



they have since been reprinted.

In the eighties, Rank invested heavily in Wharfedale, and the company developed laser holography processes, and pioneered their own scanned laser probe and frequency slice plotting technologies. The Wharfedale Laser series utilised this to full effect, and proved a sales success, while the Total Sound Recall series headed up the premium sector. Research done during the development of the high end TSR102 begat the Diamond, which went on to epitomise the trends in nineteen eighties loudspeaker design...

Master Piece?

Named after the Latin word meaning 'highest class', Linn's new Classik Movie System is a premium 'home theatre in a box' – but does it have the star quality to beat its arch rival? David Price decides...



It's going to be hard to write this review without mentioning Arcam's Solo Movie, so I'll do it now. Were I wearing Linn's corporate boots, I might be more than a little annoyed by the fuss that has surrounded the Solo, which seems to have charmed all and sundry, because it was of course Linn that 'got there first'!

The original Linn Classik, lest we forget, came out about six years ago and single-handedly introduced the idea of a small, high performance one-box hi-fi – good enough to mix it with a similarly priced separates system but in a far more compact form. The Classik Movie System (CMS) followed, offering precisely the same formula but with video added, and then soon after, Arcam moved its scooters onto the Linn lawn with the Solo and Solo Movie...

The new Classik Movie is Mr. Tiefenbrun's riposte, bringing keener styling, more features and better performance. As with the previous Linn Classik Movie DI, the idea is to bundle a DVD player with excellent picture quality and super CD sound, in with a decent tuner and high quality 5.1 amplifier.

Specifically, the DVD player is a multi-zone PAL/NTSC affair with Dolby Digital and DTS decoding, meaning it can play multichannel movies and music, and of course CD in both stereo and surround via

Dolby PL II. It also reads recordable DVDs (+/-) and CDs, S/VCD, MPEG-2, JPEG and MP3 discs, but disappointingly for some, there's no bespoke DVD-Audio or SACD playback.

It offers the usual fast/slow motion playback/scan, and direct access by time/track/chapter plus repeat, programme and shuffle modes. Round the back, Scart, RGB, component video and composite video are offered, but sadly no HDMI. Linn would doubtless argue that it's missing the point, and that excellent pictures are available without recourse to HDMI, but this maybe an issue for some people (if not your reviewer)...

The tuner section is a neatly implemented FM/MW affair (the former with RDS), packing two hundred presets, a signal strength meter, autoscans and preset store. What it doesn't have, that its nemesis the Arcam Solo Movie does, of course, is DAB. Again, Linn would be correct to point out that Digital Radio sound quality is risible, and that there's the new DAB+ standing there as 'the elephant in the room' (rendering all existing DAB radios potentially obsolete), but the lack of DAB will still be an issue to those who've got a little too fond of listening to the likes of TALKSport without AM background mush. Indeed, I actually think it's easier to

justify no DAB in a high end hi-fi tuner than it is in the Classik Movie, selling in a quite different market.

The decoder/ preamplifier section is nicely presented, and unlike your average Japanese AV receiver, isn't festooned with facilities or sunk by an obstructive user interface. Instead, there's easy front panel toggling through DTS, Dolby Digital Pro Logic and Pro Logic II modes (music/movie/matrix), a 'midnight movie' dynamic range compression option, handy lip-sync compensation and simple selection of stereo, 'Panorama' stereo (for surround effects), 3 channel stereo, 2.1 stereo and phantom centre. Factor in stereo and rear/front balance controls and the usual bass and treble adjusters, and you have a simple arrangement that makes the new Classik very useable by audiophiles and AV duffers alike.

The power amplifier section has five channels of 75 Watts into 4 Ohms [claimed, see MEASURED PERFORMANCE], aspirated by Linn's beloved 'Brilliant' switched mode power supply. Round the back, there's a 5.1 pre out, two stereo line inputs, a stereo line out, optical and coaxial digital inputs, an optical digital output and five channel speaker outputs (via BFA/camcon connectors), while the front panel sports a 6.3mm headphone jack.

To my eyes, the new Classik



"a very cleverly judged package for music and movie fans alike..."

Movie System is an aesthetic and ergonomic triumph, making the already sleek Solo Movie look rather run-of-the-mill. Finish is superb, and this, along with the beautifully designed front panel (with much inspiration from the Linn CD12, I note), makes it real a joy to use. It also works far better on an intuitive level than the Solo – the Arcam's two rows of undifferentiated buttons seem harder to learn. In terms of size, I again prefer the Linn – its midi width (381x368x80mm) case works better in the many places it's likely to find itself (bedrooms, studies, dens) than the Arcam's wider (430x350x79mm) full width case. At 6.4kg, it's a tad lighter than the Arcam's 7.75kg, but the Linn feels no less solid. Both rivals' remotes are excellent, being a lesson to the likes of Pioneer on how to do simple, easy to use controllers.

SOUND QUALITY

I tried the Classik in a variety of systems – in multichannel mode it was auditioned with a complete 5.1 Linn speaker set-up at the House of Linn [see box] and at home it was run predominantly in stereo with my own reference system. In both systems, the new Classik Movie System proved both a superb performer and an obvious improvement on the Linn product it replaces.

Kicking off with 2.0 stereo (which is surely how it will be primarily used by many, given the vast amount of CDs in circulation), and the new CMS was very impressive indeed. Within a fraction of a second, it's clear you're listening to a Linn, such is the consistency of voicing across the marque. This equates to a very neutral and uncoloured ('dry', to some tastes) sound that's intricately detailed and incisive. Indeed, there's no sense that you're listening to a hi-fi component that's been compromised or cost-cut in any way – it's a very crisp, high resolution sound that's correspondingly well finessed.

Starting with 808 State's 'Pacific 202', and the Classik's CD player cut through this complex, slightly opaque mix like a hot knife through butter. Whereas the Arcam Solo Movie had given a slightly larger, fuller sound, the Linn delivered obviously more incision and detail with faster bass and greater atmosphere, making the Arcam seem a little slow in the bass and woolly across the midband. Highly enjoyable though the Arcam was, the Linn proved altogether tauter, tighter and more rhythmically engaging, making it a more compelling, 'seat of the pants' experience. By contrast, the Arcam was softer, more sumptuous but ultimately less engaging.

Moving to a slice of classic

rock in the shape of Supertramp's 'Take the Long Way Home', and again the Classik worked its magic with the song's rhythms; there was an excellent sense of pace to the opening harmonica playing, the Linn underlining the player's dynamic accents more emphatically than the Arcam. When the snare drums kicked in, the Linn's ability to separate them out from the mix better was obvious. The song's bass line showed another interesting difference – whilst the Linn throws out lean, meaty and muscular low frequencies, the Arcam is fuller and more fruity. Put another way, the Classik is more sinewy than the Arcam, the Arcam a little lardier than the Linn. In this instance though, I don't think it's so much about the rightness or wrongness of either rival, and more about what suits your speakers or room.

REFERENCE SYSTEM

Linn Komponent 110 floorstanding loudspeakers
Linn Komponent 106 Centre Channel loudspeaker
Linn Komponent 104 rear loudspeakers
Linn Komponent Bass reinforcement loudspeaker

The most marked difference between the two machines was with classical music. A London pressing of Bach's Fifth Brandenburg Concerto (Neville Marriner/English Chamber Orchestra) showed the Linn's superior depth perspective. The Solo

Maria Callas, Metallica, Miles Davis, Muse, Muddy Waters, Madonna, Massive Attack.

Whatever your tastes in music, the Linn Majik System enables you to experience the full emotion of the artist's original performance in your home.

We would normally let the sound speak for itself. However, in this instance it's also worth mentioning that you could own the new Linn Majik System for only **£3500**.

Visit www.linn.co.uk/majikoffer to find out more and arrange a demonstration at your nearest Linn specialist.



The Linn Majik System comprises the Majik CD Player, the new Majik-I Integrated Amplifier, Katan Loudspeakers with stands, installation and a 5 year* warranty. (* when you register your products with Linn)
This exclusive offer must end 31st December 2007.

The usual price of the Linn Majik System is £4,290



LINN

World Radio History

www.linn.co.uk



KNEKT 4 U

Linn's Knekt function provides a very simple but effective DIY plug-and-play multiroom system, whereby the output of one Classik can be distributed to up to four Classiks in other rooms (and controlled from those rooms). It's simply a case of running CAT 5 cable between Classiks and choosing speakers appropriate for each room. The 'Party mode' allows the same music to be distributed around the house from the main Classik, or users in individual rooms can play music on their own Classik. The accessory socket allows the connection of Linn's Room Control Unit, and remote control repeaters can also be fitted around the house to control the Classik or other components.

Thanks to Brian Morris at the House of Linn in Manchester (+44 (0)161 766 1021, www.houseoflinn.com) for his help in preparing this review!

VERDICT ●●●●●

Superbly designed, built and finished pocket rocket that gives best-in-class performance, although facilities are spartan.

LINN CLASSIK MOVIE £2,750

Linn Products Ltd.

☎ +44 (0)500 889909

www.classik.com

FOR

- super sound across formats
- ergonomics, build, finish
- ease of use and of setup
- fine picture quality

AGAINST

- video connectivity
- no DVD-A/SACD
- no DAB

painted a wide, bold stereo image, but the Classik's went deeper and more accurately located instruments in the orchestra within the recorded acoustic. String tone was a particular pleasure here too – the Linn imparting the timbre of the cello beautifully, whereas on the Arcam it sounded a little warmer and more diffuse.

Moving to multichannel music, and 'Solsbury Hill' from Peter Gabriel's 'Growing Up' DVD was a thrill, the Classik Movie showing its mettle with the massive dynamics of this superb live show. Surround sound steering was superb, the Classik making the recording sound utterly natural, while the little unit's onboard amplifiers showed no signs of struggle at high volume levels in a medium sized room. Able to swing out respectable amounts of clean power while sounding both controlled and dynamic, it's a great way to enjoy music DVDs. Picture quality was very good too, so Linn haven't skimped on the video side, although it's not quite in the league of class leading standalone machines like Denon's DV-3930. The tuner was nice to have, not massively sensitive but a very couch, quiet and musical sounding item when fed with a decent signal.

CONCLUSION

The new Classik Movie is an interesting product. Linn obviously have not tried to tick all the boxes – there's no HDMI connectivity, no DAB radio, no SACD or DVD-A playback or video trickery. Instead, we have a very cleverly judged package designed for 'real world' music and movie fans who want the best possible sound at the price from an all-in-one box. In this sense, it's a more rarefied and focused product than the Arcam Solo Movie – whereas the Arcam does a heck of a lot really well, the Linn does a little less rather better. If the Arcam's handy DAB and SACD/DVD-A playback is useful to you, and/or you prefer a softer, fuller, more 'easy listening' sound then it's your man, whereas if you'll never really need such bells and whistles, and want a tauter, tighter and more musically moving experience, then the Linn is the one.

The Classik Movie is one of Linn's best products to date. Everything from the superb design, build and finish to the excellent stereo and multichannel sound (and even a fine picture too) shows what the company can do at a relatively modest price. That it can mix it and win against such distinguished competition is all the more encouraging, but not surprising perhaps, as they were there first all along!



MEASURED PERFORMANCE

The amplifier in Linn's Classik Movie produced 47 Watts per channel into 8 Ohms, rising to 81 Watts into 4 Ohms, a modest amount by today's standards but still enough for modest sized rooms if fed to sensitive (>88dB) modern loudspeakers, which generally come in at around 6 Ohms. The amplifier handled low loads well, distortion rising little from 0.01%. Our analysis shows it comprises mainly second and third harmonics, so the Movie will not sound harsh, as high frequency distortion was low at 0.03%. The Aux input was sensitive at 260mV, so it will handle a lot of sources.

Frequency response of the CD player extended smoothly to 20kHz, our analysis shows. Distortion was reasonably low too, so there are no unpleasant surprises under the hood here, although the dynamic range value was a few dB off the best.

Linn usually include a good VHF/FM tuner and this one measured well, a slight fall off in upper frequencies (-1.5dB at 7kHz) giving an easy sound. Distortion was low at around 0.2% at 50% modulation and noise reasonably low at -67dB, although a slight hiss may be audible behind Radio 3 silences, and a strong aerial signal of over 1mV is needed to achieve this level of performance; the tuner is not especially sensitive.

The Classik Movie is well engineered in every area and will likely offer a smooth, clean sound from all sources. Power is limited compared with many receivers, but partnered with sensitive loudspeakers this should not be a problem. NK

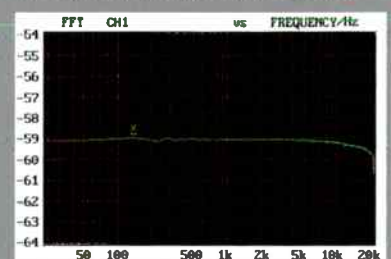
Power 47 Watts
 CD/tuner/aux. Frequency response 10Hz-34kHz

Separation	81dB
Noise	-83dB
Distortion	0.01%
Sensitivity	240mV

CD	
Frequency response (-1dB)	20Hz-20kHz
Distortion CD	%
0dB	0.0063
-6dB	0.0028
-60dB	0.26
-80dB	3.01
Dynamic range	108dB

TUNER	
Frequency response	32Hz-12kHz
Stereo separation	78dB
Distortion (50% mod.)	0.2%
Hiss (CCIR)	-67dB
Signal for minimum hiss	0.85mV

FREQUENCY RESPONSE - CD



DISTORTION



Wi-Fi World

Just as all those nineties cyber gurus predicted, the Internet is opening up the world, and one of the more unlikely spheres it has touched is radio. Internet radio offers massive choice and theoretically far superior sound to Britain's domestic DAB regime. With this in mind, our resident 'radio head' Steven Green tried three of the latest portables...

Although Wi-Fi-based Internet radios look and work very much like DAB radios, they can receive over 7,800 Internet radio stations (including 830 stations from the UK alone!) originating from all corners of the globe, and covering every possible niche imaginable.

In addition, there are over 21,000 on-demand streams available (examples of which include the programmes on BBC Listen Again), and you can catch up with your favourite podcasts at the press of a button as well. Another advantage is that the audio quality is often much higher than that provided on DAB, which is due to Internet stations using more modern audio formats, such as WMA and MP3.

All the machines in this test use the same Wi-Fi radio module, which forms the 'brains' of the radios, produced by Cambridge-based company Reciva - so the user interface and core features supported are the same. Reciva also maintains the database of radio stations and on-demand streams that are available as well as providing an area called 'MyStuff' on the Reciva website (www.reciva.com) in which Wi-Fi

radio owners can manage their lists of favourite stations, on-demand streams and podcasts.

Wi-Fi radios also provide a 'media player', which allows the radio to play audio files that are stored on a computer over the Wi-Fi network - Windows and Mac OS X operating systems are supported. All of the radios support MP3, WMA, AAC, AAC+, Real Audio, Ogg Vorbis,

the uncompressed WAV, AU and AIFF formats, and the M3U playlist file format - similar to how MyStuff simplifies operation in Internet radio mode, playlists make the media player significantly easier to use.

Another excellent feature is their ability to upgrade the version of firmware they're using at the press of a button, which means that support for new audio formats and features can be added over time. For example, support for four of the audio formats mentioned above have been added in the last year, and the Roberts WM-201 - which uses the most recent version of firmware - also supports the FLAC lossless audio format, which the other radios should receive the next time a firmware upgrade is made available for them.

Internet radios are also likely to support 'multicast' in future, which is a technology that the BBC and some of the commercial radio broadcasters have just launched to allow them to provide their stations at higher quality over the Internet (only a limited number of Internet service providers support multicast at present, though).

Wi-Fi radios are also easier to set up than you might imagine, as the only thing you need to enter yourself is your Wi-Fi network's WEP or WPA security code, and then you're away - the rest is automated by the radio. In addition, if you're using a wireless router then you don't need to have your computer switched on in order to listen to stations on Wi-Fi radios.

REVO PICO WI-FI £130

Ultra-compact, measuring just 105x165x95mm, this is the only truly portable model in the group test due to it having an integrated rechargeable NiMH battery. The radio can be operated for four hours on a single charge in Internet radio mode, so for extended periods of portable use Revo has added an FM tuner, which can run for tens of hours on a single charge. The Pico's scroll wheel

was well suited to navigating through the lists and menus, and operation via the credit card-sized remote control was similarly easy. Additional features included the option to set the treble and bass levels, as well as the ability to assign buttons on the unit to control playback on the media player. An auxiliary input - which Revo calls the 'M-Port' - is also provided on the front of the unit to allow the easy connection of an MP3 player.

Wi-Fi reception wasn't as good as with the other radios here, as it was the only one not to be able to receive a signal at the farthest point in my flat away from my Wi-Fi router, and it also took significantly longer than the other radios for audio to start playing after the unit had been switched on. Once on though, the radio tuned into stations or started playing files on the media player as quickly as the other radios. FM reception was hiss-free on all of the stations I live inside the coverage area for - which is in marked contrast with FM reception quality on DAB radios!

The Pico provided very good sound quality for such a small radio, and delivered a surprisingly high level of detail when playing back high bit rate audio files via the media player, although the audio had a tendency to distort when playing certain kinds of music - such as indie and rock - at higher volume levels. Sound quality on FM was reasonable but not fantastic. However, the main selling point of the Pico is its portability and ultra-compact size, so if you want a Wi-Fi radio for its sonic capabilities you would be better off buying one of the other radios in the group test.

TANGENT QUATTRO £159

Although not to everyone's taste, the red Tangent Quattro is one of the most attractive radios I've seen, but if the colour is too garish for your tastes it is also available in white or with a wooden case. It was the easiest-to-use of the radios in

Revo Pico Wi-Fi.



Tangent Quattro.

the test, as it provided a plethora of buttons that were well laid out, and this made navigating through the lists and menus a breeze in Internet radio mode, and controlling playback was simple in media player mode. Another contributing factor was that the radio was quick to respond to button presses – which can be a function of how quickly the radio communicates over the Internet rather than simply being related to how fast an onboard microprocessor can react.

In terms of additional features, the Tangent provides a sleep timer and an alarm clock that has a snooze button located on the top of the unit. On the rear of the unit there are 3.5mm line output, auxiliary input and headphone sockets. Like the Roberts, the Tangent is mains-powered only. Wi-Fi reception quality and range were very good, and the time taken from switching the radio on until audio was being played was short in both media player and Internet radio

though, as there was occasionally what sounded like interference on the audio signal coming from the digital circuitry, although this didn't affect the sound quality when music was playing. Overall, the Quattro is excellent for what it is, which is a stylish and compact Internet radio offering very good sound quality, but I think the Roberts is well worth the extra £30 for the superior sound quality it delivers.

ROBERTS WM-201 £189

The most expensive of the radios in the group-test, it is also the best specified by far, as it was the only radio that provided stereo, and it could be connected to a computer network either via Wi-Fi or wired Ethernet. The WM-201 is solidly built, and it is relatively large for a radio, measuring 115x290x215mm (HxWxD). The unit has an easy-to-read three-line display, and its features include four alarms and a sleep timer, and on the back of the

of firmware that's available for these radios, which meant that it was the only radio that supported the popular FLAC lossless audio format, although the other radios should get FLAC support the next time a firmware upgrade is made available for them.

In a different league to that provided by typical portable radios, its sound bettered even the Tangent Quattro, which is no slouch itself in this department. A big difference between the two was simply that the Roberts delivered stereo, so it provided a much more dynamic sound. But the Roberts' sound quality was excellent in general, as the pair of full-range 5 Watt speakers delivered a vibrant and highly detailed sound, with a well-defined top-end and strong bass. The radio also provided treble and bass controls to allow the sound to be tailored to suit your own personal taste. Overall, if you want to make the most of the audio quality on Internet radio, and that of the music stored on your computer, the Roberts is definitely the model I would recommend buying, and as such it is a worthy winner of this test.

CONCLUSION

The reliability of the Wi-Fi connection provided by Internet radios and the range of audio formats they support have both improved pretty dramatically since I reviewed the MagicBox Imp earlier in the year, and I can now strongly recommend them, whereas before I had to do so with caveats.

Revo has wisely included FM on its Pico Wi-Fi to improve its portability, but in terms of sound quality it's a straight fight between the Tangent Quattro and the Roberts WM-201. And although the Tangent provides very good sound quality, there can be only one winner, and that is the Roberts. It provides superb stereo sound quality and it makes the most of the higher quality available on Internet radio as well as the music streamed from a computer.

"for the first time, I can now strongly recommend Wi-Fi radios..."

modes. The time taken to tune into an Internet radio stream depends on how busy the station's server is, though.

The quality of the 5 Watt full-range speaker used on the Quattro was excellent, although the only way I experienced its true potential was by resting the radio at a steep angle so that the normally upward-facing speaker was facing me! When the Quattro was sitting in its normal horizontal position, the top-end of the audio was slightly dulled in comparison, which is due to high frequencies being so directional (i.e. they were being directed towards the ceiling rather than towards my ear). Despite this, the Quattro still provided very good sound, with a well defined midrange and good bass response.

There was an issue when cueing up tracks on the media player

unit there are auxiliary input, line output and headphone sockets.

There was only a single Swiss Army knife-style multi-purpose button on the radio itself, which acts as the on/off button, the volume knob and the button to select items from lists and menus. Operation was therefore easier via the credit card-sized remote control, but I would have preferred it if there had been more buttons on the radio itself.

Wi-Fi reception quality and range were very good, and the radio was quick to start playing audio after being switched on in both Internet radio and media player modes. It also responded quickly to button presses or commands issued via the remote control. The WM-201 was using the most recent version

**Roberts WM-201.**

VERDICT ●●●● £
Superb styling and fine functionality in an ultra-compact package, but sonics limited.

REVO PICO WI-FI £130
Revo Technologies Ltd.
☎ +44 (0)1555 666161
www.revo.co.uk

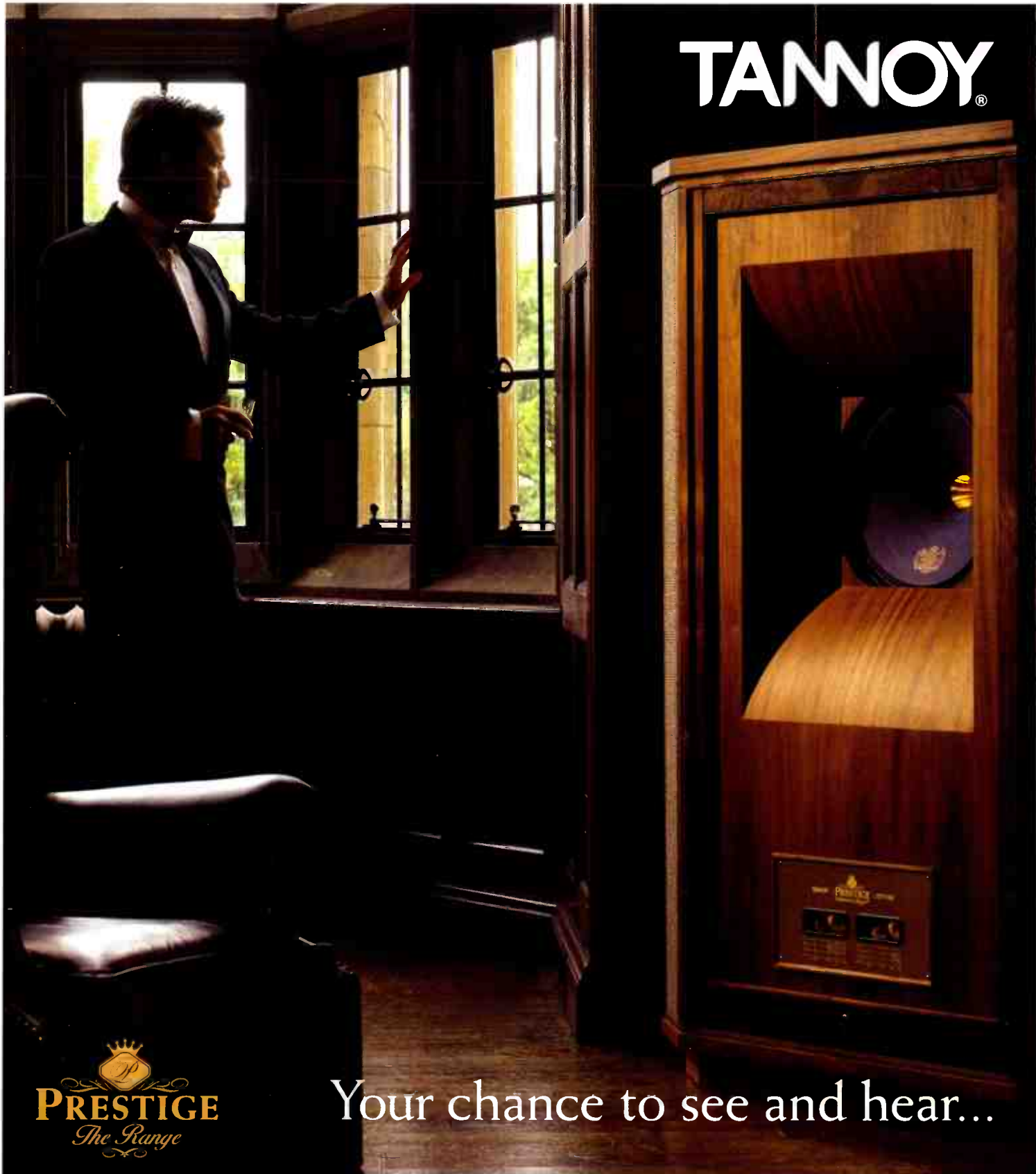
VERDICT ●●●● £
Excellent sound quality and gorgeous Danish design makes this a highly desirable Wi-Fi radio.

TANGENT QUATTRO £159
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www.tangent-audio.com

VERDICT ●●●● £
Expensive, but repays the investment with an exceptionally powerful, expansive stereo sound and fine ergonomics.


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Right Angles?

Adam Smith gives Kibri's unusually shaped Naima loudspeakers the third degree...

I cannot help but feel that the humble ceiling is somewhat under-appreciated. We all have them in our homes and they would be much messier places without them, exposing wiring, plumbing and the unattractive undersides of floorboards. Whilst they did achieve a brief moment of fame in the 1980s when Lionel Richie claimed to be dancing on one [boom boom! - Ed.], generally we just take them for granted. As a result, companies like Kibri are to be congratulated for bringing the ceiling back to the forefront of our thoughts again, by designing a pair of loudspeakers that point at them, albeit at something of an angle.

Omidirectional loudspeakers have something of a chequered history, although names like Sonab, Spica and more recently, Shahinian

and Heed Audio have made a success of such designs. Unlike the Sonabs however, the Spica, Shahinian, Heed and now Kibri units all take the same approach, namely they utilise a sloping baffle that directs the plane of the drive units more towards the vertical than the conventional horizontal, firing directly at the listener attitude. The advantage of this is that the sound from the loudspeakers is spread out and makes use of the room in order to generate a larger image.

There is some debate as to whether the result is totally accurate or not. Also, positioning is more critical than with a conventional loudspeaker, so omnidirectional or pseudo-omni designs have never really caught on. This is something of a shame because, as listening to the Duevel Planets back in our April

2007 issue showed me, omnis really do offer a quite unique presentation to music. With this in mind, I was keen to start playing with the Kibris.

The Naimas are the latest evolution of Kibri's original design, the Caelum, but they benefit from new drivers and crossover, as well as some alterations to the cabinet geometry. The Naimas are still the same compact size, measuring 420x250x285mm (HxVxD) overall, but their baffle is slanted backwards at around fifty degrees so they appear more compact than their dimensions suggest on paper.

Driver lineup consists of a six inch (150mm) bass driver with a coated paper cone (which Kibri optimistically quote as seven inches) and a one inch (25mm) soft dome tweeter. Both drivers are chosen for their high power handling and low

Something a little different...



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LINN

Ex Demonstration and used stock list

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- Linn Chakra C4200 Amplifier £2350
- Linn 2250 Amplifier now £900.00
- Linn Klout Amplifier now £900.00
- Linn LK100 Amplifier now £250.00
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Open Tuesday-Saturday 10am-5.30pm

distortion, their quality of design meaning that the crossover can be kept to a minimal configuration. Components are all hand soldered and pair-matched for each set of loudspeakers

Kibri also state that the 7.2kg Naimas are a 'lightweight' design and that a key part of their successful implementation is in using simple, open-frame stands. Walrus Systems supplied us with a set of Kibri's matching £150 items and these were used during auditioning.

SOUND QUALITY

Loudspeakers like this always take a little bit of getting used to, accustomed as we are to loudspeakers with drivers firing straight ahead. The Kibris, as might be expected from the angle of their drivers, project their image much more upwards and forwards than usual and the old ears have to be retrained a little...

But when they are, my gosh what an image it is! I can put hand firmly onto heart and say with absolute certainty that I have never before heard such a stable, wide and utterly vast image from any loudspeaker with such compact dimensions. If you really want a room full of soundstage but without the corresponding room full of loudspeaker, then you absolutely must give the Naimas a try.

With virtually any sort of music, the Naimas act almost like an audio projection device, putting you firmly into the middle of the action from your CDs and LPs and telling you exactly what was going on in the studio in which they were recorded. On the track 'Middy' from Yusuf's 'An Other Cup' album, Yusuf could well have been sat on a stool in front of me. His backing band were clearly spread out behind him and the Naimas picked upon absolutely every last little inflection from every single instrument. People talk about 'hearing a pin drop' - if this had happened during the recording, the Kibris would have told you exactly where, how high it fell from and which way it landed.

Aiding in this endeavour was the totally balanced performance that the Naimas offered across the frequency spectrum. Bass was tight, punchy and detailed and, although not gut-wrenchingly deep, Kibri have sensibly avoided the temptation to try and wring an extra few strained Hertz from the Naimas. As a result, the bottom end is solid but beautifully weighted and they remain composed and dynamic with pacy rock or dance music.

Further up the scale, the

midrange is incredibly open and insightful. Instruments and vocals are very well reproduced, making the best of anything from Haydn to Helloween. The Naimas not only tell you exactly what your recording contains, they have an impressive ability to pinpoint exactly what it is lacking as well. As an example, 'Illuminate' from Orbital's 'The Altogether' album is very nicely recorded but the Naimas made it quite clear that the instrumental within it was electronic. Although clear and detailed, that sense of scale and atmosphere from a live studio recording just wasn't there - just as it should (or shouldn't!) be.

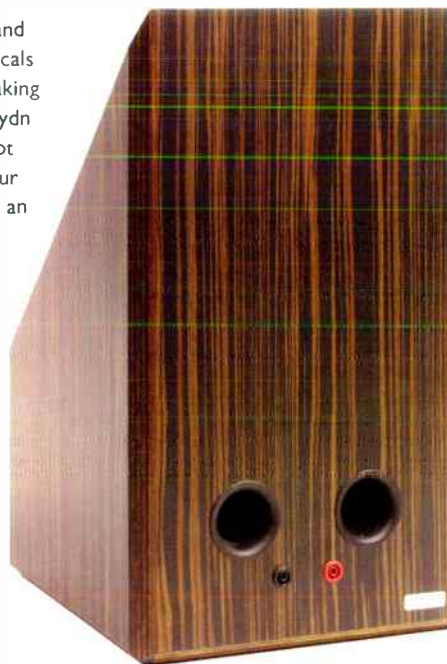
Finally, the icing on this auditory cake was the treble, which was sweeter, crisper and more meticulous than on some designs I have heard at many times the price. Cymbals were positively glistening, such was their metallic nature, and fine elements such as finger movements along instruments were loud and clear. Generally I find that I have to be in the right mood to listen to classical music, but the Naimas were so good with this sort of material that I found myself working through a good part of my fairly small collection, just to hear how it sounded.

From Mozart's 'Eine Kleine Nachtmusik', via Vivaldi's 'The Four Seasons - Spring', to Handel's 'Arrival of the Queen of Sheba' the Naimas gave a superlative sense of realism to instruments.

CONCLUSION

In case you hadn't gathered by now, I was incredibly impressed by the Kibri Naimas. They offer a different slant [ouch! - Ed.] to reproduction, one which is immensely enjoyable, thoroughly addictive and, above all, utterly musical.

The way in which they take any kind of music and make a magnificent job of reproducing it, whilst taking the time to pinpoint what is missing in a quite subtle manner, is most impressive. They set up such a substantial



REFERENCE SYSTEM
 Pioneer PLC-590 turntable
 SME M2-10 tonearm
 Ortofon 2M Black cartridge
 Trichord Diablo Phono Stage
 Eastern Electric MiniMax CD
 Anatek A50R amplifier

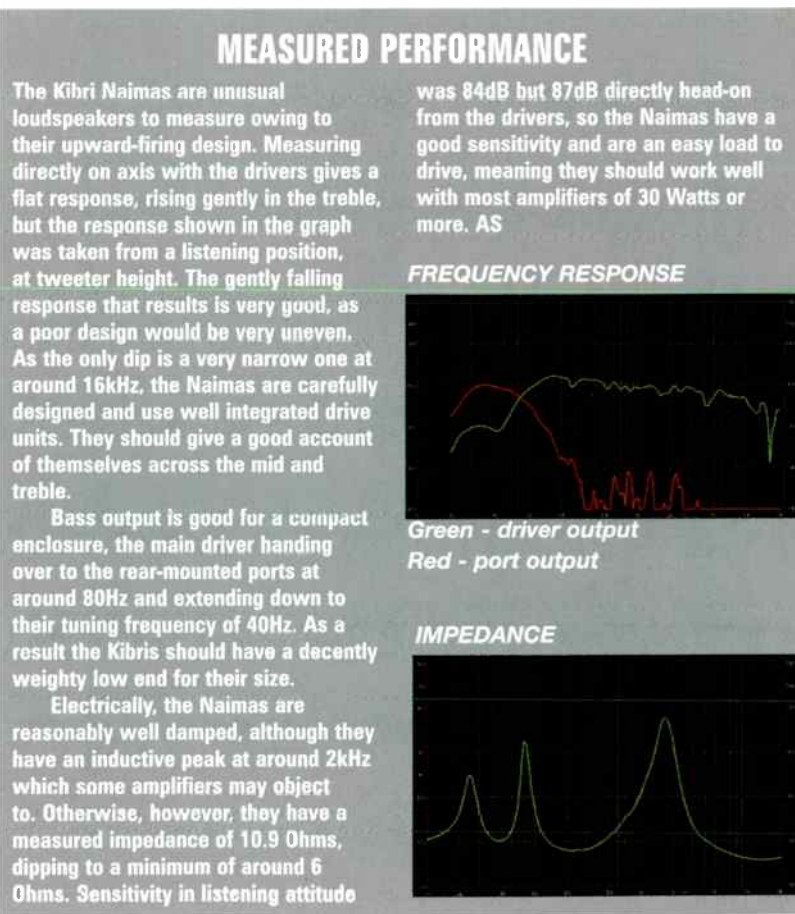
VERDICT ●●●●●

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soundstage from a compact enclosure that one could almost start to call into question the wisdom of even considering anything bigger. A truly excellent, characterful and interesting loudspeaker - I'm angling to try and hang on to them...

- FOR**
- vast soundstage
 - clarity and detail
 - uniformity of performance
 - compactness
- AGAINST**
- nothing at the price





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NEM HI-FI RACK £1,500

The age-old problem of how to site hi-fi components has plagued audiophiles since the first days of separates. It was not until the end of the 1960s that hi-fi, quite literally, came out of the closet. Unfortunately, it then seemed to spend much of the 1970s shoved at random onto bookcases and wobbly MDF racks, or even plonked unceremoniously straight onto the floor. Finally, however, the message struck home that unless your hi-fi equipment was sited on something solid, stable and secure you really weren't going to hear it at its best.

The rack I bought myself many years ago made a big difference to my system and I still have it today. It was quite an upgrade from an MFI item with a good two to three inches of sway at the top of it, I recall. Nowadays, there are many similar items ranging from the cheap and

cheerful to mini replicas of the Forth Bridge to choose from, but one aspect that still causes great concern is that old bugbear, styling.

Now, I am an eighties boy at heart and am never happier than when surrounded by glass, metal and black ash. The trouble is, as I have found personally since living in a one hundred and six year old house, this doesn't always fit in with the aesthetic of a traditional interior. However, Steve Nemeth and his company, NEM Hi-Fi have come to the rescue.

NEM are a recent addition to the world of stands, and made their debut at this year's Northern Hi-Fi Show at Manchester in January with a range of equipment support racks. Whilst four shelf items are available, these are made to order to the customer's requirements and it is only the three shelf variant shown here that has a fixed design.

The frame of the rack is Cherry wood, mortice and tenon jointed and glued, its finish claimed to be "of a cabinet standard". Having been over

the rack with a magnifying glass, I have no reason at all to disagree with this. The shelves themselves are precision-cut 300mm granite slabs with damping pads stuck to their underside and supported by spikes that locate into rubber damped cups. An additional, and even bigger and heavier, base is supplied for the whole rack to sit on and it is well worth being sure of where you want it to go when you first set it up, as this item weighs in at no less than 67kg when fully assembled...

Heaving the rack into position beside our stalwart Henley Designs MR-5 rack, I spent a good day or so swapping CD players, amplifiers and turntables between the two units and came away very impressed by the NEM.

The first notable aspect is how much of an audible stability it confers to musical performances, in addition to the physical stability on the equipment.

Studio and orchestral instruments both seemed to be better tied down into specific locations. This had the effect of stabilising the whole soundstage and making the atmosphere in a performance easier to follow. In addition, bass lines were clearer and better defined, and seemed to project better out of the mix, the rack clearly absorbing the extraneous vibration that can muddy the sound.

As another handy addition, the rack made each item less vulnerable to external vibration. With the Henley rack, a spot of enthusiastic leaping around could occasionally shift the stylus from the groove but, with the NEM, nothing short of an earthquake would make it move.

All in all, yes, £1,500 is quite a bit for a rack, but when it features this level of style, engineering, sound quality improvement and sheer mass you would be foolish not to consider it if your pocket is deep enough. It could well be the last rack you ever need to buy. [Contact NEM on +44(0)1623 740521.]

SOUNDBITES

Upper Class

Famous for the evergreen, affordable pure Class A A21a integrated, Sugden is moving upmarket with the brand new Masterclass IA4, which is the company's avowed flagship. David Price tries the high life...



It's one thing to do what is - in my opinion at least - one of the greatest £1,000 integrations, and another entirely to take the formula upmarket into the realm of high end pre-power combinations. This is exactly what Sugden are attempting with the new IA4, a monster integrated that retails for the princely sum of one pound short of £3,500.

The genius of the A21a (now in Series 2 incarnation, as reviewed in the August 2007 edition of *Hi-Fi World* and featured in this month's amplifier group test) is its superlative 'sound per pound' ratio - for some people running certain systems, that is. (It's not all things to men, nor does it try to be, meaning that its limited power and a lack of euphonic warmth will only suit a select bunch of audiophiles with relatively efficient speakers and a penchant for superlative clarity).

With substantially boosted power and extra facilities, the IA4 is much better able to bring that Sugden magic to a far wider audience, although here what limits its appeal is both its considerably higher price and the far tougher competition it faces. The question is - can that distinctive, icily clear Sugden sound, now wearing much bigger boots of course, compete in a whole new market? For example, the three and a half grand that the new Masterclass will set you back would practically buy you the superb MF Audio Copper Passive Pre (£1,599) and a pair of NuForce Reference 9v2s (£2,300) - which is a very nice combination indeed...

So the Masterclass IA4 has to be good. Well - if you'll pardon me putting the cart before the horses - indeed it is. But the real question

is, how good and to what end? The most obvious difference between it and its baby A21a S2 brother is its size - or should I say girth? The lovely slimline form of the A21 has been replaced by a rather portly 22kg behemoth which owes more to Japanese monster integrations in styling than anything else from these shores. It's a big, chunky affair at 165x430x440mm, and - to my eyes - not the prettiest thing in the room, but I suppose it's necessarily large, because full of air it isn't. Indeed, the sizeable casing is all about providing enough cooling for its full Class A circuitry which, like the A21a S2, runs hot.

Sugden's Patrick Miller says the Masterclass integrated, "was designed to extract the best performance possible from our A21a pure class A output stage. Although based closely on the design principles of the A21a, it is a far more sophisticated and developed unit".

Indeed, instead of just being 'an A21a on steroids', the company has pretty much redesigned the classic amplifier from top to toe. It features new high specification output transistors, completely redesigned power output boards, a custom made power transformer and high quality power supply, solid silver Teflon-coated loudspeaker wiring, silver plated steel 'mil spec' coaxial signal wires and a current feedback preamplifier stage with an almost constant bandwidth, it is claimed.

Indeed, Sugden says the only real similarity to the A21a is the Class A output circuit, but this has been heavily modified and is on new circuit boards, with careful improvements in capacitor smoothing and much greater power supply headroom.

Although rated at 32 watts per channel, the power supply has been "massively over engineered", with the main smoothing and decoupling capacitors being three times the physical size of the standard A21a with much greater current capabilities. This provides a 30% increase in the single ended HT voltage and quiescent current setting, the company says.

In truth, the IA4 can be described as an unusual hybrid design as it has a single-ended power output stage and a dual voltage DC coupled preamplifier. This requires two separate power supplies producing a true pre-power combination in a single box. Patrick Miller told *Hi-Fi World* that, "the preamplifier required a dual voltage to operate our current feedback Open-Loop Transimpedance design - this has a wide-bandwidth capability and low distortion." All inputs and outputs are relay switched with high quality silver contacts.

One nice touch is the standard phono stage - a moving magnet design incorporating a dual Bipolar/JFET operational amplifier. The advantages of this design on a dedicated moving magnet circuit are low noise, low distortion with a DC offset of less than 1mV making it ideal for the DC coupled circuitry, says Sugden. It's a shame that there's no moving coil input (especially considering the price), but a brief listen confirmed that the company has tried hard with the phono stage. It's easily the equal of a decent £300 offboard affair, and if you're running a moving coil cartridge, you can always save up for a Graham Slee Elevator EXP (£509) head amp.

The IA4 is a nicely made bit of kit indeed, but isn't quite as



impressive in perceived build as the A21a S2 (due to it being nearly £2,500 pricier and not really any better finished). Sugden say the front panel is machined "from one of the finest grades of aluminium available called gauge plate - a ground flat plate used in the production of dies and precision jigs". All well and good, but the volume control still doesn't have the precise, silky action of a £500 Onkyo A-933 integrated, for example. Also, I found the top casework a tad too resonant for my liking. Rap the top plate with your knuckles and you get a rather undamped sounding 'ding', which is less than ideal. Still, it's streets ahead of Sugden of yore, and it's only when you've spent a month with a (£1,000 cheaper) Naim SuperNait, as I have, that this amp's build seems a let down. There are two finishes available - Titanium (silver) and Graphite (black); our review unit looked very swish in the former.

SOUND QUALITY

Listening to the IA4 is, as someone once said, "déjà vu all over again". It's perhaps a testament to Sugden's circuit design and/or voicing skills that they can make an amplifier with so few on-paper similarities to the A21a, yet that sounds so similar. What the new Masterclass integrated gives you, compared to its budget brethren, is more of the same. This is, as we'll see, is no bad thing...

Everything I loved about the original A21a, the newly revised S2 and of course the recent A21

SE, is there with the new IA4, but more so. What you get is a tremendously clean yet massively musical amplifier, with (for the first time) power aplenty. At least it's aplenty in Sugden terms, as this is no Rotel RB-1092 with 580 watts per side on tap. Rather, the claimed 32W [see MEASURED PERFORMANCE] simply takes one of my biggest reservations about the other, cheaper Sugdens, off my list of negatives.

Basically, this amp will drive most things to highish levels without any protest. In my system, this meant that - for the first time - I could turn the wick up without fear of the Sugden, or my loudspeakers, wilting under the sheer physical strain of everything. The IA4 simply doesn't have an issue with driving even moderately demanding loudspeakers, as the others did. This is, for the first time from Sugden, Class A without tears. What used to

"rarely have I heard an integrated that strings everything together in such a musical way..."

get in the way of me enjoying the company's superb amplifiers has now been removed. Although this amp isn't as commanding as, say, a Naim SuperNait, it shows far less concern about what it's asked to do, volume-wise or speaker-wise.

For example, cueing up a Classic Records reissue of Peter Gabriel's

REFERENCE SYSTEM

Technics SL1210/Audio Origami RB250/Lyra Dorian turntable
 Note Products PhoNote phonostage
 Marantz CD63 KI DP CD player
 MF Audio Silver Passive Preamplifier
 NuForce Ref 9SE power amplifiers
 World Audio K5881 (modified) power amplifier
 Yamaha NS1000M loudspeakers
 Quad ESL-989 loudspeakers

'Solsbury Hill' I heard an extremely assured sound. From an ultra wide soundstage, obviously more expansive than the recently reviewed Naim SuperNait for example, came that classic guitar refrain, with percussion bristling out from either loudspeaker with tremendous clarity and drive. Bass guitar was strong and insistent like no other Sugden I've heard (albeit a tad less physical than the aforementioned Naim flagship integrated), and vocals were tremendously engaging. As I've said before, Sugdens don't gild the lily with

extra syrup - there was no sense of artificial smoothing of Peter Gabriel's distinctive tones - instead this amplifier is so transparent that it was merely reporting about the quality of the disc, and sure enough, moving to my first generation Japanese pressing of the same caused that slight 'zing' to go.



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Moving to Prefab Sprout's 'Tiffany's', and the Sugden again dived into the song's percussion – sounding razor-sharp and lightning-fast. It's arrestingly quick off the blocks, making even the Naim SuperNait sound a tad leaden in some respects, and reminds me most of a modern state-of-the-art tube amplifier in this respect. In my system, the IA4 wasn't so much bright in the upper midband as 'well illuminated'. This wasn't in any sense fatiguing in the way of most transistor amplifiers, because it was a result of stark clarity rather than classic transitory distortion. It threw everything into sharp relief, making my reference MF Audio Passive Pre/ NuForce Ref 9SE actually sound a tad slow and cloudy by comparison.

Moving to a choice slice of BlueNote jazz, and the Sugden did its stuff like no other transistor amplifier I've heard. That spry midband threw out massive amounts of detail about the instruments and the position of the players in the mix, yet it strung everything together with such ease that you didn't notice unless you listened for it. The IA4 has a wonderfully 'up and at 'em' quality that just throws you right into the 'fray' of the musical event, leaping and bounding along with *insouciance*, making even the Naim SuperNait sound a tad too controlled and over self-conscious in this respect.

Well recorded electronic music was sheer bliss; Goldie's 'Inner City' was delivered with a speed and authority that took my breath away, making my preferred MF Audio/ NuForce pre-power combo of choice sound leaden and uncommitted. The other side of this was the Sugden's slight lack of depth in the bass; it's strong like no Sugden before it, but still there's less sense of the massive heft the NuForces or indeed the SuperNait can deliver when called up to so do. Don't get me wrong, this isn't so much a criticism as an



observation about its character – something to bear in mind when matching it to your system. In absolute terms it lacked the massive depth perspective delivered by my reference World Audio K5881 tube amplifier – the IA4 is nicely deep but doesn't quite drop back with the very best of them.

Anyone familiar with the Sugden sound will love its textural accuracy. At first listen the IA4 simply seems 'cleaner' than other amplifiers, being very open and direct and telling you all about the grain of the voice or the tonal patina of the instrument in great detail. It's only when you revert to other solid-state amplifiers, some costing considerably more, that you realise that they're terribly 'mushy', dull or coarse by comparison. For many, bored by solid-state's greyness and homogeneity but not wishing to get into that whole new can of worms that are valves (with their associated colourations) this amplifier is a joy.

Overall though, what best summed up this amplifier for me was playing my old, scratchy copy of Electric Light Orchestra's 'A New World Record'. Although the Sugden was telling me in no uncertain terms that I should have taken much better care of this particular slice of vinyl, and indeed also that the original recording quality itself was mediocre at

best (being thin, compressed, mixed-for-AM-radio fare), it still gave a tremendously enjoyable rendition of 'So Fine'. Brilliantly rhythmic, effortlessly dynamic and with breathtaking speed, it made the song romp along and caught every last ounce of its feel.

CONCLUSION

To my ears, this is the best Sugden amplifier yet. Happy to mix it with £4,000 (or more) amplification, it's just as price-competitive as the cheaper A21a S2, and brings so much to all music it plays. Rarely have I heard an integrated amplifier that dives into any given piece of music, throws out so much detail and yet strings it together in such a musically satisfying way. Sugden fans unnerved by its amazing across-the-board ability can relax, as there are still a few operational foibles and question marks over the slightly resonant top plate, but the overall verdict is one of wide-eyed admiration for a glorious integrated amplifier.

VERDICT ●●●●●

Dizzily fast, musical sound allied to breathtaking detail and a useful amount of power make this Sugden's best ever integrated amplifier – pure class!

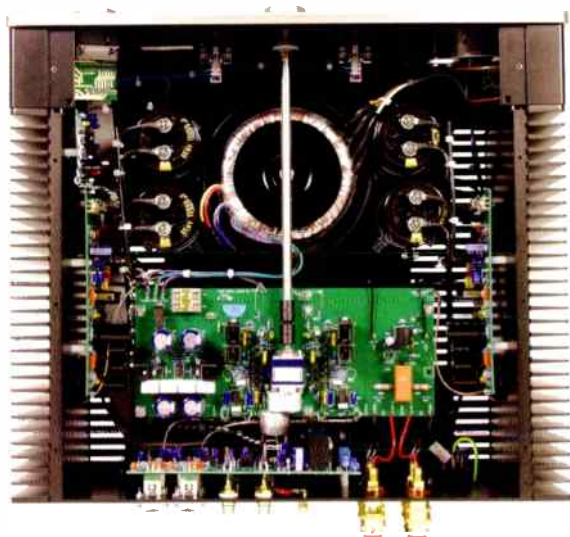
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FOR

- breathtaking clarity
- dizzying speed
- tonal accuracy
- phonostage

AGAINST

- resonant top plate
- volume control action
- size



MEASURED PERFORMANCE

The Sugden runs hot, but then it is Class A and this was obvious when looking at its high frequency distortion residual: there were no crossover spikes, just second harmonic. Our spectrum analysis shows this, except that full scale is 0.1% and at 0.001% the Sugden's distortion is barely visible, it is so low. These characteristics are maintained at higher outputs, but having said that the amplifier is limited in what it can deliver. Using sine bursts to avoid the current limiters, it produces 30 watts into 8 Ohms and 45 watts into 4 Ohms. This is fine, providing reasonably sensitive loudspeakers are used. It will run louder than an A21a, but with its super clean Class A output I would expect Sugden's famous treble sweetness to be maintained.

Bandwidth was wide, frequency response measuring 5Hz up to a very high 170kHz. A high damping factor of 47 suggests a reasonable amount of feedback has been used, and that bass will likely sound quite tight.

Sensitivity was high at 120mV, allowing the IA4 to work with all sources, even old ones with low output.

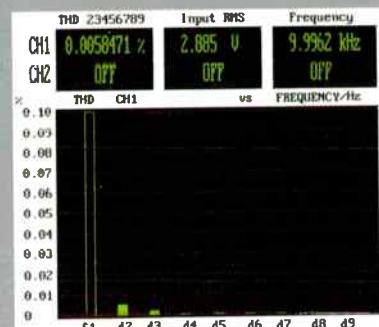
The phono stage was accurately equalised, low in noise and high

in sensitivity, measuring well in all respects.

The IA4 measured well all around. It is a classic Class A design, with limited power output accompanied by plenty of heat, but its output is all but distortion free. NK

Power	30 watts
CD/tuner/aux.	
Frequency response	5Hz-170kHz
Separation	70dB
Noise	-88dB
Distortion	0.001%
Sensitivity	120mV
Damping factor	47

DISTORTION



Size Matters

Looking for a vinyl based system with a difference? Channa Vithana strings together an unusually compact all-analogue set-up from Pro-Ject...



Pro-Ject I Xpression III turntable.

Anyone with a sizeable collection of vinyl needs no convincing about the format's sonic abilities, but in some other respects a turntable-based system can be a chore – not least the tendency for the latest decks to be ever larger and more imposing. Well, here's a vinyl system that proves less is more – a very impressive combo based around Pro-Ject's latest Xpression III turntable and the company's brand new Pre and Amp Box separates. The latter, as anyone who's ever seen them in the flesh will know, aren't just compact, they're miniscule!

At the front of the system is the new Pro-Ject I Xpression III turntable (£325). The changes over the second generation deck include the fitment of the brand new Ortofon 2M Red moving magnet cartridge (normally £60 separately), a lighter and more aesthetically pleasing acrylic platter in place of heavier metal, an 8.6c tonearm with carbon fibre armtube and a new lustrous dark grey piano lacquer finish to the plinth in place of the previously industrial matt-black. Compared to its predecessor (the £250 Xpression II), the new III offers a dramatic all round improvement – everything from bass articulation to timing is better, and the new deck sounds more incisive but not harsher. It's well worth the extra £75.

The partnering phonostage is Pro-Ject's Phono Box SE (£150) which is a neatly configurable (via jumper switches) MM or MC design. At the rear panel it has a special DC input socket which can accept

Pro-Ject's forthcoming upgrade Accu Box battery power supply.

It's a dual mono design for better channel separation and features five parallel input op-amps per channel for lower-noise and improved signal to noise ratio, says Pro-Ject.

Moving on to the heart of the system, and of course, a cynic's initial reaction when seeing the new Pro-Ject Pre and Amp Box combo is that you could buy a standard-sized budget-integrated for similar money, with more power and features. And it's also true that, at a claimed 20W/8ohms and 30W/4ohms, the Amp Box power amplifier may not have loudspeaker driving ability of a monster Krell. But there's more to life than simple amplifier power figures, and hearing these little Pro-Ject babies (measuring just 103x38x141mm each!) convinced me

that they're serious hi-fi components which just happen to be tiny, rather than the reverse.

The Amp Box uses a single Flying Mole digital amplifier board, especially chosen by Pro-Ject, with bespoke linear power-supplies and preamplifier stages along with high-quality Japanese-made Takamisawa relays for input selection and a preference for motor-driven volume potentiometers over electronic types for better sound-quality. Combined with the equally small Pre Box, this pre-power amplifier combination can be easily placed on a bookshelf, ever so discreetly. The Pre Box has two inputs and a remote control also, so it isn't entirely user-unfriendly.

For reference purposes, I quickly compared the Pre and Amp Box amplifiers to the superb NAD 325BEE integrated (£250) which

I think is one of the best budget integrations available. While the NAD, with its 144 watts into 4 Ohms (*Hi-Fi World* figures), understandably had more drive in comparison to the lower-powered Pro-Jects when connected to my reference Waterfall Victoria loudspeakers, the Pro-Ject duo impressed in almost every other area. It sounded more free-flowing and gave superior timbre, simply outclassing the NAD which sounded clinical by comparison.

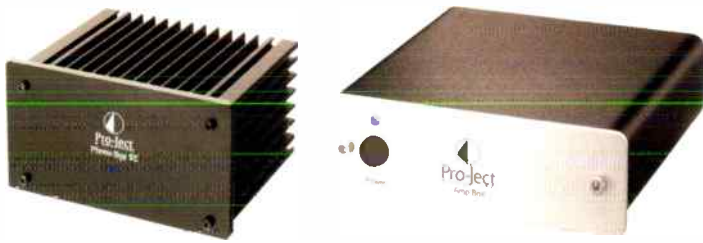
In keeping with this system's 'less is more' theme, I opted for a pair of compact standmounting loudspeakers from Scottish company Art Loudspeakers. Based in Troon, Ayrshire, it was founded by brothers Derek and Ramsay Dunlop, formerly of the family run Systemdek turntable manufacturer. The book-matched cherry veneered £995 Stiletto Monitors are a rare beast in that they feature high quality birch-ply cabinets

In conclusion, the Pro-Ject system is an impressive and compact hi-fi system.

(like B&W's high-end designs) instead of the cheaper MDF, and you can see the edge-on ply construction at the rear. The compact 320x220x170mm two-way Stiletto Monitor features a 25mm horn loaded soft-dome tweeter with neodymium magnet, and 150mm treated paper mid-bass driver. They have a claimed 87dB sensitivity, 45Hz-22kHz frequency range and nominal 8ohm impedance that Art says doesn't go below 6.5ohms.



Ortofon 2M Red phono cartridge.



Pro-Ject Phono Box SE phono stage and Pro-Ject Amp Box amp.

Pro-Ject's UK distributor Henley Designs also supplied well-crafted van den Hul interconnects and loudspeaker cables, which is how I originally heard the Pro-Ject amplifiers. The reasonably priced £45/m Name interconnects incorporate a 1.1mm diameter central conductor which provides high frequency bandwidth and low-loss signal transfer. Both the signal-core and shield's signal return are made of silver coated high-purity matched crystal oxygen-free copper (OFC). This construction method is claimed to also maintain signal integrity and provides maximum durability, says van den Hul. The £12.50/m CS-122 Hybrid loudspeaker cable features two conductors made of pure silver coated 147 strand 0.16mm diameter high-purity matched crystal OFC. The conductors are then covered by an extra layer of vdH's preferred Linear Structured Carbon (LSC).

Having followed Henley's interconnect and speaker cable recommendations, I myself chose a LAT International AC-2 MkII mains cable (£114/0.9m) specifically for the Amp Box, as all the other components feature 'wall wart' power supplies. The Amp Box has a figure-eight mains socket on its slightly larger 20A PSU, and the LAT was chosen because I know it's a very capable design that can be supplied as standard with a fitted figure-of-eight connector. The LAT cable consists of a foil screen, PTFE/Teflon and their 'Silverfuse' process which pulls the 7N (99.99999%) purity copper through molten silver and then compacts the two materials together under immense pressure to form the special conducting metal. In use the LAT cable revealed better bass tunefulness and extension as well as clearer sounding instruments from the Amp Box.

SOUND QUALITY

It was hard to reconcile this system's diminutive dimensions with the surprisingly large, expansive sound coming out of it! Every time I looked at it, there was a sense of puzzlement as rarely - if ever - have I heard a sound so big emanating from boxes

so small...

For example, the way it caught the grand orchestrations of the 'Mozart Klavierkonzert Nr. 25' was breathtaking. The stereo image was impressively wide (one of the joys of vinyl, in my experience), and as the music unfolded, there was a strong sense of it building up towards the crescendo, which it revealed with surprising authority given the modest rated power output of the little Amp box.

Again, for such a modest system there was a surprising amount of insight into the recording. The new Ortofon 2M Red served up a very detailed sound which the Pro-Ject amplification was able to exploit to best effect. For example, instrumental separation proved excellent while the timbres of the typically characterful Mozart piano parts were revealed with aplomb. The instructive nature of this system allowed the music's innate beauty to be appreciated, with no reminders as to its modest station on the great hi-fi scheme of things. I particularly enjoyed the free flowing musicality of the piano.

The soaring strings of classic dance music are another passion of mine, and sure enough the system gave a lovely rendition of the string parts on 'Searching' by Luther Vandross. These elegant arrangements flowed nicely and sounded crisp and well defined. The track's rhythm section was also deftly carried - those deep house-style grooves counterpointing beautifully with precisely punctuated percussion parts.

Björk's 'Homogenic' was also a pleasure, the system showcasing the song's tuneful and angular bass lines to full effect, giving a surprisingly powerful and 'big' sound from boxes so small. Vocals were also superbly extended, with finely resolved scale. The Pro-Ject/Art Loudspeakers system caught the drama of the song with real skill, remaining unfazed by all the complex production elements within the main musical structure.

CONCLUSION

If you're looking for a high quality vinyl replay system that takes up the minimum of space, here's your answer. Don't be fooled by those mobile phone-sized amplifier boxes - they're capable of a very grown up sound, and they match the turntable and loudspeakers heroically well. I love the way the minute proportions of the Pro-Ject amps can be craftily located onto bookshelves, leaving just the compact Pro-Ject turntable in full view as the source component, whilst the finely constructed and very musical Art Stiletto Monitors are also small enough so as not to draw attention to themselves.

In sonic terms, this set-up was an unmitigated success. I feel the new Pro-Ject Xpression III is a good part of the reason for this - it's very impressive at the price and comes with an excellent bundled cartridge. The Pro-Ject amplifiers really like a good source, proving revealing in a sophisticated and highly detailed manner more akin to high-end hi-fi. The Art Loudspeakers Stiletto Monitors are excellent quality minis, offering real finesse and insight, and were helped all the more by the excellent van den Hul and LAT cabling. All in all, a great antidote to the modern hi-fi malaise - masses of big, sprawling boxes offering dubious sound per pound.



Art Stiletto Monitor.



LAT International AC-2 mains cable.



Van den Hul The Name interconnects.



Van den Hul CS-122 loudspeaker cable.

MUSIC USED

Björk, 'Homogenic' (1997)
Brendel/Mariner, 'Mozart Klavierkonzert Nr. 25' (1978)
The Best of Luther Vandross, '...The Best of Love' (1989)

ART STILETTO MONITOR £995

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WIN A FANTASTIC ANATEK ACOUSTICS MC1 PHONO STAGE AND MATCHING INTERCONNECTS WORTH £1,100 IN THIS MONTH'S GREAT COMPETITION!

QUESTIONS

[1] Anatek Acoustics was formed when?

- [a] 2001
- [b] 2000
- [c] 1999
- [d] 1998

[2] The MC1 has a patented circuit topology running in which way?

- [a] Class A
- [b] Class AB
- [c] Class B
- [d] Class D

[3] What does the Anatek's unique design add?

- [a] high quality input transformers
- [b] gold plated phono sockets
- [c] Sorbothane damping sheets
- [d] an aluminium alloy front panel

[4] Adam concluded that the anatek MC1 is...?

- [a] "probably the best phono stage I have heard to date"
- [b] "probably the best lager in the world"
- [c] "probably time for a cup of tea"
- [d] "probably a robbery"

December Competition
Hi-Fi World Magazine
Unit G4 Argo House
The Park Business Centre
Kilburn Park Rd.
London NW6 5LF

Here's your chance to win one of *Hi-Fi World's* favourite phonostages, Anatek Acoustics' MC1, plus matching Anatek Acoustics interconnects.

Here's what Adam Smith wrote in the August 2007 edition:

"Anatek are relative newcomers to the audio scene, being formed in 2001 by Martyn Hook and Clive Read, summing their combined experience of the audio industry and passion for the subject. The result is a UK-based electronics company that has not only brought a new face to the market, but also some innovative technology in the form of a patented Class A circuit topology that apparently permits all the advantages of Class A operation without the usual penalties in terms of inefficiency and waste heat.

The new MC1 is a simple yet effective phono stage for moving coil pickup cartridges. It has a fixed gain of 67dB and cartridge loading is also fixed at 100 Ohms. This makes it suitable for most MCs. The circuit incorporates Anatek's aforementioned Class A, zero feedback design, but is also fully discrete and adds high quality input transformers which is arguably the best way of doing things. The MC1 weighs in at 4kgs, measures 100x250x330mm and is available in both black and silver.

The MC1 immediately announces

itself as something rather special. Bass performance is positively thunderous. Michael Jackson's 'Who Is It?' from the 'Black or White' album, almost blew me off the sofa with the force of the bass. The Anatek has a magnificently solid and weighty low end but keeps everything under a firm grip, meaning there is no wallowing, no sluggishness, no boom and no hesitation, just bass that goes down and down. The MC1 proved equally accomplished in other areas. Michael Hedges' acoustic guitar and Michael Manning's fretless bass interplayed stunningly on their instrumental version of 'After the Gold Rush' with every single note perfectly weighted and cleanly held. Both instruments had superb realism and a palpable sense of scale.

The MC1 offers up a capacious soundstage that stretches in all directions around the listener, its clean and composed midrange and sweet treble serving to locate both

instruments and singers with almost mathematical precision. Boy, does this phono stage turn the wiggle of a stylus into music... Taken all-in, I feel that the Anatek Acoustics MC1 is probably the best phono stage I have heard to date. The MC1 offers a vivid window right into the heart of vinyl reproduction; a heart that is still beating strongly and will continue to do so as long as products like this keep coming along."

Completing the package is a pair of superb quality PC-OCC high purity copper interconnects, with the latest VBT Next Gen 0102 connectors, worth £250. If you'd like a chance to win this superb combination, then answer the four easy questions on the left and send your entries on a postcard by 30th November 2007 to: December 2007 Competition, **Hi-Fi World magazine, Unit G4, Argo House, The Park Business Centre, Kilburn Park Road, London NW6 5LF.**

RULES AND CONDITIONS OF ENTRY

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- MULTIPLE ENTRIES WILL BE AUTOMATICALLY DISQUALIFIED
- PURCHASE OF THE MAGAZINE IS NOT A PRE-CONDITION OF ENTRY
- NO CORRESPONDENCE WILL BE ENTERED INTO
- THE EDITOR'S DECISION IS FINAL
- NO EMPLOYEES OF AUDIO PUBLISHING LIMITED, OR OF ANY COMPANIES ASSOCIATED WITH THE PRODUCTION OR DISTRIBUTION OF THE PRIZES, MAY ENTER

entries will be accepted on a postcard only

**SEPTEMBER 2007 OPERA AUDIO CONSONANCE CD120 WINNER:
Robin Kirk of Chatham, Kent**



Motor heads

Adam Smith drives the new Audioengine 5 active loudspeakers hard...

The incredible popularity of MP3 players has not only increased demand for portable loudspeaker systems, but also for good quality powered loudspeakers for use in the home, and it is the likes of Audioengine who have stepped into the breach.

The Audioengine 5s are compact units with all connections and amplification housed in the left hand loudspeaker, the right being passive. Inputs are through 3.5mm jack plugs on the top and rear only, and there is a USB socket for charging an MP3 player. Phono socket outputs are provided to connect subwoofers and the amplified speaker also has a 2 pin US-style mains connector on the back for powering external equipment up to 120W.

Output from the amplifier section is rated at 45 watts per channel and each loudspeaker uses a five inch (125mm) Kevlar woofer plus a one inch (25mm) soft dome tweeter. Tipping the tape measure at 250x175x190mm (HxWxD), the Audioengine 5s are the same size as a small bookshelf conventional loudspeaker. Sturdily constructed, the right hand unit weighs 4kg and the left one 6.4kg.

SOUND QUALITY

As MP3s have yet to find their way into the Smith household, and my

recently acquired Audio Technica Sound Burger LP player needs a new stylus, I turned to my trusty Technics SL-XPI40 portable CD player for listening.

Connected up to the Audioengine 5s I was immediately impressed. They have a nicely balanced and addictively enthusiastic presentation, but one that will play softly and quietly when required. Their active technology shows through in that the Audioengine 5s have an assured smoothness to their overall sound; the sign of a well balanced design.

At the top end, treble was sweet and enveloping, possessing a composure that will take the rough edges off any unsympathetic digital sources. However the Audioengine 5s were still able to pick out plenty of upper frequency detail, so they are not artificially rolled off. Midrange was equally impressive, with vocalists and instruments solid and realistic within the soundstage.

Bass was deep and punchy with a keen sense of rhythmical stability. One thing I did notice, however, was a

slight overhang that gave something of an echo to bass notes. This was improved by changing sources to our Eastern Electric MiniMax CD player, but it was still there. Never intruding, it did add a faint artificial bloom to acoustic double basses and the like.

CONCLUSION

Sturdily constructed with good connectivity and fine sound, the Audioengine 5s are an impressive little pair of active loudspeakers. They will do good justice to MP3 players and will even sit happily with higher quality source components as part of a second system.

VERDICT

Well made and fine sounding active loudspeakers that turn in an impressive performance at a reasonable price.

AUDIOENGINE 5 £200

Ecodigital

+44(0)845 004 5330

www.ecodigital.co.uk

FOR

- overall cohesion
- smooth and detailed treble
- engaging midrange

AGAINST

- no phono socket inputs
- some bass overhang

MEASURED PERFORMANCE

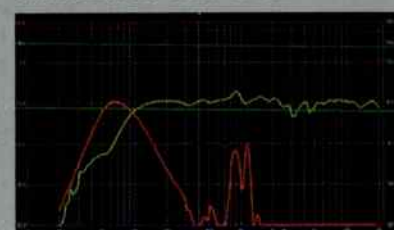
The Audioengine 5s have a very flat frequency response, showing they have been well engineered and their amplifiers and drive units have been finely tuned.

Treble response is even and well extended to 20kHz and hands over smoothly to the midrange, which is again flat, with only a small dip around 3kHz which should assuage any harshness in this area. There is also a small peak at around 900Hz which should add a touch of body to vocals.

Bass output is good down to 100Hz from the main driver, with the rear port taking over down to its tuning frequency of 65Hz. This should endow the Audioengine 5s with good weight for their size.

Overall I would expect the Audioengine 5s to have a smooth and even character with good bass punch and an even tonality across the frequency range. AS

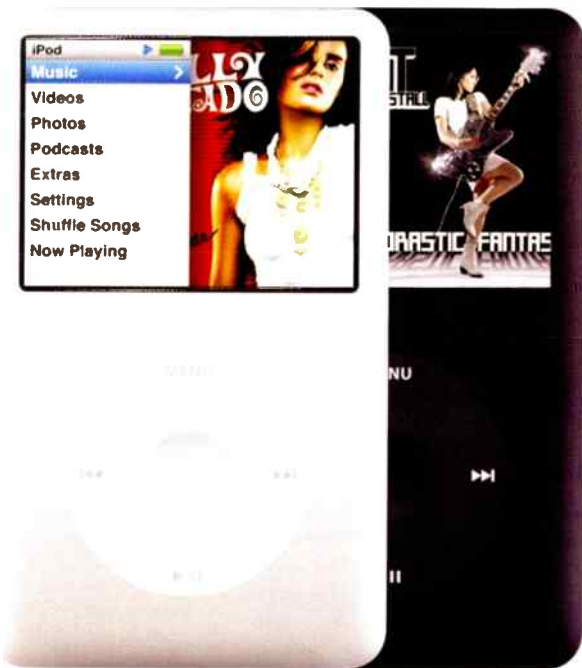
FREQUENCY RESPONSE



Green - driver output
Red - port output

Classic Sounds

It's that time again – winter brings the year's new version of the world's favourite music player – and for 2008 they've been dramatically revised. Podmeister Patrick Cleasby gives the most hi-fi friendly version of Apple's new iPod range – the 160GB Classic – the treatment...



PICTURE COURTESY OF APPLE.

I make no apology for being the kind of bloke who will stay late at work on the day of the latest Steve Jobs iPod announcement from across the pond, incessantly pressing 'F5' on an internet browser to glean, statement by statement, what the twisted guru is about to drop on us next...

After a disappointing 2006 pre-Christmas announcement, this year Steve and his designers have excelled themselves. Much of the information had been widely leaked in advance, but there was still a wow factor in the addition of video capability to the Nano, the new mainstream iPod Touch (an iPhone in disguise, as we all now know), and last but not least the new 'Classic' which – for reasons you'll soon see – has much to please mobile music listeners.

There had been speculation that the entire range was to go exclusively flash memory-based, so it was no small relief to those of us with large collections that – after the sexier news of the Touch had gone – they were committing to retain the

familiar hard disk-based model, now branded 'Classic'.

Indeed, current iPod posters still feature those silhouettes waving 'Classic' shaped white iPods – the only problem is that we now no longer have iPods in the original white! Instead, the Classic is available in what Apple call Black and Silver, but actually looks like charcoal grey and light gunmetal grey. Having lived with a black fifth generation (5G) model for two years, I elected that what I will determinedly call the 6G would have to be 'silver' for me, and of course, it would have to be the maximum 160GB capacity, so I can pursue the Holy Grail of mobile music – masses of uncompressed (i.e. Apple Lossless encoded) tunes on one small object d'art.

The huge 160GB capacity has been achieved due to storage partners Hitachi releasing a dual-platter 1.8 inch hard disk, and has kept the dimensions of the new top range iPod more or less the same as the preceding 60GB and 80GB models, just more rounded and metallic, so keep your existing case!

Single platter 80GB models are also available in the same colours for £159. More advances in disk technology mean they are much slimmer than the 5G 80GB and there may be reasons that you should stay with the more established disk technology – more of this later. The usual Apple metric, calculated based on average length 128kbps AAC tracks, gives you 40,000 track capacity on the big brother and 20,000 on the 'little' one – getting silly now isn't it?

OPENING THE BOX

The trip to the Apple Store on the first day of availability is no longer a rite of passage restricted to the iPod geek – the iconic music and video player is now wide open to all and shifts in incredibly huge numbers. At a certain North London emporium just ahead of me in the queue was a middle-aged mum who demanded two 160GB Classics for her kids.

She only stopped to ask how much they cost after she had brandished her platinum AmEx card. It would appear that we are locking into a very mobile phone-like automatic annual replacement cycle here – conspicuous consumption or necessary moving on up? The jury's out on that one. On the plus side, battery technology marches on and Apple now claim up to forty hours of audio playback, and their batteries definitely maintain their life far longer than they did in the earliest models...

The extravagant packaging of the iPods of four years ago is also long gone – what you get now is barely bigger than the machine itself, and contains very little else. There have been rumours that the emblematic white 'phones have been improved, but these days you don't even get the little black 'muffs along with them! Costs and environmental CD waste are also saved as software is no longer supplied – simply update the iTunes that Apple presume you've already downloaded off the internet (for free, PC or Mac). So in the little, padded, recyclable box you get 'phones, USB cable, iPod Universal dock adapter (No.10 in this case) and the machine itself in the usual cellophane wrapper.

IN USE

The Classic ships in a fully charged state, so the urge to fiddle immediately with the new additions to the 'Classic' iPod menu system is hard to overcome – but you aren't going to see the entire benefit until you load the machine up with tracks attached to high quality artwork. For those who don't buy compressed digital music, this is now easier to achieve than it used to be. For a while now, as long as you have an iTunes Music Store account, iTunes has been prepared to download good quality artwork from the store when you rip your CDs. It is also stored more efficiently than it was in the days of 'FetchArt' and 'Find Art Using Google Images' methods which would bulk each track up by the

size of the same image – the iTunes method does not embed the art, and thus frustratingly does not 'drive' the built-in Mac iTunes art screensaver.

As someone who frequently uses the Apple FM Radio Remote with the previous 5G model, I was happy to find that the new machine retains compatibility. Still, with the split between the original iPod and Nano user interface and the new iPhone and Touch products, the latter have lost some features. These include the somewhat 'minority interest' lyric display (until iTunes adds lyrics, geeks who want this have to use the automated PearLyrics 0.6 update, which requires a Mac and the maintenance of an incompatible-with-modern-iPods iTunes 6 version somewhere) and radio remote compatibility.

However, the new iPod Classic's interface retains colour and album artwork, while the main novelty that the new 6G machine has added is something inherited from the iPhone lineage, which it is not really up to dealing with in processing power terms. The 'cover flow' graphic display that's such a major wow factor when coupled with a Touch interface, struggles to load images quickly enough on the Classic. Worse still, when you're used to the responsiveness of the previous click-wheel iPods, the new Classic's click-wheel seems rather underpowered and slow to respond, which is irritating.

SOUND QUALITY

It may only have been my low expectations following on from the uninspiring audio performance of the old 5G iPod, but when I first slapped on some lossless tracks and toddled off to work, I was stopped in my tracks by the quality of the reproduction. I seem to recall I was listening to The Magic Numbers' 'Undecided' EP, yet this holds for almost any music.

Direct comparison of the 6G to the 5G supported that first impression – smooth material which the 5G had managed to present as a brash mush, like Richard Hawley's 'Tonight These Streets Are Ours' were miraculously restored to listenability on the 6G, with a lush warm bass, much better separation, and a much more naturalistic vocal tone.

Still, the EU volume-regulated model can be irritatingly low on power output through less sensitive headphones – anything more power hungry than the likes of Sennheiser's superb MX-550 earbuds (£25 and highly recommended) can sound a tad anaemic. Of course, we would never incite you to seek out GoPod

(<http://gopod.free-go.net/>) to 'uncap' your iPod, because it could damage your hearing...

As far as video goes, nothing has changed at all since the 5.5G level – the permissible specs for high resolution iPod video remain the same at 640x480 pixels and 1,500kbps (plus 160kbps audio) maximums. Similarly, losslessly compressed high-end audio playback capability remains capped at 24bit 48kHz Apple Lossless – so that's your maximum resolution. Not ideal, but at least it's better than CD!

The main downside is that over several weeks use I have had three or four instances of the single stuttering playback that used to accompany lossless playback before the old 5G models. On the 160GB this sometimes even affects simple 128kbps playback. It would be interesting to hear if this happens on the 80GB, if as it doesn't, this suggests the issue could be linked to read limitations of the dual platter 160GB drive...

CONCLUSION

As Apple would say, "which iPod Are You?". While the larger Classic is still not large enough to accommodate my entire CD collection, even at 128kbps AAC, I still relish the ability to carry a large selection of music (of lossless quality) and video with me. It is a sad inevitability, given that



PICTURE COURTESY OF APPLE.

– the dock connector pinouts have been varied to allow for the highly desirable connectivity improvement of analogue component video out – well worth using now it is widely available on HD TVs and AV receivers. Unfortunately at the time of writing the optional Apple cable to enable this was a couple of weeks from release, but it costs £35, and does include a USB mains charging block for that price, useful in these days when Apple no longer provide mains chargers in the iPod package.

Overall then - with beautifully finished aluminium fronted, stainless steel backed bodies, sharp displays, longer life batteries and cleaner, smoother sound – the new Apple iPod Classic is a truly excellent product (something I have not said

"I'd still recommend the Classic as the best option for the audiophile..."

Hitachi are now finalising a 120GB per platter 1.8 inch two platter hard drive, that I will almost certainly be procuring a 240GB 7G 'Classic' model this time next year.

In the meantime, despite my reservations over the slowness of the interface, the occasional unresponsiveness of the click-wheel and the odd playback stutter, I would still recommend the Classic as the best portable option for the audiophile with a large collection, as ever for reasons of ease of use and iTunes integration, although the improved audio is also extremely welcome.

Just don't get one in the expectation that your third party (or even Apple!) add-ons are automatically going to work with the 6G. You can no longer use the 3.5mm to phono composite video and stereo lead which came with your iPod Photo three years ago for video hookup – but this is not merely enforced obsolescence

about past generations), despite a few operational glitches which may well be removed by easily downloadable future firmware updates.



PICTURE COURTESY OF APPLE.

VERDICT

Fine sound, superb aesthetics, excellent build and healthy storage make this the best audio iPod to date, but it's still not quite flawless yet...

APPLE IPOD CLASSIC 160GB £229
 Apple Inc
 ☎ +44 (0)800 039 1010
www.apple.com/uk

FOR

- attractive menus
- improved sound
- iTunes integration
- styling, build

AGAINST

- sluggish interface
- backwards incompatibility
- occasional stutters

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Metal Works

Adam Smith listens to Usher's new Be718 loudspeakers, featuring a Beryllium tweeter...

Recently I found myself watching a television programme about the world's ten wildest rollercoasters. Now not only did this have me making notes on my next holiday destinations in order to try a few out (with Cedar Point, Ohio and the "Top Thrill Dragster" being top of my list!) but it started me pondering how we manage to advance our lives, both in technological and social terms, by adding an element of danger, or an aspect that makes you realise that one wrong move and something major will go wrong.

Even in the world of audio, a hint of this can add more to the listening experience. Whether it be a big valve amplifier that will burn or electrocute you if you touch it in the wrong place, an exposed Ionofane tweeter, or even an expensive and delicate moving coil cartridge with exposed innards that only requires a

briefest slip of a cueing hand to kiss goodbye to the cantilever, there is a lot to be said for that little something that makes you tread carefully and respect what you have even more. So, how do these strange musings fit into the new Usher Be718s I hear you ask? Simply put - beryllium.

Element number 4 in the periodic table, with the chemical symbol Be, it's an alkaline earth metal that has the properties of being strong and light in weight, although rather brittle. Obviously its strength and lightness make it an ideal candidate for use as a membrane material in loudspeaker drive units, as Yamaha realised back in the 1970s, equipping the NS1000s with beryllium dome midrange and treble units. The problem with beryllium is that it is not very nice stuff to work with. The dust that arises from its processing is carcinogenic, and some people have an innate sensitivity to it that can result in Chronic Beryllium

Disease, which is treatable but not curable.

However, in the same way that technology has made those wild rollercoasters possible, beryllium can now be processed under controlled conditions and with negligible risk to life and limb; you will all no doubt be glad to know that beryllium compounds are no longer tasted for their sweetness in order to verify the metal's presence, as early researchers did!

Consequently there was inevitably going to be a resurgence in the element's use and Usher are one of the most notable to get their foot into the door with the new, upgraded Beryllium Dancer series of loudspeakers, the smallest of which are the standmounting Be718s here.

Using a one inch (25mm) tweeter, the dome of this is made from Beryllium Oxide Ceramic, giving a stiffness to weight ratio of over five times greater than that of aluminium

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or titanium. As a result, the tweeter should be sensitive and have a fast transient response, but without the alarming and often audible breakup that accompanies such a low mass item made from a less sympathetic material.

Accompanying this is a new seven inch (170mm) bass driver made from a damped paper material impregnated with carbon fibre, so this should match the tweeter well - the surest way to ruin a fast and responsive tweeter is to mate it to a big, slow bass driver, but the Be718s look very promising in this respect.

The Be718s are large standmounters, measuring 387x258x428mm (HxVxD) and tipping the scales at a very sturdy 17.2kg. Their construction is very

is something of a peach and its low mass and high stiffness can be heard in the crisp and spry nature it imparts to high frequencies. Never harsh or clangy, the Be718s exhibit a pleasing neutrality across their top end and actually have a quite subtle nature to the way in which they deal with the minutiae of high frequency detail.

Many loudspeakers utilise a rising response towards 20kHz to add sparkle and atmosphere, and ensure that everything is picked up within the performance, whereas the Be718s do this naturally by virtue of their well designed tweeter - you really feel that you are hearing everything you are supposed to, without any areas being artificially boosted. A quick blast of Vivaldi's



REFERENCE SYSTEM

Pioneer PLC-590/SME M2-10 turntable
Ortofon 2M Black cartridge
Trichord Diablo Phono Stage
Eastern Electric MiniMax CD player
Anatek A50R amplifier

impressive - as an example, the panel containing the crossover and terminals is a solid sheet of metal over 5mm thick and the bi-wire links wouldn't look out of place on a car battery. The main cabinet is available in gloss black or ivory white with wooden side cheeks.

SOUND QUALITY

Listening to a loudspeaker with a measurably flat response is often an interesting experience, as that flatness can often tell you little about the speaker's overall character. Hence a design like this can involve a certain amount of holding your breath in nervous anticipation.

Fortunately, the Be718s didn't have me turning blue, as their particular flat response imparts a very impressive even-handedness to their performance across the frequency range, but without sucking the life out of the sound, as I have heard some do. That tweeter really

'Four Seasons - Spring' presented violins with a pleasing effortlessness and ensuring that they never sounded strained or screechy - a sure sign of a good tweeter.

This sense of evenness continues into the midrange, where the Be718s deal expertly with both vocals and instrumentation. They project an impressively wide and deep soundstage into the room which permits easy placement of musicians within the recording. Jackson Browne's vocals on 'The Pretender' were magnificently rendered, and the backing drum strikes were snappy and solid, adding verve and pace to the performance.

Finally, the new mid/bass driver works a treat down at the bottom end, too. The Be718s have excellent extension and offer a bass scale and impact that belies their size. They can occasionally come a little unstuck at the very bottom with a hint of ponderousness that makes low notes stay a little longer than they should, but this never affects the overall timing and can be managed by judicious placement and choice of partnering equipment.

CONCLUSION

The Usher Be718s are a fine loudspeaker and a considerable improvement over the

X718s. Their use of a light yet stiff metal in their tweeter has given them a lightness of touch in the upper registers that is quite striking and yet they do not miss any detail at all in this area.

Equally impressive is the new bass/mid driver, which underpins the sound with a sturdy sense of authority and matches the character of the tweeter perfectly. All in all, the Be718s offer an expertly balanced performance across the frequency range that gives that *frisson* of excitement with the right material but without any risk of danger to life and limb. Unless you drop one onto your foot, of course...

VERDICT ●●●●●
Technically accomplished loudspeakers that use their exotic materials to excellent effect.

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FOR
- subtle, detailed treble
- smooth, emotive midrange
- bass weight
- build quality

AGAINST
- occasional bass bloom



MEASURED PERFORMANCE

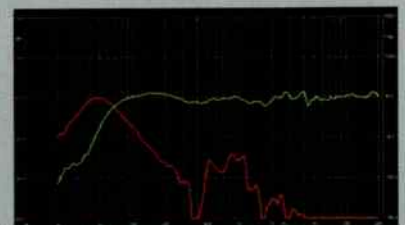
The Usher Be718s show an almost textbook result when under measurement. Their response is virtually flat across the spectrum from 100Hz to 20kHz with only a small undulation in the midrange region which should barely be noticeable. As a result the Ushers should have a very even nature across the frequency bandwidth.

Bass output is fine from the Be718s with the seven inch main driver working down to 70Hz and the front-mounted slot port tuned to around 40Hz. This port also shows a nice clean measurement and should give good bass reinforcement without making the Be718s sound boxy.

Electrically, the Be718s are not so well damped in the bass, but have no particular nasties lurking in their impedance trace. Average measured impedance is high at 9.4 Ohms, dipping to a minimum of around 6 Ohms, so they are quite an easy load. Sensitivity is on the low side, however, at 84dB,

so the Be718s will benefit from an amplifier of at least 50 watts. AS

FREQUENCY RESPONSE



Green - driver output
Red - port output

IMPEDANCE



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Now & Zen



Adam Smith seeks enlightenment from Acoustic Zen's Adagio loudspeakers...

FIt is documented in China in the 7th Century, the practice of Zen is a form of Buddhism that relies less on the following of pre-existing teachings and study of religious texts, in favour of direct individual experiences in order to reveal one's own true inner nature. Naturally, a large part of this is achieved through meditation and Zen practitioners use the technique known as 'zazen', the aim of which is to sit still fully still in order to open the mind. Once this is done, it is said that only then, can one's true inner Buddha nature be revealed.

Of course, for more general relaxation purposes, some people employ simpler forms of meditation but a great deal of us, myself included, prefer to wind down to a spot of music. Designer Robert Lee clearly saw this analogy as well as his company Acoustic Zen, not only makes use of the name, but state that their products mark a big step on "your path to sonic enlightenment", no less!

Founding the company in 2000, after two years as leading designer at Harmonic Technologies, Robert initially continued his specialisation in cables, but more recently branched out into making what he claims are the "world's lowest distortion and most musically coherent loudspeakers ever". Currently consisting of a two-strong range, the Adagios featured here are a large, two-way floorstanding transmission line design, and the Adagio Juniors are their smaller brethren using the same drivers but in a more compact, ported standmounting enclosure.

In each case, both loudspeakers make use of a 1.5 inch (32mm) tweeter and two 6.5 inch (165mm) bass drivers arranged in a D'Appolito configuration, but both drive units are slightly unusual. Firstly, the tweeter is not a conventional dome or cone design, but a circular ribbon type that is claimed to have exceptional dispersion, transient and power handling characteristics along with a linear impedance and phase response. The membrane is made from 0.01mm heat-resistant Kapton and has negligible mass, which should make for excellent transient response and thus good treble clarity.

The bass drivers use a three layer cone, with a ceramic impregnated fabric in the centre, sandwiched by a ceramic coating on either side. What's unusual about these items is that they make use of an 'underhung' voice coil, where the length of winding on the coil is much shorter than the magnetic gap in which it is moving. The advantages of this are that the magnetic flux that the coil experiences over its normal

range of movement is consistent, and the coil mass can be kept low. Conversely however, the short length of winding can affect sensitivity, requiring strong magnets (Acoustic Zen use neodymium types) but the biggest issue is that strong non-linearity occurs as the coil moves out of the gap when the speaker is driven hard, which can lead to signal compression at high power.

The Adagios are available in five different cabinet colours, namely the Mappa Burl of our review samples, plus Golden Burl, Walnut Burl, Figured Red and Black Pearl. Cabinet fit and finish is superb

"their upper midrange and treble is particularly delicious..."

and the Adagios weigh in at 35kgs each and tip the tape measure at 1200x225x325mm (HxVxD).

SOUND QUALITY

With the loudspeakers in position, well warmed up and the Hi-Fi World sofa very handily placing my ears at tweeter height, the Adagios rewarded with a very smooth and well balanced sound. In particular, the circular ribbon tweeter stood out straightaway as it is an absolutely delightful device.

The Acoustic Zens' high frequencies were sublime, with detail, composure and a sense of mellifluous clarity that made music flow expertly. Measurement shows a steady rolloff towards 20kHz and this did occasionally steal the very last ounce of glacial clarity from the Adagios, but the depth, detail and encompassing nature of the lower treble meant that I never once found myself missing this.

Even more encouraging was the way the treble melded into the midrange. All too often it is difficult to mate a ribbon tweeter to a larger bass/mid driver as ribbons do not work to such a low frequency as a conventional dome item, thus resulting in the potential of a 'hole in the middle effect' where the bass driver cannot reach high enough and the tweeter cannot go low enough. I suspect that the dip in output at 3kHz is due to this effect but it is in a region where the ear is less sensitive and I never experienced a noticeable suckout in this area.

Lower down, the rise in output below 1kHz adds superb body and form to vocals, with the likes of Norah Jones, Juliet Turner and Diana Krall almost larger than life within the soundstage. The soundstage itself

was impressively wide, stretching beyond the physical boundaries of the loudspeakers well, but it was not especially deep behind the plane on which they were located. Once again, I suspect that the 3kHz dip may be robbing a little atmosphere, giving this result.

What it did not seem to affect, however, was instrument detail, as the Adagios proved as adept in this area as they were with their vocal performances. All instruments, whether acoustic or electric, had good body and form to them, with a stability in the recording that was most pleasing. Playing Eels' 'Susan's House' from

the 'Beautiful Freak' CD, lead singer E's vocals were expertly reproduced, being solid between the loudspeakers, and the backing double bass was sat right beside him, large and solid.

In a similar vein, spinning Sinead Lohan's 'Water to the Well' from her 'Who Do You Think I Am?' album, the vocals were again superb, full of emotion and capturing the essence of her voice marvelously. Here the backing track is quite thinly recorded anyway but the Adagios made good work of it. The innate heart of the recording was well captured and each instrument behind her was clean and clear.

Bass from the Adagios was weighty and deep, as might be expected from both their size and the fact that they use two drivers in a transmission line configuration. Upper bass detail was also commendable, with the Acoustic Zens capturing the nuances of bass guitars and the like. Where they did falter a little was down at the very bottom, which did have a tendency to be a little thumpy when things really got going. Although never uncomfortably boomy, the Adagios still sometimes felt as if they were struggling to maintain control at times in this area.

CONCLUSION

The Acoustic Zen Adagios are a fine pair of

loudspeakers, turning in an evenly balanced and consistent performance across a wide range of source material. Their upper midrange and treble is particularly delicious, showing that the circular ribbon tweeter used is well designed and has been well implemented. Their couple of slight rough edges in terms of lowest bass and soundstage depth do not detract from their



REFERENCE SYSTEM
 Pioneer PLC-590/SME M2-10 turntable
 Ortofon 2M Black cartridge
 Trichord Diablo phono stage
 Eastern Electric MiniMax CD player
 Anatek A50R integrated amplifier

overall performance, which is smooth, detailed and thoroughly satisfying.

They may disturb you when trying to reveal your inner Buddha, but they do so in a very enjoyable manner.

VERDICT ●●●●
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FOR

- superb treble
- excellent vocal reproduction
- wide lateral imagery
- consistent performance

AGAINST

- constrained image depth
- can be thumpy

MEASURED PERFORMANCE

The Acoustic Zen Adagios have a rather unusual response characteristic that is not exactly flat. Treble from the circular ribbon tweeter rolls down gently from around 12kHz to finish around 4dB down so they should not be hard at the top end, although may lack a little crispness.

Output is rather uneven across the midrange and, although it drops down in the region in which the ear is most sensitive, this is quite a sharp drop of around 6dB which may be noticeable. Further down, output rises again at around 600Hz-1500Hz which should bring vocals out well.

Bass output is very healthy, with the main drivers operating down to 70Hz and the port of the transmission line taking over down to its tuning frequency of 35Hz, so the Adagios should have a healthy low end.

Electrically the Acoustic Zens are very well damped, so bass should be tight and they exhibit a flatness right up to 20kHz, a characteristic of ribbon tweeters. Average impedance was measured as 5.4 Ohms, dipping to a

minimum of 4.6 Ohms, so they will be quite current hungry throughout the frequency range. Sensitivity is good, however, at 89dB and so 30 watts should be sufficient to power them to good levels. AS

FREQUENCY RESPONSE



Green - driver output
 Red - port output

IMPEDANCE

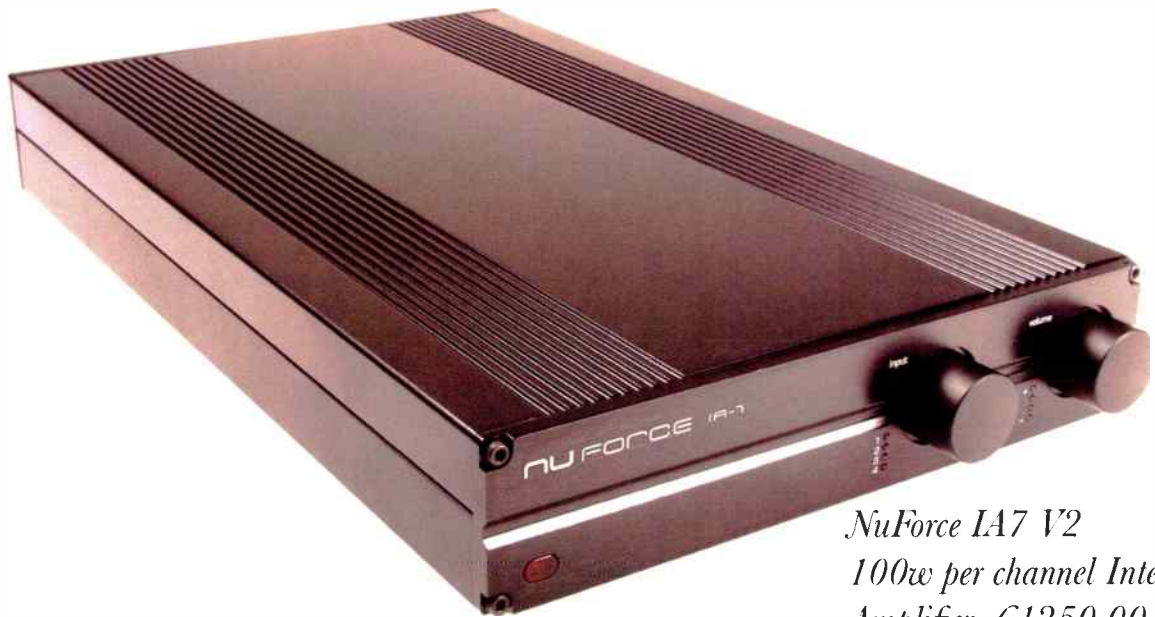




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Atonement

Given that interconnects have become the twenty first century equivalent of tone controls, Tony Bolton twiddled around to find where the Classique Sounds Transparent Ultra+, Chord Company Chorus and Brilliance Euphony sat on the scale...



Brilliance Euphony.



Chord Co. Chorus.



Translucent Ultra+.

These days, if your system sounds a little wrong, you don't twiddle your bass and treble knobs or go down to your local Laskys for a 'graphic equaliser' – you change your interconnects. These are now the way we fine-tune our system's components to one another, and they can sound radically different, as this mini test showed. This review pits one cable that has been around for nine years, the Chord Company Chorus, against another that editor DP tried in March 2007, the Brilliance Euphony, and the Translucent Ultra+ from Classique Sounds.

The Chord Company Chorus has been one of my reference cables for several years due to unobtrusive presentation and good rhythmic abilities. It boasts a silver plated conductor with Teflon insulation and Chord's own silver plated plugs. The Brilliance Euphony is a bulky cable consisting of copper conductors in a twisted pair configuration, terminated with WBT 0144 lockable phono plugs. It's very flexible and can be fitted into quite tight spaces without risk to cable or equipment. Classique Sounds market two interconnects, the Translucent Ultra+ being the more expensive. It uses a 99.99% pure silver solid core conductor, terminated in Eichmann Bullet plugs.

A choice of fluorescent pink or yellow insulations is available.

SOUND QUALITY

Listening to Morcheeba's 'Big Calm' via the Euphony, I was confronted by an expansive and full bodied sound. Imaging was good with a soundstage that just extended past the outer edges of the loudspeakers, and had reasonable front to back depth. Singer Skye Edwards' voice stood in front of the instruments, and was presented with a beautiful velvet covered smoothness that was very enjoyable.

Switching over to the Chord Company's Chorus and the presentation was less dramatic, with more emphasis placed on the music's rhythmic qualities rather than sheer scale. Imaging was more vague and the soundstage stayed within the area of the loudspeakers, but gave greater stage depth than the Euphony. I felt that the music had a little more energy to it, possibly caused by more agility in the bass area, but in the process, it sacrificed some of the Euphony's sheer bass weight.

Moving on to the Translucent Ultra+ and the presentation seemed a lot cooler, and possibly more dispassionate. I felt that the tonal balance was weighted more to the midrange and treble, with a very tuneful bass boogying around in a

less imposing manner than either of the other two. Background details seemed more obvious with this cable, leaving me more aware of the space in the studio acoustic, and allowing a feeling of more air into the recording.

CONCLUSION

All of these cables had a smooth and civilised presentation, avoiding the pitfalls of incoherent bass rumbles and ear-drilling treble, but each had its own unique flavour. I felt that the size of the Euphony sound could get a bit overpowering in a richly toned set-up, whilst the Translucent Ultra+ was better suited to valve orientated systems, which are in my experience rarely bass shy, but sometimes need a little more openness in the treble.

The Chord Chorus sat squarely in between these two camps. It did not image as well as the others, but made up for it with the tightest bass timing of the three, providing the all-important rhythmic foundations for the music to sit upon. As such, all three offer excellent value for money relative to the performance/price hierarchy of the cables world, and I would recommend auditioning all three to see which sonic balance works best for you.

REVIEW SYSTEM:

Leema Acoustics Antila CD player
Leema Acoustics Tucana amplifier
Chario Ursa-Major loudspeakers
Isotek Titan mains purifier and Isotek leads
Philosophy Cables Organon speaker cable

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PUTTING SOUND INTO FOCUS

Show Time

Held from the 21st to the 23rd of September, London's Sound & Vision 2007 show had plenty of tantalising hi-fi tidbits on display. David Price and Adam Smith rounded up a selection...

MICHELL

No huge product launches from Michell, but a range of goodies all the same. Pictured is a stock GyroDec SE underneath a rather dashing acrylic one-piece cover, totally enclosing the deck to keep the dust off. Given that the stock non-SE version sounds a little worse for its lovely Perspex base and cover, this gives you the dust protection without the sonic penalty. Fitted is a mystery arm from Michell's Japanese distributor, which the company may be selling soon...



NUFORCE

In the Hi Audio room was your editor's reference pair of 9SE power amplifiers, purloined from his clutches for the occasion, plus the new P9 preamplifier in matching Rose Copper finish. Driven by an Acoustic Solid Solid Machine and Cartridge Man Conductor tonearm, aspirated by a pair of brand new Usher Be-718s, it sounded very special indeed.

THE FUNK FIRM

As well as very popular demonstrations of his range of LP12 mods, The Funk Firm's Arthur Khoubessarian was also showing off a stylish new turntable, the Saffire. Although styled similarly to the Vector, it sports some switchable blue LEDs to illuminate its clear base! Sadly, we were unable to look round the back in order to confirm whether it had a huge exhaust and spoiler as well...



NAIM

Greener than an environmentalists' convention, the Naim room was full of goodies on display, including the legendary CD555 CD player, new SuperNait integrated and an old favourite in a new setting – the ARO tonearm fitted to an Avid Acutus turntable using Avid's new Naim Slide Adaptor. Very impressive it sounded too...



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ORIGIN LIVE

An unexpected surprise was a brand new phono stage from Origin Live. The new Ultra (price to be announced) is a high end design with a variety of cartridge resistance, capacitance and gain settings, plus a four position bass lift/drop control. Sound was superb, helped in no small way by Mark Baker's range of splendid turntables and arms.



SHANLING

Spookiest room of the show award went to Matthew Jameson of Real Hi-Fi, whose domain was dramatically lit with spotlights and the shocking blue fairy lights built into the latest high end Shanling CD spinners. Not so the CDT-1000se, a superb affordable audiophile player (see next month's Hi-Fi World for a scoop review), which thankfully lacked excessive illumination. The Duevel Bella Lunas were another show-stopper – strikingly styled omni-directional speakers with sonics to match.



TOWNSHEND AUDIO

With more chrome that a nineteen fifties Cadillac, the new Townshend Rock 5 was a stunner – just don't touch it or you'll never get your dabs off! It was great to see the fruit of Max Townshend's latest travails, and the sound was jaw-droppingly clean and detailed. Marital strife reared its ugly head though – not everyone in Mr. T's family was beguiled by the looks of the white acrylic platter and armboard!



REVOLVER

Mike Jewitt and the Revolver team were demonstrating the new Replay turntable (see January's Hi-Fi World for its first review) as well as their new Phono 2 phono stage. Featuring both MM and MC inputs and a volume control, this unit retails for a very reasonable £129. Also on show were a brand new pair of Cygnis loudspeakers entirely finished in gloss black, much to Assistant Ed. Adam's delight!



HELLO SAILOR!

After a busy day patrolling the catacomb-like array of exhibitors' rooms, here we see our intrepid Assistant Ed. reaching his Holy Grail – a signed copy of Rod Stewart's 'Sailing' on blue 7" vinyl no less! Rarely have we witnessed him so happy!

See also a reader's-eye-view of the show on p106...



Esotec-nology

Lyra's Jonathan Carr and Marantz's Ken Ishiwata are but two high profile industry figures currently running Marantz's redoubtable Esotec Tt1000 turntable. David Price tells its story...

Back in 1979, vinyl was the only serious music carrier this side of high speed open reel tape, and – if you believed the UK hi-fi press at least – the only serious LP spinner was the Linn Sondek LP12.

Elsewhere however, this view was less universally held, and in Japan there was a heated battle going on

between a number of the country's consumer electronics giants to produce the best disc spinner the world had yet seen...

Kenwood's L-07D, Onkyo's PX-100, Sony's TT-S8000, Technics' SP10 and Micro Seiki's DDX-1000 were but five combatants in the race. All direct driven, sporting the (then) new-fangled quartz crystal referenced servo lock to keep the platter

spinning with seemingly infinitesimally low levels of speed deviation. Massive main bearings provided vanishingly low rumble, and these decks all toted an enormous, and commensurately massy, plinth to dispense with external vibrations through sheer brute force.

Into this fray stepped the Marantz Tt1000. Launched at the Japanese Audio Fair in October of

that year, it sold for the princely sum of ¥390,000 (£1,000 in the UK, when the Linn LP12 was £350). A veritable showstopper, it formed the lead component in the company's new ESOTEC series of ultra high end products, to rival (the more familiar in this country at least) Nakamichi Dragon line.

The Tt1000 was a textbook example of pure Japanese turntable best practice. The plinth was the basis ('scuse the pun) of its appeal – a chunky 38mm thick laminate of two 15mm glass plates between which sat an 8mm aluminium alloy interlayer. Large diameter Micro Seiki MSB-100 impact absorbing feet, using an ingenious air seal, were deployed to take out any vibes that the 25.3kg

"the Tt1000 was a textbook example of Japanese turntable best practice..."

unit couldn't sink by sheer weight and size, and its 3.4kg balanced aluminium platter was topped off by a glass mat.

A largish wood veneered box sat beside the Tt1000, containing the turntable motor's power supply. Two speeds were available via touch controls on the turntable itself. The massive direct drive motor, borrowed from the Technics SP10, gave rapid 1.5 second start-up, and superlative speed stability once the quartz lock had kicked in. Early Tt1000 units came fitted with a Micro Seiki CF-1 tonearm, but then in 1980 they offered the Tt1000L standalone

motor unit, or as the Tt1000S with an SME Series III tonearm. The two-part arm bases were interchangeable with Micro Seiki turntables, but made of aluminium rather than bronze.

In many respects, the Tt1000 was a rip-roaring success. Its build was exquisite (even by the high standards of the opposition), it was an ergonomic triumph (proving extremely simple to use – no parallel tracking tonearms, vacuum platters or disc stabilisers to fiddle with) and its looks were bang-up-to-date yet classically elegant, making the deck seem modern and fresh nearly thirty years later.

Sonically however, it was less unequivocally successful. Its strong, powerful and reassured 'mastertape-

like' sound was in no doubt. Although it wasn't a Rotweiller with rhythms and microdynamics à la LP12, it had a wider, deeper and more expansive sound with a sense of effortlessness that no belt drive could manage. The motor was as torquy as a JCB, holding on to the deck's heavy platter with limpet-like tenacity. Still, some listeners reported a slightly 'glassy' tonality, a subtle upper mid hardness, that held the Marantz back in the neutrality stakes.

Although counting some famous names amongst its list of owners, the Tt1000 never really sold well, and it was the cheaper Technics SP10 and

SP15 that found their ways into broadcast studios, while Onkyo and Nakamichi rivals went to more ultra high end audiophile buyers. Still, it had a long innings, and it wasn't until 1992 that it got a replacement – the Music Link Tt1000 Mk II, which sold for around 12,000DM in Germany (the deck's only official European market).

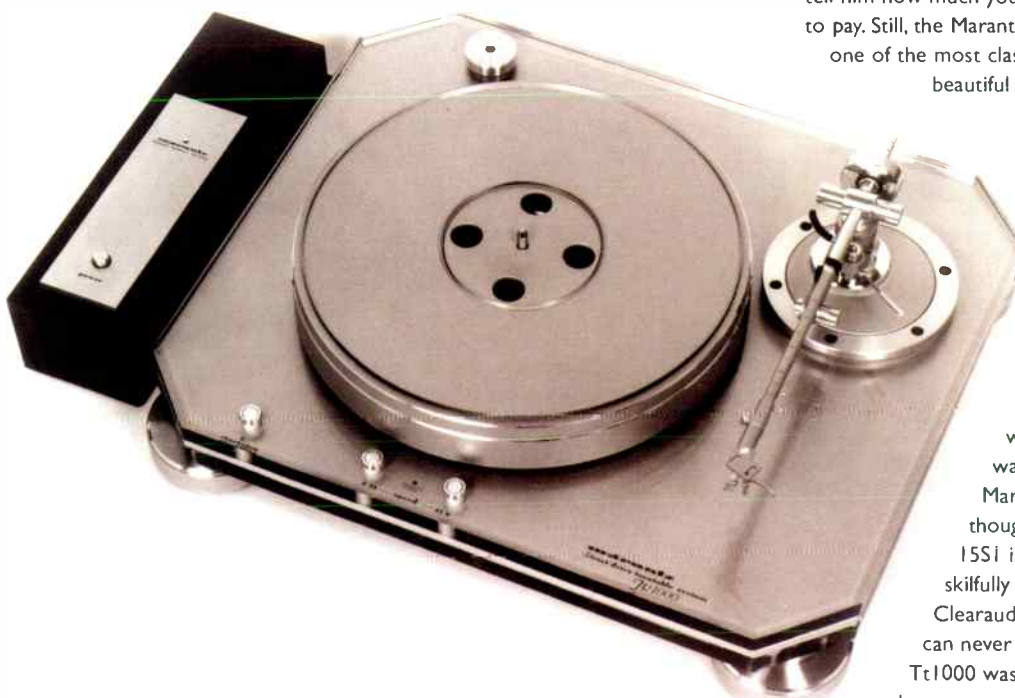
Unsurprisingly, this addressed the weaknesses of the original design, substituting the Technics motor for a superior custom-made JVC design giving even lower levels of wow and flutter, and swapping the clangy glass platter top for a deerskin mat, resembling that of Micro's DDX-1500 very closely. It made for an altogether less brightly lid upper midband, and finally brought the Tt1000 the international acclaim it deserved. Unfortunately though, the nineties were the low point in the vinyl format's life – it was dying as a mass music carrier, whilst remaining relatively undiscovered by audiophiles, DJs and nostalgists as it is now. The deck sold barely 150 units, and in Europe at least proved the best kept secret in hi-fi...

These days, you're going to have to look long and hard to get either variant of the Tt1000, and you're very likely to have to look to Germany, or maybe even Hong Kong, the US or Japan to source one if you so desire it. They're not cheap either – it's pretty much up to the seller to name his price, and/or for you to tell him how much you're prepared to pay. Still, the Marantz Tt1000 is

one of the most classically simple, beautiful and superbly engineered turntables yet made – and also sounds, even by the standards of today, sublime. It was a high water mark for Marantz, and even though the TT-15S1 is an excellent, skilfully tweaked Clearaudio belt drive, it can never compare – the Tt1000 was original and best.

DID YOU KNOW?

The original Tt1000 was going to be a belt drive! Pictures appeared in Britain's *Hi-Fi Answers* of a deck very similar in looks to the '1000 with an offboard motor, Michell Orbe-style, driving the 8kg brass platter with a silk thread. According to Marantz's Ken Ishiwata, they only built one (which became known as the Tt1800), and then reverted to direct drive...

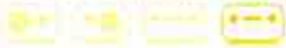






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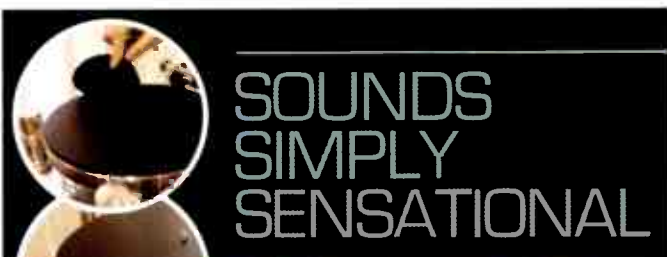
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"for every Morgan or Westfield in the hi-fi industry, there is also a DeLorean..."



adam smith

One of the things that has always fascinated me about the hi-fi industry is the way in which it has the ability to encompass the small players like very few other walks of life can. Thinking about it, I suppose that the only other area in which this happens is the motor industry, with small specialist players like sports car manufacturers or the occasional exclusive luxury marque like Bristol Cars, rubbing shoulders with the GMs and Fords of the world.

If one thinks of other electrical goods, there just aren't any parallels to be drawn elsewhere. I certainly don't know of any washing machine manufacturers based in a shed on a windswept hillside turning out exclusive machines that command a huge price tag and a three year waiting list, but I could be wrong and would be intrigued to hear of any, if they do exist!

The advantage of such small outfits would of course be lost in most arenas. When it comes to our washing machines we want something reasonably priced and quiet that just gets on with the job but, when it comes to a proper sports car, few people would buy one just to do the school run or to get them from A to B. The whole point of buying such a beast is to gain the driving enjoyment that is missing from many a mass produced design and if it overheats or breaks down occasionally then that's just part of its 'character'!

Equally, when it comes to hi-fi, the smaller outfits often survive in a happy coexistence with the big boys because of the way we enthusiasts approach our hobby/obsession.

We're in it for the sound, pure and simple. If the item that makes that sound is pig-ugly, or if the volume knob occasionally comes off in your hand then we generally cope with it provided that the resulting aural experience is the one that we have been elusively searching for over the years.

However, naturally for every Morgan or Westfield in the hi-fi industry, there is also a DeLorean - those small manufacturers that came and went and are often long forgotten, whether that be with good reason or not. This is one area of audio that fascinates me and I have always had something of an enthusiasm for the underdog, buying up products to see if the loss of the manufacturer was justified or not.

The first one that springs to my mind actually has a place in my main system, namely the Quantum Electronics amplifiers that I use on a day to day basis. A small outfit dating from the late 1970s, Quantum started off making kit amplifiers and gradually progressed to putting them into boxes and selling them complete. Of course, this being the 1980s by then, those boxes had a wonderfully 'made in a shed' look to them (Peter Comeau tells me they actually were!) but they still make some very nice noises. Of course, they do throw a fit now and then and go up in a puff of smoke, necessitating the unearthing of a soldering iron, but they are essentially simple beasts and ripe for a few tweaks and this is what I like so much about them.

Moving to source components, hands up who remembers London Acoustical Developments? Based in London and Wales, these chaps made

semi-professional turntables for DJ and radio station use, basing their better decks around a capable JVC direct drive motor and partnering them with sturdy Jelco-sourced arms. Information about these people eludes me completely and last time I checked on the internet, Googling their name brings up two threads on internet discussion forums asking for information on them - both posted by none other than yours truly!

Of course, probably the most examples of this type of thing are to be found in terms of loudspeakers. Even today the number of small companies springing up is quite surprising, and some of these make utterly superb products. Looking back, though, two names that stick in my mind are Alexander and Pentachord.

I first heard Alexander at a hi-fi show in the 1980s and my father was so impressed by their tiny yet capable loudspeakers, he offered to buy a pair on the spot. The designer seemed pleased, duly took his details, promised to ring when production was established and that was the last we ever heard from him, or Alexander Acoustics!

Pentachord were more successful, with some very good reviews received, including in two of the 1991 issues of this very magazine. I still rate the Pentacolumns as one of the best loudspeakers I have heard but Pentachord disappeared years ago and there is absolutely nothing about them on the internet anywhere. These were sad casualties of the market, but there are far many more small outfits who have done well and even flourished into much bigger operations - good on them, I say, and long may they run. ●



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"surely the best course is to switch products over to support DAB+ as quickly as possible...?"



steven green

Around this time last year, Frontier-Silicon's product manager for its new Venice 5 DAB/DAB+ receiver module confidently predicted that by the end of 2007 the majority of all DAB receivers in the shops would be DAB+ upgradeable. As things stand, however, there are only a handful of DAB+-upgradeable receivers out of around three hundred or so DAB products altogether...

Clearly his prediction has turned out to be inaccurate, but I would argue that he was justified at least in thinking that progress with DAB+ receiver availability would have been far better than where it actually is today. Surely when a new non-backwardly-compatible standard like DAB+ comes along, the most appropriate course of action to take is to switch products over to support the new standard as quickly as possible so as to minimise the number of people that buy non-upgradeable receivers?

Unfortunately the manufacturers don't see it this way. For example, the following quote taken from a presentation given in May by Pure Digital's Director of Marketing, Colin Crawford, sheds some light on how the manufacturers view DAB+. "We've invested a lot in what we've done, and we'd like some time now to make a little bit of money at it. So from that perspective, to be perfectly frank, the arrival of DAB+ on the scene hasn't been as entirely welcome as some people might imagine." The reason why they look upon it this way is that "DAB+ significantly adds to the basic bill of materials cost on a radio", with the result that "there will be severe pressure on DAB manufacturers not to include support for DAB+ at least on entry-level products, and at least until the demand for DAB+ is very

strong and very clear."

However, the following quote taken from a WorldDMB (the organisation in charge of DAB around the world) document, which was also published in May, seems to be at odds with Colin Crawford's comments. "It is planned that approximately 80% of all new Pure devices will be either DAB+ ready or DAB+ enabled by the end of 2008; and a future goal is to only sell DAB+-capable radios starting in 2009." This coincides with Australia and Switzerland commercially launching DAB+ services late next year, and Pure has just announced that it is opening an office in Australia to capitalise on sales there. So this severe pressure not to include support for DAB+ would seem to be a UK-only phenomenon.

Colin Crawford also listed the additional costs involved in producing DAB+ receivers, which are as follows: 70p for the AAC+ audio codec licence; 15p for additional printed circuit board costs; and he said that an extra flash memory chip is needed, which according to Frontier-Silicon costs 25p. Therefore, it costs just 40p extra to produce a receiver that is DAB+ upgradeable (the 70p AAC+ licensing cost doesn't need to be paid until a receiver actually supports DAB+). It is this 40p cost that is holding DAB+ back, because Frontier-Silicon has said that it is currently only producing a DAB-only version of its Venice 5 module due to a lack of demand from the receiver manufacturers for the DAB+ upgradeable version.

The obvious solution to the issue of additional costs would be to simply increase the price of DAB+ receivers, which is precisely what the WorldDMB document referred to above says will happen anyway. "DAB+ devices will most probably not cost over approximately 15 euros [£10.50] more than

current DAB receivers, and similarly, downloading a [DAB+] software upgrade should cost approximately 10-15 euros [£7.00 - £10.50]."

However, this solution of increasing receiver prices relies on the fact that DAB+ is a feature that people would be willing to pay extra for, but DAB+ isn't even mentioned in the list of features supported by Pure's existing DAB+-upgradeable receivers. Over the past twelve months the DAB broadcasters have desperately tried to stop the public knowing the truth about DAB+, because they fear that DAB sales would drop if they knew. But if they're worried about DAB sales falling, where is the logic behind the decision to use the non-DAB+ upgradeable version of the Venice 5 module and thus prolonging the time before the majority of receivers support DAB+? Isn't that the equivalent of playing Russian roulette and adding extra bullets when it's your turn?

There is some positive news on the DAB+ front, though, which is that a range of products using Frontier-Silicon's new Venice 6 module are due to be launched in the next few weeks, and they will support Wi-Fi Internet radio, DAB, FM and they will also include the first ever products that support DAB+ out-of-the-box, with the rest being DAB+ upgradeable. These products using the Venice 6 module clearly set new standards in terms of digital radio functionality, but they will likely have high-end price tags to match. However, the bulk of digital radio sales are in the mid and low priced sectors of the market, so the manufacturers delaying the launch of a wide range of DAB+ upgradeable products in these sectors will inevitably translate into the launch of DAB+ stations being delayed relative to previous expectations. ●

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"an audience can lift a musician to new levels, extending their talents, pushing them on..."



paul rigby

Reviewed in this issue's audiophile CD review [see p76], Gilad Atzmon is a force in jazz. This particular sax player could easily make a play for being the most dynamic and talented musician currently living on the planet. Strong words and a view to raise the hackles, but wait until you hear the guy – even better, wait until you see and hear him live because it is debatable whether a Compact Disc is capable of containing his talents!

No, this is not a return to the argument of CD vs. vinyl – it's a broaching of the subject of studio vs. live. My question is - should music be constrained within a studio? Isn't the whole point of a musician that he entertains an audience? He lives to play, does he not? But does he live to play in the vacuum of a studio? How many times have you taken part in or heard a conversation where a new CD is the topic and one person says, "Ah, yes, but wait until you see him live!" The implication being that, then - and only then - will you truly see what the artist is capable of.

Now this debate has raged over the years and many groups have declared that they are 'live' groups. The Grateful Dead is a classic example. All of their studio albums are, frankly, unsatisfactory. The lads never felt wholly comfortable in a studio environment. Only in a live setting were they able to stretch their wings. But what about The Beatles, you cry? What about 'Sgt Pepper'? A classic album created in the studio? Well, let's get this one straight. The Beatles only became a studio band, in the first place, because of the excessive adulation from their

teenage fans. A situation that often led John Lennon to sing *ad hoc* lyrics just to see if anyone noticed – no one did because no one could hear them.

The Beatles were driven into the studio to pursue their art. In fact Paul McCartney, especially during the late 1960s, yearned to get back on the road, and that's what the infamous roof-top concert was all about. Singing live again. After all, the years of early training in Hamburg, Germany, honed their performances. The Beatles became a tight band and one that could kill an audience at ten paces.

Some artists prefer the studio, however. This is more to do with technology and how they perform, and also to do with that artist's personality. It is dangerous to generalise but - what the hell - those artists who do not perform live and sit in the dark, in the studio, lose a portion of their artistry. They never see the 'whole of the moon', to paraphrase The Waterboys' classic hit. An artist who lives in his back-bedroom or studio is scared. Scared of what life might do to him if he ever stuck his nose into the fresh air.

An audience can lift a musician to new levels, extending their talents, pushing them on. Like a nagging trainer urging an athlete to run that extra tenth of a second faster, an audience can push a performer to heights even they were not aware they could reach. Take Judy Garland's gig at the Carnegie Hall, Sunday, April 23rd, 1961. For Garland fans, this was the night. This was when Garland stunned even her most ardent admirers. She was at the top of her game and then some. Why? Because

the audience became part of that performance. The audience joined with the artist. Hence, the whole became greater than the sum of its parts. There has even been a radio documentary on BBC Radio 4 made about that very night.

For any great artist there will always be 'that night' which will live in fan folklore. My question is therefore, why do we have to rely on second best? The studio album is just that – second best. What I want – nay demand – from the record companies and the artists is, for anyone going to an organised gig, often paying a lot of money in the process, every person who attends should also receive a free copy of the gig when they leave the stadium, burned there and then.

Actually, there is a company which is experiencing good business doing (almost) that very thing, although you have to buy the CD. Concert Live (www.concertlive.co.uk) record a gig, burn it, package it in a presentable manner and sell it as an official bootleg. They have released CDs from artists such as Brett Anderson (ex-Suede), Simply Red, The Cinematic Orchestra and more. I have also seen independent one-off CD sales of gigs sold at the door, after a gig, with the backing and support of the artist – using a more home-made approach. It can be done, therefore.

As for sound quality? With suitable and careful preparation, the sound quality could and should be excellent. I for one would also prefer to listen to a creative artist strumming a guitar than a creative studio engineer strumming a mixing desk. ●

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"the hi-fi industry lost the plot when it chose to ignore the rise of MP3 at the end of the nineties..."



David Price

Talk to any hi-fi dealer and, in their more confessional moments, they often start reminiscing about "the golden age of hi-fi retailing". Back in the nineteen seventies, they'll say, they didn't actually have to sell the stuff, but rather simply take customers' money. Punters would walk into their shops clutching a well-thumbed hi-fi magazine and say – in a style not too far removed from Little Britain's wheelchair-bound 'Andy' – "I want that one". It was simply a case of transacting the sale, carrying the box to the customer's car, and "the job's a good 'un"...

From the buyer's point of view, finding a place to buy hi-fi was easy too. By the end of 'the decade that fashion forgot', every town would be well served with hi-fi shops. First rung on the evolutionary ladder was Comet, the 'one stop shop' for mass-market Japanese gear, often end-of-line fare at stupidly low prices. Usually located on a 'trading estate' on the outskirts of town, if you were clever you could time your visit to coincide with your other half's burning desire to visit Allied Carpets just next door.

Then there was Laskys – middle Britain's audio emporium, where you could actually listen to the stuff, albeit through a hard wired 'comparator unit' with two dozen sound-degrading switches and a length of 'bellwire' longer than your small intestine. Ranks of beaming salesman wearing the latest brown polyester suits would descend upon you from the sales desk to dem so much kit that you'd end up buying something just to get out of there, emerging dazed and confused into the Saturday afternoon air...

Moving uptown were the specialists. Whereas Laskys would

be perched in a prime location in the shopping centre just next to the multi-storey car park lifts, to get to your friendly neighbourhood 'real hi-fi' dealer you'd have to make a pilgrimage to an odd little shop tucked away just off Main Street near a vintners or trendy Italian restaurant. No shelves cowering under ranks of Pioneer auto-reverse cassette decks here, but a collection of strange fruit bearing names like Nytech, A&R Cambridge and Heybrook. The salesman would have a Rega Planar 2 turntable hooked up to a NAD 3020 amp and a pair of Mission 700 speakers. On would go his well-worn copy of Dire Straits' eponymous first album, and before you could say "guitar solo" you'd be asking "How do I pay?"

Alas, life is not like that anymore on the hi-fi sales floor. For the buyer, in some ways it's actually better, because there's so much more choice. These days, all those Sanyo music centres have been taken out of the equation, leaving the Regas and NADs of this world rich for the picking. And there's so much more where that came from, courtesy of all those new 'start up' brands, from NuForce to Shanling, doing left-field products that just wouldn't be have been possible twenty years ago.

The downside is, however, that it's far harder to find anywhere to hear them. Comet has gone over to selling computers, Laskys is long gone from the High Street and the number of specialist dealers is declining steadily. There's an icy Siberian chill blowing across showroom floors that were once red-hot from customer footfall. This is not, in my opinion, down to any lack of interest in music on the public's part – statistics tell us that the global music industry is still in rude health – but down to the fact

that less of the public's audio buying activities have anything to do with the hi-fi market.

This industry tragically lost the plot when it chose to ignore 'computer audio' at the end of the nineties. British specialist brands failed to realise that MP3 was the new 'cassette' – a cheap, lowish quality music carrier that was [a] universal, [b] convenient and [c] loved by young people – who, when they'd hung up their skateboards and got themselves jobs, would have been just the sort of people who'd be coming into specialist hi-fi dealers to buy their first Nakamichi or Linn ten years previously. Sniffy retailers talking about "bloody iPods" not being "real hi-fi" was myopic and reckless in the extreme – as they were spurning a whole new generation of music-mad customers with cash to spend. The result is that they haven't spent it on hi-fi, and UK Hi-Fi PLC is all the worse for it...

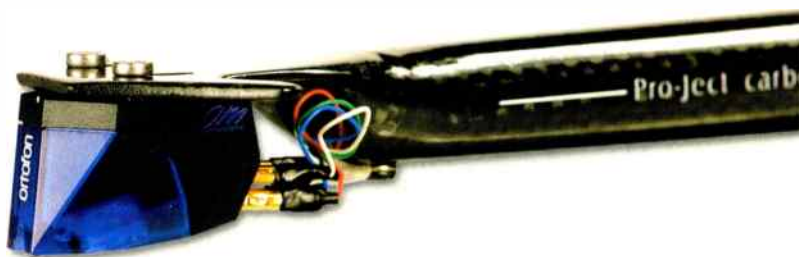
Just as worrisome is that many of today's audiophiles seem to know the price of everything and the value of nothing. By aggressively chasing the lowest prices online, and spurning their local specialist dealer who simply can't compete, they're killing the goose that laid the golden egg. One day, it may be impossible for customers to compare different brands before buying at all, because all the specialist dealers have gone. I'm not looking forward to the day that the hi-fi buying process involves nothing more than reading magazine reviews then clicking a mouse button, as the number of readers complaining about the sound of their systems will surely soar. Before it's too late, I hope everyone begins to use hi-fi magazines as a handy starting point, then goes to a dealer to try before they buy. ●

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"Transistor amplifiers sound right - until you switch to valves..."



noel keywood

I love transistor amplifiers - until I hear a valve one - then I wonder how I could be so deluded. Whether this is right or not, I accept, is open to question. There are good technical and aesthetic arguments for and against both. At the end of the day I feel any decision we finally make is based upon taste and preference rather than scientifically assembled argument. Let me explain...

Walking through Paddington Recreation Ground some time ago - I think it was a sunny Sunday morning - a small group of musicians were playing within one of those circular bandstands that are a feature within many London parks. (You'll see it as dark, circular shape to the right of the football pitch on Google Earth, under Satellite view.) Whilst a guitar was amplified, a trumpet was not. Just a few minutes listening to them play raised the usual question in my head: why doesn't hi-fi sound like that? The trumpet possessed a luscious brassy rasp and had vivid dynamics. It was engaging in a way that is rare within current stereo systems, in spite of all the effort and technology that goes into them.

I feel a good valve amplifier better recreates the dynamics of the trumpet I heard, as well as its rich timbral properties. Brass wind instruments are finely fettled specifically to have a rich and distinctive sonic signature, and if there is one item in a standard stereo that seems to diminish it, it is the transistor amplifier. Switching from transistor back to valve, something I do quite often, is a bit akin to going from a box loudspeaker to electrostatic: the box is what we know and accept as 'right', until something comes along to challenge this simple and unquestioning acceptance. Transistor amplifiers sound right, until you move

to valve.

The arguments for and against are fascinating, and the subject is still open.

Always worrying is the view that what we are listening to in a hi-fi system is a recording, not the instrument itself. It's easy to forget this. Once you look back at the recording chain you realise there is not a valve in it, but a myriad of transistors. So, should I expect to hear the combined effects of a bewildering array of solid-state sound processing devices in the recording chain, or should I expect to hear a trumpet in its full and unamplified glory as I heard it at Paddington Recreation Ground? If a transistor amplifier of the sort we review this month delivers the sound of transistors, is it simply giving me the glib truth? Perhaps.

An argument made against valve amplifiers is that they euphonically enhance what is in a recording in a curiously satisfying way that fools us into thinking what they do is a step ahead of solid-state. If this is so - and I am not trying to deny it - then solid-state amplifiers will forever be found wanting, if for the wrong reasons.

Just what are the mechanisms we are talking about here? The most common and simplistic is that valve amplifiers produce second harmonic distortion and that this is responsible for colouring the sound. In truth, they produce various distortions, third harmonic being common when the output transformers are not the best, or when the output valve slew rate limits into too low a primary load, due to poor design.

It does seem to be the case that, having less feedback, valve amps tend to have a dynamic distortion pattern that is far more like that of a musical instrument and that they could just be adding in a richness that has been

sucked out by mediocre electronics in the recording chain. It could also be the case that secondary emission from the glass envelope, and possibly microphony, are responsible for the eerie sense of stage depth valve amplifiers seem to be able to find in a recording that, via a transistor amp, sounds flat.

That valve amps add something in is an argument strengthened by the fact that when a small, simple valve like an ECC83 is used as the output stage of a CD player, the player seemingly develops magic properties. Even I find it hard to argue against this as proof of enhancement occurring.

Transistors in themselves are dismal things. Only the other day I was reading how output devices from a silicon wafer varied so much, those for high quality work had to be hand selected. With a transfer function like a dog's hind leg, enormous current density that likely induces colouration from the surrounding wafer materials and a tendency to die quickly if not guarded by a mountain of protection circuitry, I'm afraid to say the transistor has a lot against it. Add in the need for feedback and the uncatalogued problems this may be introducing when feeding a real loudspeaker load, and arguments against the transistor amplifier start to stack up frighteningly. Class D switching amplifiers are no salvation here, either.

Transistor amps? At the end of the day I hear them, not the trumpet I heard in Paddington Recreation Ground. This could be right, or it could be wrong! For the time being at least I'll be staying with valves. But if you don't want the hassle - because they can be troublesome - then I'll admit that there are some very good solid-state amplifiers around, as our group test this month proves. ●



THE BIG STIFF BOX SET
Various Salvo

If you were a teenager in the late nineteen seventies, this set is surely the sound of your youth - from Nick Lowe and The Damned to Ian Dury and Tracey Ullman, from Yello and Lene Lovitch to Madness and Wreckless Eric. The content was selected by the current Stiff label manager, Pete Gardiner. The plan was to represent all eras of Stiff and reflect its heritage as a label devoted to the 7" single, squeezing in as many 7" A-sides as possible, chronologically. Master tapes were thin on the ground, however - chalk that up to the chaos of a bankrupt record label (it's back in business now, though). What Finesplice, the mastering company, had to deal with were CD transfers only - which was a shame because they had EMT and Linn turntables plus Studer reel-to-reels at the ready...

However, the team utilise a wide array of stable and in-house produced digital utilities to get the best out of the music. "In an environment that constantly demands tight deadlines," explained Finesplice's Sophie Marchant, "the flexibility of working 'in digital' paradoxically allows more time to be spent concentrating on detail. A-B comparison is instantaneous, small sections of material can be

worked on rather than whole tracks at a time and subsequent changes, large or small, are much easier to implement."

The company is very careful with source material. It realises that too much processing can compromise the music itself, and so, "for hiss removal, for example, we have a very conservative policy. We have found anything much more than about 4dB of broadband noise reduction using any type of software algorithm begins to introduce unacceptable side effects." Covering ninety-eight tracks over four CDs, all packed in a fold-out triple gatefold and complete with a 68-page book, this is the most comprehensive collection of music from one of the most famous record labels in the UK.

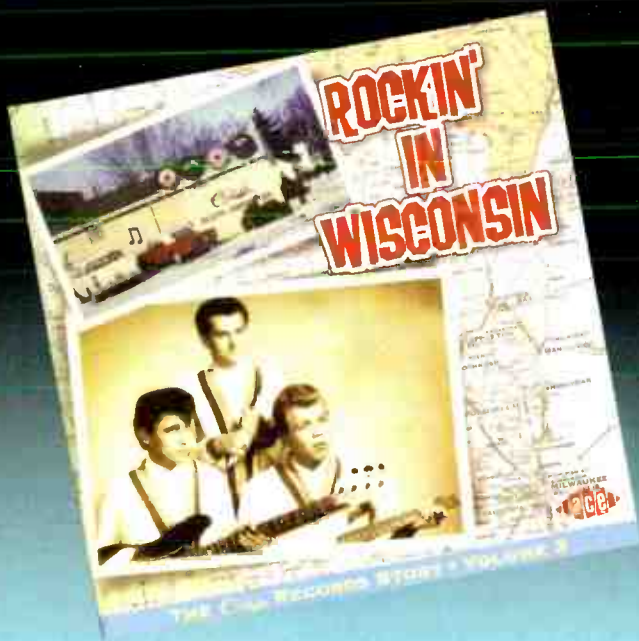
GILAD ATZMON
Refuge
Enja Records

"Music can move people. While it is very clear that we don't really trust our politicians, still artists - people who are looking for truth in themselves - do not have any reason to lie. I'm not talking about pop artists, I'm talking about genuine artists. I see a truth in myself. I've found something in myself and I share that with the public, who take it or leave it."

So says Gilad Atzmon, a sax

player, and a rather special sax player at that. He is also a controversial figure: a Jew who is sympathetic to the Palestinian cause. An ex-Israeli Army man who was shocked by his own country's handling of the war in Lebanon. He writes pamphlets on the subject, read by several million people, he writes novels and his music explores culture on a broad level. However, he also declares that he is not a political animal, he is a humanist. Articulate and intelligent, Atzmon is that most dangerous of all artists to any political system - a musician with a brain...

Imagine an album by such a man, full of energy, passion, anger, fury and frustration and all directed to his poor saxophone. Imagine Coltrane for the noughties. "When the ego, the awareness, melts down - a flood of music comes out of you," ventures Atzmon. "This explains why so many jazz musicians have always used so many drugs over the years, to remove the boundaries. Miles and Coltrane used drugs to remove the ego. Without that ego, they could play. It burst out. I try to get there without the drugs. To develop your own sound, it is best not to be there when the music is coming out. As a writer, when you start to write you're a bit slow - you may spend one hour on your first four sentences - and then it all comes out. You get into a muse." Listen to



this album and see how he does it because, boy, he does it well.

ROCKIN' IN WISCONSIN: CUCA RECORDS STORY VOLUME 3
Various
Ace Records

Music fans interested in the history of American music may not realise that one of the basic stalwarts of the entire industry in the USA was the local record label serving one particular US State. In the unlikely event that they scored a hit, they often sold the rights to a national label to earn a few extra dollars. Cuca was one such local. Residing in Wisconsin, a farming area, Cuca handled odd country, rockabilly and, of all things, polka. Later it entered the garage/rock market.

Jim Kircstein was the guy who owned and ran the label. He owned a record shop in the basement of his brother's existing shop. Sales did well so Kircstein thought he'd put his own records out, later building his own studio, then he got lucky with a record he had nothing to do with. A guy brought him a tape of two chaps doing this old Hillbilly tune called 'Muleskinner Blues'. They called themselves The Fendermen. The song went Top 10 in the USA and over here," said Finnis. The hit meant that many other people flocked to his little studio which is how Ace has filled three CDs with a possible

fourth planned for the future. This CD is packed with rockabilly and rock'n'roll gems (including The Fendermen's big hit) and is highly recommended.

FLANDERS & SWANN
Hat Trick (Flanders & Swann Collector's Edition)
EMI

Fans of the immortal comic duo, Flanders and Swann, whose perfectly crafted humorous cabaret had a sweet satirical cutting edge, will be delighted to hear that EMI has released a 4CD box set packed with goodies. This new set is not a mere makeover of the original or even the original with extra tracks. It's a brand new collection. Tim Chacksfield, EMI's catalogue A&R man, explained that Leon Berger, Flanders and Swann archivist, revealed a wealth of new treasure to EMI. "CD1 features the original 'Drop Of A Hat' album, from 1957 in mono – which has never been on CD before. The similarly titled CD in the earlier box set was the stereo issue, rerecorded in 1959. Fans will love the new between-song chatter. You also get the extra tracks from the original American release and four tracks from an EP called 'More Out Of The Hat.'

CD2 includes those tracks recorded by the pair on an early tape machine from 1957, before the first album was released, plus a range of

additional shows ranging up to 1964. CD3 is a series of material Flanders and Swann wrote for others before they performed their own material themselves, redone for the BBC in 1975. This was released by EMI as an album in 1976 but has never before been released on CD. CD3 also features alternate takes and unreleased material from a live show at the Haymarket in 1963, before the release of the 'Drop Of Another Hat' album.

CD4 is full of private recordings and try-outs – often from very early times. Flanders in Oxford 1941, Swann in Oxford in 1946 and so on. A lot of this material was transferred by acetate but some of the private material was transferred via paper tape. "Nobody at Abbey Road had ever dealt with it before," smiled Chacksfield, "It was called TP Sound Mirror Recording Tape manufactured by Thermionic Products Ltd." Sounds very Flash Gordon, eh? The paper tape ran, it didn't snap – but played perfectly. As does the whole of this joyous box set. **PR**

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Designing Speakers

Part 13 – WD20T, Construction and Listening

Build this ground breaking new floorstander. Peter Comeau shows you how...

We have found, at World Designs, that around half of our customers are happy to build their own

woodwork while the other half would rather build our kits into a ready-built cabinet.

To this end we have satisfied both parties by including full cabinet construction plans in the kit and being able to supply a ready-built cabinet which only requires the drive units and crossover to be added. The cabinet comes finished with real oak veneer which is a light wood that can

which may not suit the crossover design.

Although this combination of materials provides excellent control of panel resonance as well as reducing the hear-through aspect of the cabinet, we have add three internal braces to improve the rigidity of the cabinet. The central brace is a shelf which effectively divides the cabinet into two with an aperiodic port in between.

This has two benefits. Although the overall combination of drivers and cabinets behaves as a closed box design the dividing shelf and its



resonance.

If you are constructing your own cabinet you will note that we have shown the braces as a snug fit to the interior of the cabinet. This may be difficult to achieve with home woodworking skills so we suggest that you either give these braces some clearance and glue them to supporting glue blocks all round the cabinet or increase their size by

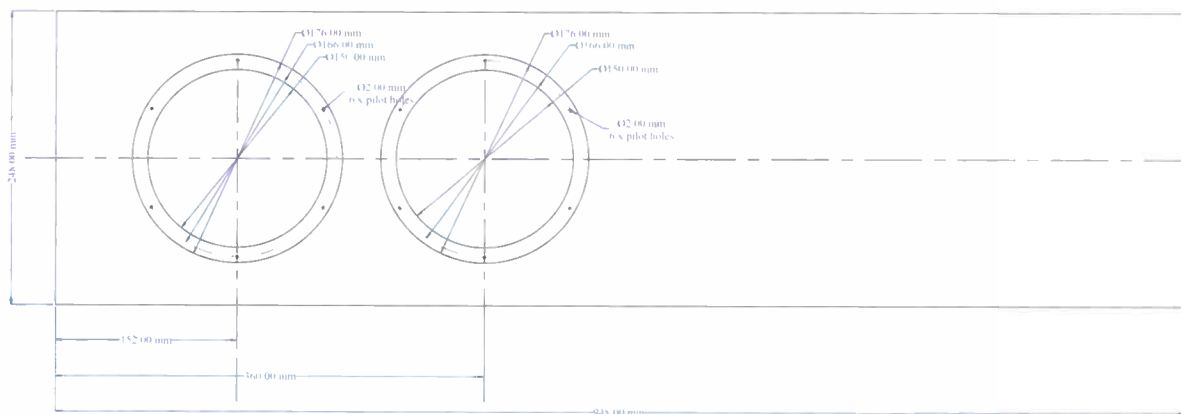


Fig 1 - Front baffle dimensions of WD20T.

be oiled, stained or varnished to your preferred finish. In the kit you will find all the internal damping materials – SONIQS PDC bitumastic pads for the interior walls plus SONIQS CDF fibrous tangle for interior sound absorption.

As we highlighted last month the design of WD20T centres around a laminated cabinet wall material we call WEDROC which is a combination of 19mm high density chipboard with an outer face of 6mm MDF. If you prefer you can use 25mm solid timber or 25mm thick chipboard alone, but we don't recommend 25mm MDF as its acoustic signature will give results

resistive 'port' kills the vertical standing wave which occurs in all tower cabinets. In addition the resistance to large air movements inside the cabinet controls the main bass driver fundamental



Fig 2 - Main brace dimensions (see text).



Fig 3 - Rear view of WD20T.

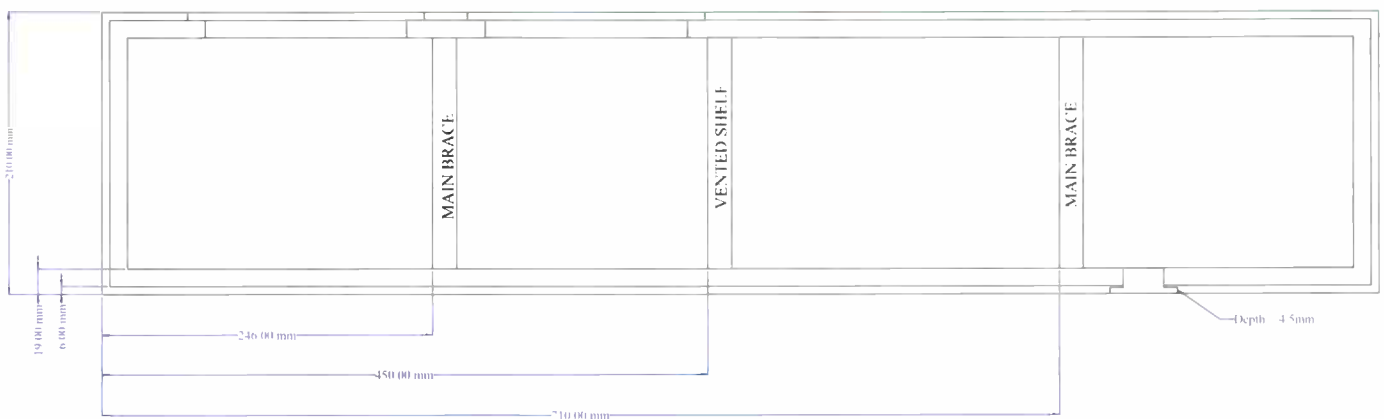


Fig 4 - Cross section of WD20T showing position of main braces and vented shelf.

5mm all round and lock them into rebates machined into the cabinet walls. The exact details we will leave up to you but just remember to use plenty of PVA glue!

Finally, when assembling the cabinet, don't forget to fit the damping material and drive unit cables before glueing it all together. The cables run up the rear of the cabinet and are sealed as they go through the central shelf brace.

Of course we also suggest that you fit spikes to the base of the cabinet. We have a spike kit available from World Designs if you need it. Buyers of the ready-made cabinet kit get these as standard.

TIME TO LISTEN

So now we come to the fun part! By that I mean we have finished the construction and testing, so now it is time for the listening.

Much as I love dreaming up new projects and tinkering with the prototype construction it is always more rewarding when we come to the listening stage. This is because the fruits of your endeavours have now materialised into something physical and useable.

For a lot of designers this listening stage can also be the most

frustrating. In the early days of speaker design this was certainly always so. There is probably nothing worse than spending weeks designing and building a prototype, hitching it up to an amplifier and finding it sounds like a bag of nails.

Thankfully, with tools like LspCAD6 lite on hand, those days are largely gone. Yes, it is sometimes disappointing to hear your brainchild on first test but, with a decent set of measurements, it doesn't take long to knock it into shape.

Amazingly this wasn't necessary with WD20T. As soon as we switched on we knew this design was a 'good 'un'. Everything fell into place, musically and tonally, immediately so, armed with a wide selection of CDs and LPs, the next step was to explore the capabilities and highlight any potential problems.

At this stage it is quite easy to sink into a mode of self-congratulation and ignore what your ears are telling you. Playing a wide range of differing musical excerpts will soon disabuse you of too much self satisfaction. I find listening with someone else really helps to draw attention to any chinks in the design armour. This may be because I am then sitting slightly off axis, having

given the 'stereo seat' over to my colleague. Or it may just be the psychological aspect of being more critical when someone else is present.

Either way a 'problem' with the treble performance soon made itself known. Unusually for a 'first time' crossover everything slotted into place perfectly through the bass and midrange. The balance between bass instruments and vocals seemed excellent and rhythms immediately engaged episodes of foot tapping, so no doubts there.

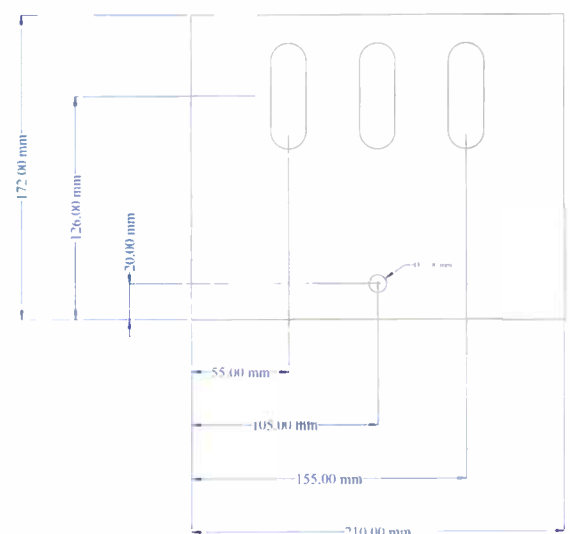


Fig 5 - Vented shelf dimensions.

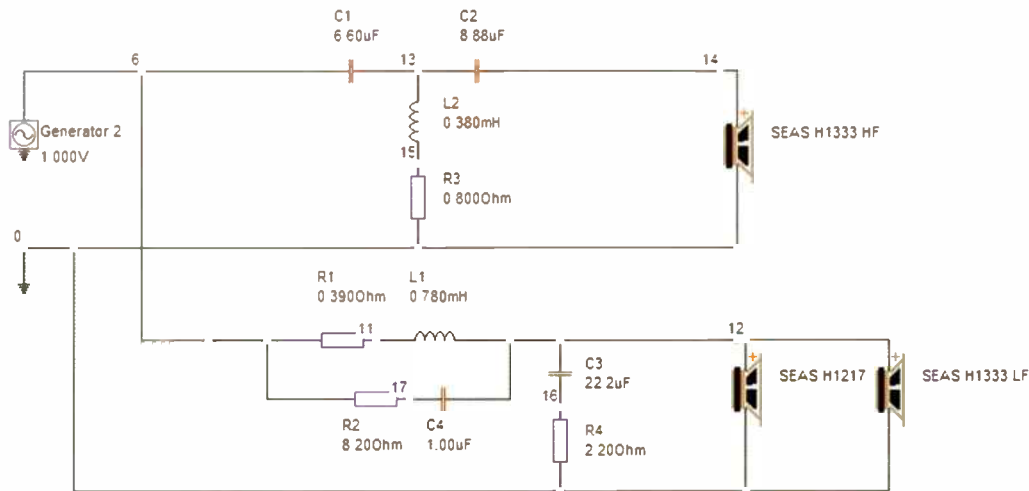


Fig 6 - Final crossover tweaked from listening tests. Note that R1 and R3 are the DC resistance of the coils L1 and L2.

What was obvious, though, was the way the sound stuck in the speakers. There just didn't seem to be the open, three dimensional, stereo image that one would have expected of a coaxial midrange/treble unit.

JUST THE ONE

Now remember, just because this looks like a three way system doesn't mean it is one. There is just the one crossover point, and that is between midrange and treble. So if bass and midrange sound balanced then the treble crossover section looks like the one to attack first.

As there seemed to be very little wrong with the crossover point – the units blended well – then it is always worth looking at the crossover slope. In particular the 'knee' where the slope changes from the flat part of the response to the eventual fast rate of roll off.

I've found that if this 'knee' is too sharp then you hear some ringing distortion from the treble unit. This wasn't apparent, in this case, but something was focussing attention to the treble area.

There is a simple way of smoothing the 'knee' of the filter

and that is to increase any damping resistance. This resistance is shown in LspCAD6 lite as a resistor R3 in series with L2. In fact it isn't a separate resistor, it is the DC resistance of the wire in the L2 coil. To increase this resistance you can either wind a coil with thinner gauge wire or, for an experiment, add a small series resistance.

A short snatch of listening and a few resistors later it turned out that 0.8 Ohms DCR for the coil gave a much sweeter, clearer and open treble performance. But still the sound had not quite opened up through the midband as I would have liked.

Back into the bass/mid section of the crossover it was time to work with a similar resistance concept, this time in the guise of R4, the resistor in series with the capacitor across the bass unit. Altering the value of this resistor has a more than subtle adjustment of the crossover slope. There are no guidelines other than to try values either side of the predicted resistance.

In our case this means 2.2 Ohms and 3.3 Ohms. A brief sojourn with either showed that the 2.2 Ohms value caused the speakers to suddenly

spring into life. Now the whole aspect of the recording was free from the speakers and we were able to engage fully with the music.

And what an engagement that is! These speakers seem to make music bounce with vitality and energy. But I'll leave the full review to Adam - see P83.

SUPERTWEETER

I did promise last month that I would show you a way to 'fill in' the 10kHz dip caused by a cancellation mode in the way the treble unit is mounted. As I said at the time this really isn't noticeable subjectively, even though it looks horrendous on the response graph. The dip is too narrow and at too high a frequency to have any obvious effect.

It just so happens, however, that I have been experimenting with supertweeters, albeit for a completely different reason. Various members of the World Designs Forum like to dabble with 'full range' units and these often exhibit a falling treble response above 8kHz or so, as well as showing poor dispersion at higher frequencies. So the ability to add a 'supertweeter' (ugh, horrible word) that carried just the upper harmonics of the music and delivered greater treble power into the room is just what some of them needed.

Now there has been a revival in the popularity of 'supertweeters' in recent years, largely thanks to the nonsense specifications which Sony announced as a 'requirement' to get the best out of SACD. This, if you remember, was to create a system which would continue its power response up to 100kHz.

This is not just a problem for amplifiers, it presents a very real difficulty for the speaker designer. There are very few speaker diaphragms light enough to produce

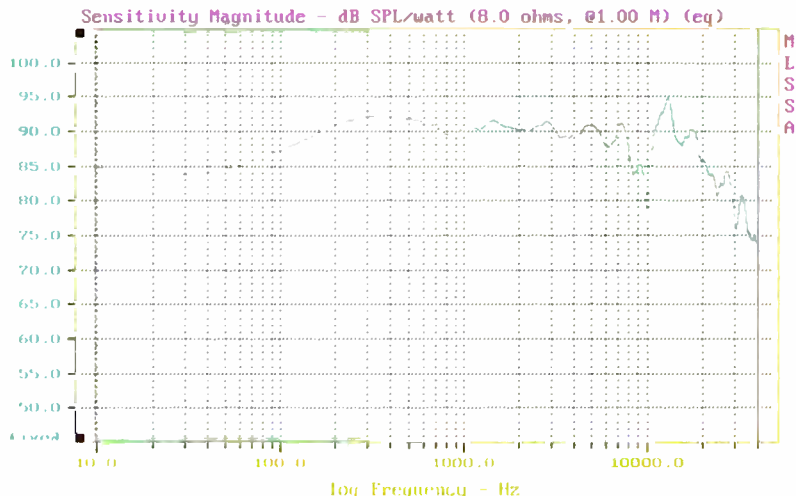


Fig 7 - Response of WD20T after listening test revisions to crossover.

any sound output at all at such stupidly high frequencies with enough efficiency to make them viable.

So what has come about is a generation of 'supertweeters' which use conventional domes and rely on harmonic distortion to extend their response. What exactly do I mean by that?

Common sense ought to tell you that a dome treble unit cannot output significant levels of energy beyond its primary dome resonance. Typically dome resonances lie in the 25 – 30kHz area. There are a couple of cone-domes which reach higher than this, I have used one exotic design which reached up to 56kHz, but such drivers are rare and highly expensive.

So how do 'supertweeter' manufacturers claim extended responses beyond this? Through harmonic distortion. For example a metal dome 'tin can' resonance might have a 10dB peak at 30kHz. The ringing from this resonance also gives a strong second harmonic output at 60kHz, and a third harmonic at 90kHz. So, yes, you will see measured output at these higher frequencies, but are they wanted signals?

As no-one can hear them other than bats, who cares? So if no-one can hear them, why does the addition of a 'supertweeter' to a system make a difference to the sound?

Well let's look at 'supertweeters' in a different way. One of the original 'supertweeters' was the Coles 4001G which was often added to the Celestion HF1300 to fill in the response above the 14kHz area where the Celestion started to droop. Don't forget that crossovers don't just 'cut off' abruptly below the crossover frequency. The standard method of bringing in the Coles was to use a series 0.47uF capacitor. So the crossover was only working at 6dB per octave electrically, perhaps a bit steeper acoustically when the natural roll off of the drive unit was taken into account.

One can therefore expect a 'supertweeter' to be working in tandem with the normal treble unit over quite an overlapping range. Typically a 'supertweeter' crossing over at 20kHz will still have significantly audible output at 5kHz, or even lower. Hardly surprising, then, that the addition of such a 'supertweeter' has a noticeable effect. Nothing at all to do with the so-called 'extended' response!

DOME DESERT

For my 'supertweeter' I quickly abandoned the idea of a dome. Domes rarely have a flat or smooth phase response, exhibit cavitation

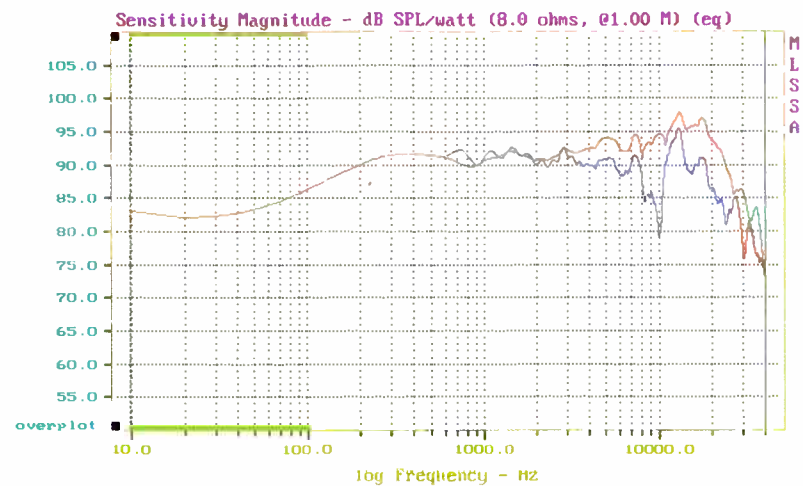


Fig 8 - On axis responses of WD20T standard treble unit (blue) and with 'supertweeter' (red).

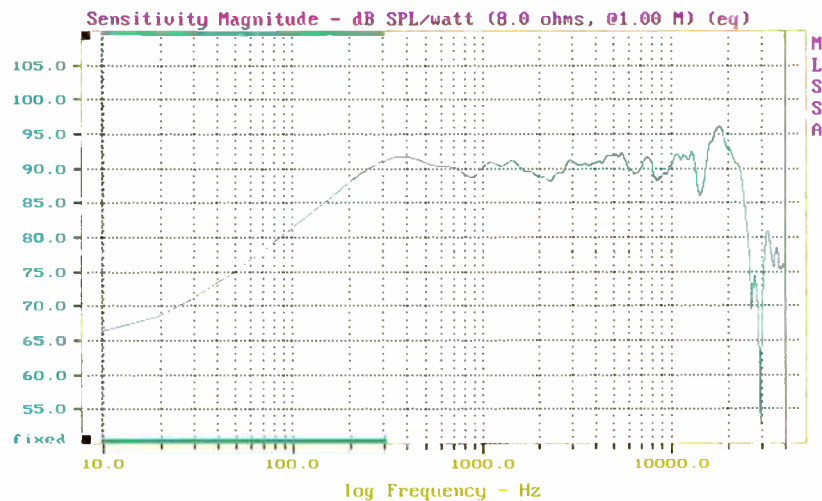


Fig 9 - Overall response of WD20T with WDXRS 'supertweeter' added.

effects or, if the diaphragm is rigid, ringing overtones (and undertones come to that) that do not encourage good integration with others of their type. Yes they make good treble units. But trying to get two domes to work together is difficult if not nigh impossible.

So what is left? 'Ribbon' is the word you are searching for. A good ribbon has a smooth phase response, does not exhibit audibly annoying resonances, and as it is planar is fairly easy to integrate to any speaker. The only problem with high performance ribbon drivers, and here I mean the true ribbon, not the mylar diaphragm with printed coil type, is that their power handling is limited.

As a 'supertweeter', however, power handling is less of a problem. There isn't much power in the areas above 2 – 3kHz in normal music so a ribbon should handle all we need at frequencies well above this.

I can easily show the effect that our Ribbon 'supertweeter' will have in the following graphs. The blue line shows the response of the WD20T without 'supertweeter'. Nice and smooth and flat. But if you look closely you will see, as well as the dip

at 10kHz, that the midrange is at a marginally higher level than the treble.

Now look at the red line which is the response with the World Designs XRS 'supertweeter' added. This neatly fills in the area around 10kHz, boosts the output up to 20kHz and beyond, and restores a lot of energy to the overall treble balance of the speaker from 5kHz upwards.

The addition of a 'supertweeter' into a system should be subtle, and this is, but for some it makes the WD20T 'complete'. It doesn't interfere with the coherence of the midrange/treble coaxial unit but it does add a frisson of sparkle and detail and enhances the harmonic overtones of cymbals, brass instruments, strings and even female voices.

Adding the World Designs XRS is not a necessity. WD20T is a lovely sounding speaker without it. I have included this section purely for completeness and, I hope, to give a greater level of understanding as to what the 'supertweeter' nonsense really is all about!

Next month: Designing the perfect 'supertweeter'.



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sound quality

Adam Smith measures and listens to the final incarnation of the World Designs WD20Ts.

Having spent a number of years in the loudspeaker design arena, it is always interesting for me to follow a series of articles from another person detailing a design. I find it fascinating to see how the design was approached and to view the finished result. Of course, it is all very well seeing pictures of the final article, but nothing can match actually measuring and listening to it yourself, so I was very pleased when Peter Comeau arrived with the WD20Ts in tow! Suffice it to say that they do indeed measure very well [see MEASURED PERFORMANCE] and, consequently I was looking forward to listening.

Initial impressions certainly did not disappoint. The WD20Ts have an impressive rhythmical alacrity and, whatever music you feed to them they grab and run with it in a very keen manner. The uniformity of the midrange and its integration into the treble is very pleasing, and, other than a slight but not unpleasant forwardness to the upper midrange, as a result of the innate frequency response glitch of the HI 333 coaxial driver, the top end is superbly even.

Spinning Norah Jones' 'Feeling the Same Way', her vocals were crisp, clear and full of emotion and rock-solid in the central gap between the loudspeakers. The backing instruments behind here were expertly focused and it was easy to mentally turn your attention to whichever instrument you wished, as none were artificially boosted or lost within the recording.

The sense of uniformity continued with classical material. Handel's 'Arrival of the Queen of Sheba' was magnificently reproduced, the action zipping around the orchestra with almost dizzying pace. Each instrument was instantly recognisable and violins were sweet and lifelike with none of the unpleasant screechiness that can afflict some designs.

Most interesting for me was a dance track that I often use for evaluation - Underworld's 'Jumbo'. This starts with an undulating synthesiser in the background which continues as the main beat

kicks in. The problem is that, when this beat starts, the synth line is often lost behind it and relatively few loudspeakers have the ability to keep it clearly audible; the best I have heard being the Mordaunt Short Performance 6s. However, the WD20Ts did a sterling job at this and it was still easy to follow that elusive synth line.

Bass from this dance track was tight and tuneful, but not quite as deep as might have been hoped from the size of the enclosures. Measurement shows that the bass rolls off below around 70Hz, so the WD20Ts will not have seismic low end, but I think another part of the issue is that there was not the slightest hint of any boom or wallow from the enclosure at any point. The cabinet is very solid and responds to the knuckle test with a solid, dull thud, so it adds no unwanted signature to the low end at all.

Ultimately, part of the apparent bass lightness appears to be the fact that you are listening to the drivers, whereas with some other loudspeakers you're listening to the cabinet playing along as well! Upper bass detail was impeccable and the WD20Ts had excellent presence in this area, so they never sounded lightweight.

All in all, the

WD20Ts are another resounding World Designs success and offer an addictively rhythmical sound quality in addition to the warm and fuzzy feeling that you've got yourself something a little bit different. They use their technologies to superb effect and I can see them working happily on the end of a wide variety of different systems.



MEASURED PERFORMANCE

Under measurement, the WD20Ts pay testament to all the design work that has been detailed over the last few months, as they measure very well indeed. The response is largely flat across the bandwidth with the only exception being the peak and dip centred at around 10kHz. This is a result of the coaxial tweeter and its position at the throat of the bass driver; the cone of this having a small horn effect. The dip may rob some upper midrange detail but the peak will boost everything slightly higher in the frequency range, so there should be no noticeable suckout.

Bass rolloff from the WD20Ts commenced at around 70Hz. With no port to augment this, the WD20Ts do not reach quite as low as similar ported designs, however the slight lift in the upper bass/lower midrange region will add good detail in this area and they are unlikely to sound lightweight.

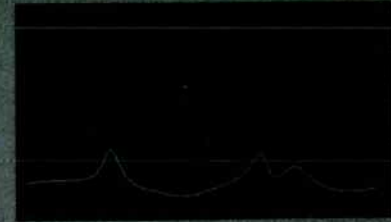
Electrically, the WD20Ts are well damped, with an even impedance response. Average measured impedance was 5.2 Ohms, dipping to

a minimum of 3.5 Ohms, so they do present a genuine 4 Ohm load to an amplifier. However, their sensitivity was high at 90dB so they will not need much driving muscle - 20 to 30 Watts will be fine as a minimum. AS

FREQUENCY RESPONSE



IMPEDANCE



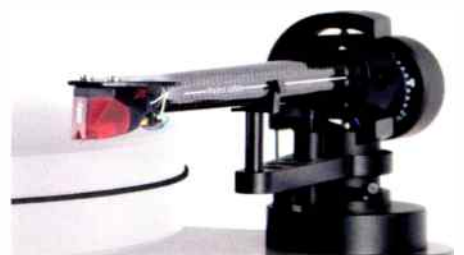


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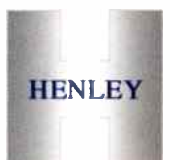


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Adam Smith rounds up some great new gadgets for the vinylly challenged!

STICKY STUFF

New out on Domino Records is the latest album from Animal Collective. Called 'Strawberry Jam' and fixed in a presentable gatefold cover, it is produced by a very fluid group of experimental indie rockers whose collaborative lineup means that some or all of the band may appear on any one record... maybe. This release is different from past releases – which is nothing unusual. Vocal-heavy for a change with pop-like structures, there is enough strangeness in the LP to please fans.



SWEET ENOUGH?

Funk fans should take a look at this double release from Munster Records. Black Sugar's self-titled debut plus Black Sugar II, both feature Latin funk-rock from Peru plus a mix of jazz and classic blaxploitation guitar noises. The debut album stems from 1971 whilst the sequel, issued in 1972, features more of their own compositions whilst still featuring a few interesting covers such as Stevie Wonder's 'Don't Worry About A Thing'.



RICHARD THOMPSON

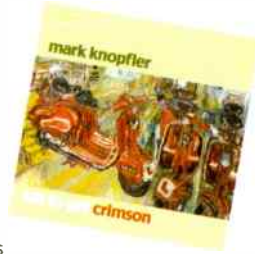
'Sweet Warrior', Thompson's new album, is a significant release for two reasons. Firstly, it is his first electric guitar-based release since 2003's 'The Old Kit Bag' and, secondly, it is a 'return to form' for the ex-Fairport Convention co-founder. That is, this is the sort of album that his fans expect and wallow within, as opposed to his more leftfield, experimental projects, and features a full band, including Danny Thompson on acoustic bass. Despite some initial pressing problems, this new Diverse Vinyl release is worth searching out.



news

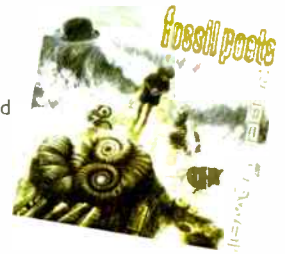
KILL TO GET CRIMSON

Mark Knopfler's new album has just been released on vinyl. Nicely produced, the album is Knopfler's take on pre-nineteen sixties Britain, telling stories from the time and filling his songs with individual characters that gives this album a sort of folk-rock feel. It's packed with Knopfler's own signature smooth guitar picking and pleasant baritone. The album title, 'Kill To Get Crimson', is taken from one such character, a painter, who declares that he'd kill to get crimson on his paint palette. The album is nowhere near as aggressive, however. It is subtly personified and one to digest over time. The European pressing, via Mercury, is on heavyweight vinyl and is good quality – look out for a US-pressed version via RTI, however.



NO FOSSIL

Roger Powell is best known as the keyboard player in the band Utopia, significant for its front man, Todd Rundgren and its experiments in prog rock and new-wave pop throughout the 1970s and 1980s. Roger has been responsible for several solo albums as well as appearing with other legendary figures such as Meatloaf and Bowie but, commercially, he has been quiet for a long time. This new release, 'Fossil Poets', via Inner Knot, is a surprise because we all thought Powell had retired. Full of musical textures and soundscapes, this is a welcome return for the talented instrumentalist.



BOSSA BOSS

Antonio Carlos Jobim is famed for bringing Bossa Nova into the mainstream. His work, during the early sixties, lead to just about every jazz musician and vocalist of the time releasing singles and albums packed with the stuff. Even Frank Sinatra recorded an album with him (although Jobim purists hate it). Jobim now has a deserved reputation as one of the great songwriters of the 20th Century. Out via Cherry Red and Get Back, are two re-releases by Antonio Carlos Jobim with Luiz Floriano Bonfá, 'Orfeu Da Conceicao E Outras Historias' and 'Samba, Saudade & Bossa Nova', featuring pre-Bossa works from the mid-50s. Gentle and beguiling, they include samba and jazz rhythms.



BURRITOS ALL 'ROUND!

A classic re-release from the 4 Men With Beards label, 'Gilded Palace Of Sin' was The Flying Burrito Brothers' debut from 1969 and featured the legendary Gram Parsons, ex-Byrds man Chris Hillman, ex-International Submarine Band's bassist Chris Etheridge and the 'Sneaky' Pete Kleinow – who would later play with seminal artists like Lennon and Zappa. Probably the most influential country rock album ever (ask The Eagles), it boasts great vocals and a truly 'team' feel to the whole production.



Live Action

Following in the footsteps of its well reviewed predecessor, the new Origin Live Aurora Mk2 turntable promises better sound, superior build and lower cost. David Price listens in...



It's a funny place, the sub-£1,000 turntable market. Spending four figures buys you some truly superb, world-class designs whilst half that gets you a decent mid-price deck that's perfectly good enough for most systems.

Right into the middle steps the Origin Live Aurora Mk2. At just £750 (excluding arm), it's close to the superb Roksan Radius 5/Nima, whilst adding a couple of hundred quid takes you into Michell GyroDec territory. So the new Aurora has to be seriously good, otherwise it's going to be brushed aside by the already excellent opposition.

As soon as you unpack it, you immediately begin to understand designer Mark Baker's claim that it "is based on a Formula 1 design approach rather than Mercedes Benz". To wit, you don't get acres of glossy Perspex, chintzy chrome plated detailing or silky smooth

SME-style surfaces. Instead, it's a stripped down, lean and mean record playing machine. By the standards of Michell's rival TecnoDec for example, it's slightly less lavishly finished, but is also mechanically more sophisticated.

Mark Baker calls it, "an affordable evolution of the much more expensive high performance Sovereign deck", and close examination bears this out. Unlike the aforementioned TecnoDec, it is a two-tier turntable that's far more complex than it looks, featuring a non-suspended subchassis resting on a single point to isolate it from vibration. There's a choice of mirror black, clear acrylic, frosted or white finishes, and overall dimensions are 410x410x145mm – weight is 10kg including arm.

The deck features a high grade bearing, precision bored, honed and polished, and rotating on a pure film of special oil with no surface to surface contact except the load

bearing tip. "Many bearings don't achieve this ideal due to imperfect tolerances and surface finishes", says Baker, but "the load bearing tip acts as a single energy transmission point, essential for sound purity."

The platter is made of a "special plastic that is a considerable advance on the standard acrylic commonly employed in the industry", and it is driven by a large standalone ironless DC motor pod with no cogging effect (claimed). The optional 'upgrade transformer' gives a regulated power supply that is load compensating, while speed control is easily electronically switched between 33rpm and 45rpm (78rpm is also available on request).

The review deck came bundled with an Origin Live OLI arm which, if purchased with the deck, comes with a stainless steel rear arm stub free of charge. Although this is not the full structural upgrade, it still offers a real step up from the standard OLI

arm. The deck itself sports VTA arm adjustment for the Rega and Origin Live arms, which makes setting the arm height much easier. The Aurora can accommodate most arms by simply changing the sub-chassis plate, which is available for SMF, Inn, Graham and Hadcock arms - Roksan arms can be fitted using an adaptor.

Whilst it's a well made package, offering – in plain terms – a lot of turntable for the money – I can't say I was impressed with the setting up instructions. The small black and white pictures are hard to read, and written with more engineer-speak than is necessary – Origin Live should learn a lesson from SME's superbly clear and well illustrated booklets, methinks. This is an important point because the deck is actually quite complex to set up accurately, which isn't something you'd expect at this price (where turntable duffers are likely to be parting with their hard earned cash). By comparison, a Rega P3-24 or Roksan Radius is a stroll in the park. The good news is that, correctly fettled, the non-sprung design means, as Mark Baker rightly says, "there is nothing to go out of tune", so no periodic spanner wielding is needed.

SOUND QUALITY

As with all turntables, especially non-sprung designs, placement makes or breaks the sound. I found that siting the Aurora on my favoured Audiophile Furniture Base isolation platform, atop my Apollo equipment rack, worked best, although I'd imagine it would also really sing on a good, rigid, wall table. For the purposes of the review I fitted a £500 Lyra Dorian moving coil and a £130 Goldring G1042 moving magnet; I was surprised to find that the OLI was well-able to signpost the former's superiority.

If the Aurora is a pain to set up, then your efforts are rewarded when everything's finally together, its obvious complexity (relative to the likes of the TechnoDec) rewarding with a class leading sound. In short, it's an extremely neutral, open and incisive tool – even more so than the Michell and Roksan price rivals – with a surprisingly grippy yet free-flowing musicality and natural tonality.

Kicking off with some vintage pop in the shape of ABC's 'When Smokey Sings', the new Origin Live deck served up a spacious recorded acoustic which was impressively three dimensional. Within this, there was a good degree of detail, especially across the midband, which was as transparent as any deck I've heard at this price point (and

indeed the equal of several more expensive designs, such as the £1,500 Clearaudio Performance).

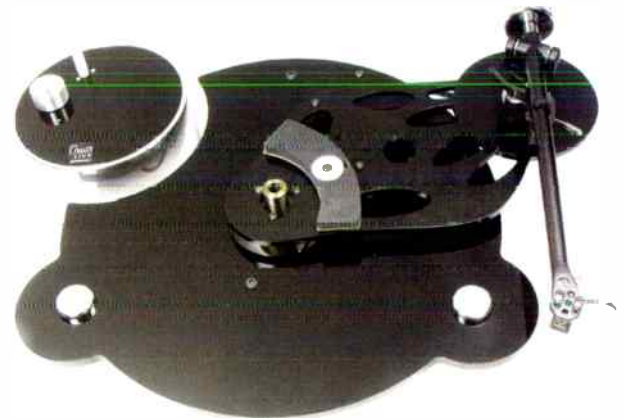
Having listened to my modded Technics SL1200 daily for the past few months, I've become acutely sensitive to speed stability, so moving to 'The Moon and The Melodies' by Harold Budd, with its beautiful, lilting piano work, showed the Aurora to be excellent in this respect – for a belt drive, at least. There was no wobble or 'cracked' notes, indicating fine pitch stability, even though it wasn't quite as fast as the quick-as-a-flash SL1200. This duly translated to a very firm, musically engaging bass guitar sound on Nick Lowe's 'So It Goes', the OL giving a blisteringly musical rendition of this new wave classic.

Tonally, the Aurora is a tad more stark than some rivals, which isn't to say it's bright (the Dorian sounded bright, as it should with its rising treble, while the 1042 sounded fulsome and a tad dull, also as it should), but bass is certainly on the lean side compared to the warmer, fluffier Roksan Radius V. It gives the impression of a turntable with its running shoes on, instead of the big heavy boots the SL1200 walks round in. It verily romped through Lou Donaldson's 'Alligator Bogaloo', a classic late sixties BlueNote waxing, showing itself to be rhythmically together and 'all of a piece'. Effortless control is the watchword(s) of this deck – it has grip aplenty but still has a nice, relaxed demeanour which doesn't sweat as it tries so hard to tell you what's on the disc.

It's only when you put the Aurora 2 up against a Michell GyroDec SE (at some £300 more) than you notice any blots in its copybook. It's not quite as wide, deep or tall in its soundstaging (although not far off), and lacks both bass definition and dynamic scale. But don't get me wrong, it's superb at the price – surely the best £750 black disc spinner in outright sonic terms – providing you position it in a place where it's not in touch with the outside world

CONCLUSION

Mark Baker set out to make a no-compromise, best-sound-per-pound



REFERENCE SYSTEM

Technics SL1210/Audio Origami RB250/Lyra Dorian turntable
Note Products PhoNote phono stage
Sugden IA-4 amplifier
Yamaha NS1000M loudspeakers

sub-£1,000 turntable, and has succeeded. I loved the Origin Live Aurora 2's tremendously even, natural, free-flowing sound, and suspect it's well able to exploit better arms than the OLI (I'd regard a Silver (£600) to be a good starting point). But prospective purchasers should remember that it's a no-compromise product in a market that often prefers more user-friendly solutions. Fiddly set up and poor instructions mean vinyl virgins should either get their dealer to do it, or think more along the lines of Rega's new P3-24. So buyers should go for this deck purely on sonic terms, and match it to an Origin Live OLI and a Goldring 1042 (as a starter), or an Origin Live Silver and Lyra Dorian or Ortofon Rondo Bronze (as the main course). This done, it's a formidable package.

VERDICT

Highly focused design optimised for superb sonics, at the expense of user-friendliness or fashion.

ORIGIN LIVE AURORA 2 £750

Origin Live

+44(0)23 8057 8877

www.originlive.com

FOR

- neutrality, clarity
- speed, grip
- sense of ease
- value

AGAINST

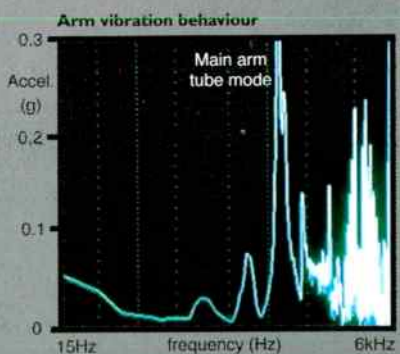
- complexity, set-up
- instructions

MEASURED PERFORMANCE

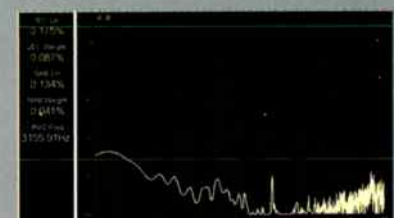
The Aurora turntable turned in a good measured performance with an IEC weighted wow and flutter figure of 0.087%. It offers a smooth response graph and so should offer a stable sound free of any noticeable slurring of transients or variation. Speed stability during testing was good, showing virtually no change after running for a couple of hours.

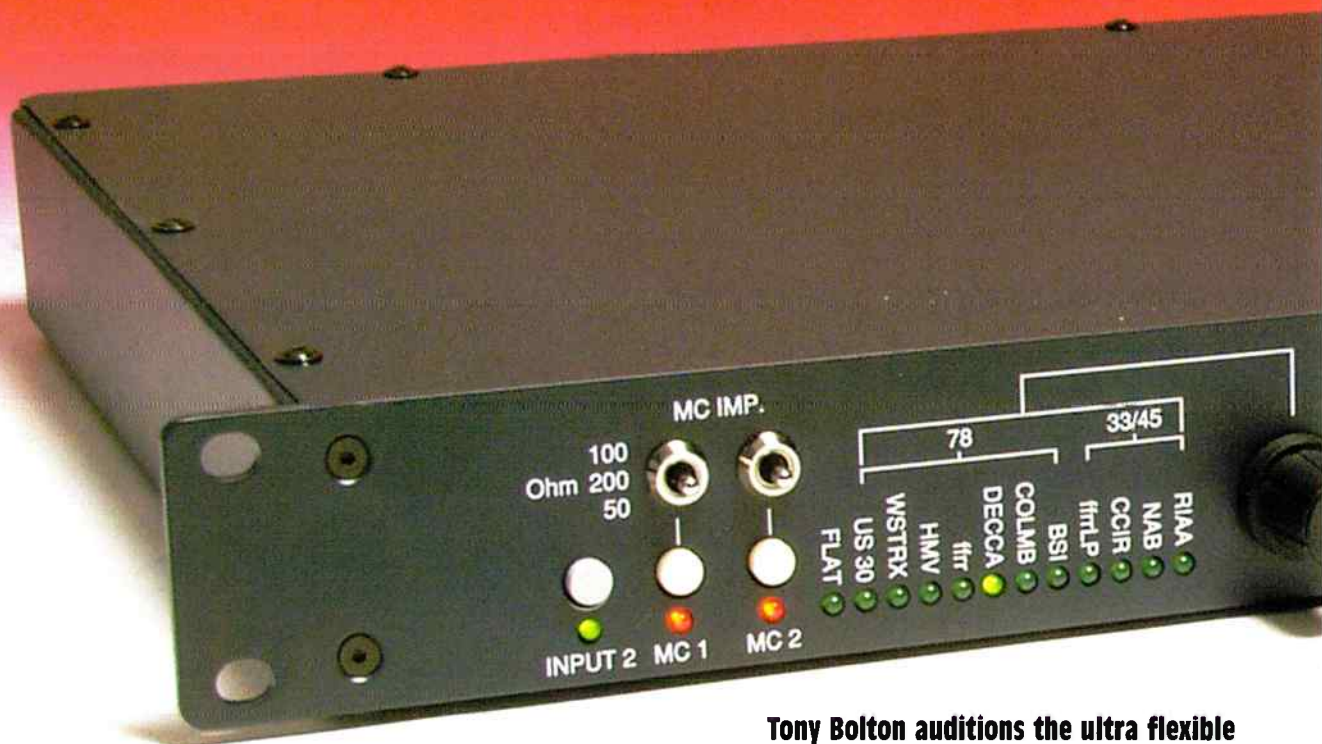
The OLI arm shows a main arm vibration mode of over 0.3g reaching up to nearly 0.4g, which is high. This suggests that the arm tube is very stiff, but the peak is narrow so it is quite well damped. Further peaks as the frequency increases suggest that the whole assembly is rigid, including the headshell, and this is likely to influence the sound. Dynamics should be good, but the OL arm could well be a little edgy at times, necessitating careful cartridge matching for optimum performance. AS

ARM VIBRATION



WOW AND FLUTTER





Tony Bolton auditions the ultra flexible Elberg MD12 Mk. II phono stage...

The Equaliser

Ever wondered why Purple and Orange label Atlantic records have a tendency to sound a bit ratty, or FFRR Decca recordings sometimes sound like they were recorded in a tunnel? Well, you've probably been playing them through a phono stage that follows the RIAA equalisation curve. In theory, this has been applied to all recordings made since 1955, but in practice, several different curves were in use by different companies up to the late nineteen sixties.

There are a few manufacturers who take this into account when designing phono stages, and Elberg, a Danish company that specialises in studio and pro equipment, are one of them. They cater not only for the owner of elderly vinyl, but also include the most popular of the multitude of settings used for 78s.

The MD12 Mk II phono stage makes no attempt to hide its professional origins. It comes in

the standard rack-mount size of 480x260x45mm with predrilled mounting holes at the sides. The front is comprehensively equipped with, from left to right, buttons to select MM or MC gain levels on either of the two inputs. Above these are three position switches offering 80, 100 and 200 Ohm impedance settings in MC mode. Beside this are twelve green LEDs labelled for different curves, selected by the rotary switch to their right. Beyond this is a button for an 80Hz high-pass filter, then a button and knob for the variable low pass filter. This operates from 12kHz down to 1.6kHz.

After this are selectors for vertically cut records, and two mono switches. These can be used to replay the sound from either groove wall through both speakers, which is useful with beaten up mono records! Pressing both sets the phono stage to pure mono operation. Both volume and balance controls for the output are provided, and a rocker switch on

the far right controls power. At the back there is an IEC socket, voltage selector and two XLR sockets for the signal output. To the right are two pairs of well-spaced phono sockets for the inputs, allowing two arms to be connected at the same time.

SOUND QUALITY

Starting off in RIAA mode with a new pressing of Sphongle's 'Tales of the Inexpressible', and I was immediately impressed by the rock-solid three dimensional sound emanating from my reference system. Bass had a 'hewn from granite' quality, but still managed to be agile and energising, while the soundstage extended forward of the speakers by several feet, and seemed to go back further still. The space in between these points was filled but not cluttered, and each sound - whether electronically generated or natural - had a feeling of inky black space around it.

Changing to mono, and FFRR, I played the 'Stones first release





"It's ideal for record collections that aren't catered for by conventional phonostages..."

(The Rolling Stones', Decca Records LK4605). With the EQ correctly set I found a more immediate sound than when played through a conventional RIAA curve. The high frequencies had better presence, and the music lost its slightly fuzzy, compressed sensation. Switching to the NAB setting and the previously overblown top end of Hit 68 (Atlantic Records 587136) was calmed, and certain (almost out of phase) sounds that appeared around cymbals and tambourines, disappeared entirely.

Setting my Clearaudio turntable up for 78rpm, I played through a range of shellac dating from early nineteen twenties acoustic recordings through to late fifties rock and roll. I found the separate mono switches particularly useful here, finding that the inner groove wall often showed less wear than its counterpart. The filter also proved its worth, taking out the worst excesses of crackle. It proved sensitive enough that I was able to tweak it to the point where the surface noise was reduced without seeming to remove the higher frequencies of the music. Post war recordings, with their wider bandwidth,

required very little or no filtration and I found it preferable to put up with some of the crackle for the sake of hearing all the music.

Overall, I liked this phono stage a lot. The controls were intuitive to use and effective in their operation. The only area in which I felt that the sound was lacking was at the higher frequencies, where I felt that a little more air and space could be present. Still, the sound was never less than very solid, and this extended right through the frequency range, lacking only some of the fine filigree detail heard around a gently brushed cymbal, or the decay of a triangle.

CONCLUSION

If you can live with the functional aesthetics, then the Elberg MD12 MKII is a fine unit, well able to fulfil the job it sets out to do with panache. Well made, with strong sound and easy ergonomics, it's ideal for those whose record collections aren't catered for by conventional hi-fi phono stages. If you play classic 78s or early vinyl, then this product is an essential audition.

REFERENCE SYSTEM

Clearaudio Master Solution turntable
Clearaudio Satisfy & Hadcock 242 Cryo tonearms
MusicMaker III or Denon DL103/78 cartridges
Graham Slee Jazz Club/Elevator EXP phono stage
Leema Acoustic Tucana integrated amplifier
Chario Ursa-Major loudspeakers

VERDICT

Well built and finished, this phono stage offers fine performance and a wide range of equalisation settings to get the best from your classic vinyl.

ELBERG

MD12 MK. II

€1,800

Vadlyd

(+45 45806425

www.vadlyd.dk

FOR

- fast, well defined sound
- onboard volume control
- flexibility

AGAINST

- unatmospheric treble

MEASURED PERFORMANCE

Our frequency response analysis shows deviation from the RIAA equalisation curve. The Elberg is -0.6dB down below 1kHz, which is relatively inaccurate by hi-fi standards. There's too little low frequency gain in the 3180us part of the curve and this will be heard as a lean sound. Also, RIAA does not specify a roll off below 50Hz; the 3180us portion keeps gain steady down to subsonics and many RIAA phono stages interpret this literally, possessing constant gain down to 5Hz or so. The IEC later suggested a 40Hz roll off to suppress warp information and it looks as if Elberg's curve incorporates this, so in truth it is RIAA+IEC, not RIAA as stated. Whilst we have two high accuracy RIAA networks for measurement, we have none of the other curves and can't comment on their accuracy.

Gain was high at x254 for MM and x 3116 for MC, so there's plenty enough output to drive any amplifier. With 16V output overload there was also healthy input overload margins of 63mV (MM) and 5mV (MC). Whilst

MM was quiet, possessing 0.24mV equivalent input noise (IEC A weighted), MC was relatively noisy with 0.13mV. Distortion was low at 0.01%.

The Elberg could usefully be a little more accurate for hi-fi use; inexpensive Cambridge audio 540P/640P stages manage better. However, it is hum-free and quiet with MM, so basic functionality is good. NK

Frequency response	45Hz-20kHz
Separation	53dB
Noise	0.24mV / 0.13mV
Distortion	0.01%
Gain (MM, MC)	x254, x3116
Overload	MC 5mV/ MM 63mV / 16Vout

FREQUENCY RESPONSE (RIAA)



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Needle Time

While some audiophiles anticipate new high definition digital audio formats with glee, there are others who remember the old ones with affection. Tony Bolton is one such shellac junkie, and here tells the story of the late, great 78rpm record...

In a world where vinyl is – as far as most people are concerned – little more than an irrelevance, it may surprise you to learn that some record collectors enjoy formats that make the LP seem like the ‘white heat of technology’, namely the 78rpm shellac disc!

Love it or loathe it (and it's so old that most audiophiles don't even have an opinion these days), if you're a music fan then there's no denying the massive amount of music available on a format that – if played properly – certainly sounds as good as many modern DAB radio broadcasts. Let us not forget, vast numbers of 78s were sold in the first part of the twentieth century, meaning there's a wealth of classic music still out there for the collector.

CUTTING CORNERS

What puts off most people who might otherwise be highly receptive to some seminal jazz, classical and ‘pop’ recordings, is the dizzying variety of playback permutations. This is perfectly understandable, as – frankly – things weren't terribly standardised, and there are so many associated issues.

For example, the obvious way to reproduce 78s would be through period equipment, but the wear on the records is huge (my 1935 HMV 102 acoustic portable tracks at 145 grams on steel needles – and that is quite good for the period). So I have looked at ways of playing them on modern machinery, with the benefits of minimal record wear, and considerably better sound.

In theory it's easy to define a 78 – it's any record pressed on shellac that revolves at 78 revolutions per minute – but in practice the speed wasn't standardised until the 1940s. Prior to that, speeds could and did vary from about 74rpm up to 82rpm, and few companies apart from Columbia bothered to put the speed on the label! By the mid 1920s, most records were being cut at around 78rpm, a couple of rpm tolerance being used to extend playing times a

little when required.

All British-made 78s were cut laterally (sometimes called needle-cut). French Pathe's revolved at 90rpm, starting in the centre, and, like the American Edison Diamond Discs (not to be confused with the British Edison-Bell label) used vertical, or



A Goldring Lenco turntable, with its continuously variable speed of 16-90rpm, is a quality but reasonably priced step to 78rpm heaven...

‘hill and dale’ recording (also called phono-cut). Since these rarely appear in the UK I will focus on the lateral cut records.

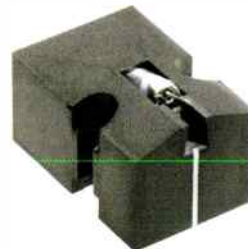
A surprising number of turntables are available off the shelf with three speeds as standard, or obtainable by buying an optional extra pulley for the motor. Of course, second-hand you have a huge choice, varying in price from Goldring Lencos costing a few tens of pounds to more expensive options including the Garrard 301 and 401, plus the Thorens TD124, all of which have variable speed control.

Thorens still make three speed decks in the form of the TD170-1, TD170 Phono, TD190-1 and TD240 models. Pro-ject offer 78rpm as an option on the Debut series, and Clearaudio offer 78 on the majority of their range, right up to the Statement at over £50,000. Crossing the Atlantic and a lot of American manufacturers, such as VPI, offer three speeds as an option.

The second bit of bad news is that needle sizes varied over the years. As a general rule, up to the First World War a needle of 0.0040in was used. For records made in the interwar years I have seen recommended needle sizes of 0.003in

to 0.0035in. Post war records used a 0.002in tip. Off the peg needles and cartridges are available from Shure, Ortofon, Grado and Benz Micro.

Studios tend to have a range of styli of suitable size custom made by suppliers such as Len Gregory (www.thecartridgeman.com). He offers a variety of tips, including truncated cones that ride the groove walls and avoid the worst of the inevitable groove damage in the process. I have settled on using a 0.0032in truncated conical tip, on the grounds that the majority of my collection dates from the 1920s to the 1950s. My first unit was based around a Shure M78, however, my reference 78 cartridge is now a Denon DL103, sporting a 0.0032in truncated cone. The moving coil design makes less fuss about surface noise than a moving magnet type, and the suspension is strong enough to cope with the vastly increased velocity and groove



Len Gregory (a.k.a. The Cartridge Man) can re-tip Denon DL103s for perfect shellac reproduction.

excursion of shellac recordings.

A final tweak that really works is to fit a Cartridge Isolator, also from the Cartridgeman. This fits between the cartridge and the arm (adjustable arm height is essential), and the resultant sonic effect is of less surface noise and a seemingly improved tracking of the groove, resulting in a more detailed and open sound.

EQUAL OPPORTUNITIES

When a record is cut it is normal to manipulate the signal a little. Usually the bass is reduced and the treble increased. This is then corrected when the record is played. The

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Yamaha DSPAX7595E AV Amplifier	£355.00
Yamaha RXN6000 AV Receiver	£389.00
Yamaha YSP800 Digital Sound Projector	£389.00
Yamaha SW1500 Sub Woofer	£449.00

BEDFORD 01234 272779

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Audiolab 8000P Power Amplifier	£255.00
Audiolab 8000D Pre Amplifier	£385.00
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KEF PSW5000 Sub Woofer	£1,695.00
KEF Reference 202C Centre Speaker	£695.00

CAMBRIDGE 01223 307170

Cyrus 6vs Amplifier	£485.00
Cyrus AV8 AV Processor	£325.00
Monitor Audio RSFX Surround Speakers	£259.00
Monitor Audio CXC Centre Speaker	£324.00
Pioneer DV555 DVD Player	£109.00
Sony STS820 Tuner	£134.00
Yamaha MCX100 MusicCAST Server	£1,199.00
Yamaha MCXA10 MusicCAST Client	£449.00
Yamaha YSP1 Digital Surround Projector	£519.00

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Denon DVD2930 DVD Player	£419.00
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Yamaha DVDS2700 DVD Player	£749.00
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Yamaha YSP800 Digital Surround Projector	£299.00
Yamaha RXV1700 AV Receiver	£669.00

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Audiolab 8000P Power Amplifier	£299.00
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Denon AVR2307 AV Receiver	£799.00
Denon DVD3930 DVD Player	£379.00
Marantz TT-15 Turntable	£749.00
Marantz PM-15 Amplifier	£749.00
Marantz SA7001 CD Player	£299.00
M&K K12 Sub Woofer	£229.00
M&K K17 Speakers	£189.00
Monitor Audio RS5 Speakers	£289.00
Monitor Audio GS10 Speakers	£519.00
Monitor Audio GS20 Speakers	£969.00
Monitor Audio GSLCR Centre Speaker	£319.00
Musical Fidelity XT-100 Amplifier	£669.00
Pro-Project Xpression II Turntable	£185.00
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Yamaha DVDS2700 DVD Player	£749.00
Yamaha DVDS1700 DVD Player	£299.00
Yamaha RXV2700 AV Receiver	£839.00
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Arcam DVA A80 Amplifier	£485.00
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The Smart Phono ReMastering Equalizer fits between your normal RIAA phono stage and amplifier.

reasons for this are many. Bass notes cause a wide deflection in the groove and, if recorded too loudly, could break through the adjacent groove wall. By contrast, treble information tends to get suppressed by the recording process so is boosted to compensate for losses in the system.

In the early days of electrical recording, most record companies made their own reproduction equipment, so recordings were also tailored to get the best out of the acoustic machinery of the era. Needless to say there were great variations between the different label's settings. This continued even as electrical reproduction became the norm, and led to the fitment of the much-abused tone controls, to all but the cheapest equipment.

Since such things are frowned upon in modern audio, there are a few companies who have come up with solutions to the problem of equalisation. I have used a Graham Slee Jazz Club phono stage (www.gspaudio.co.uk) for a few years. It has fifteen different EQ curves for both standard groove and microgroove records, and a mono/stereo switch. The Elberg MD12 MkII unit that is reviewed on P88 has twelve different curves and a very useful filter.

A more unusual answer comes from American-based internet company Smart Home Theatre (www.smartdev.com). They make a device called the Smart Phono ReMastering Equalizer, which is plugged in between the user's normal RIAA phono stage and their amplifier. Another option would be



Older Quad 34 or 44 preamplifiers have a wide range of filter options, which can be put to good use for equalisation.

to purchase a second-hand Quad 34 or 44 preamplifier (or a 33 if you don't mind DIN plugs) for use as a dedicated phono stage. These come with tone controls, effective filters and the 34 and 44 both take modular input boards allowing for either MC or MM operation.

SURFACE TENSION

Having got all the hardware together and played a record, you'll probably be horrified at the levels of surface noise present. Shellac records had an abrasive surface that was intended to wear away the steel needles before the record. However, most of the noise on a 78 is not the surface, or even wear. It is seventy-plus years of dirt, dust, and, on most of them, a scrapyard full of steel filings lurking in

"I play the original 78s for the timing, life and pure musical energy that comes out of the recording..."



Loricraft's Record Cleaning Machine is a superb, if expensive, way to suck the years of accumulated gunge from your shellac grooves!

the bottom of the groove!

Cleaning the records is essential, but needs to be done carefully. Most cleaning fluids contain chemicals that will destroy 78s. The only fluid that I know to be safe is L'Art Du Son, available from Loricraft Audio, the Garrard specialists (www.garrard501.com). The cheapest effective cleaning machine that I know of is the Disco Antistat. This works by immersing the record in a bath of fluid, and revolving it past goat's hair brushes. The record is then air-dried in the rack provided.

A more expensive, but also more effective way, is to invest in a vacuum cleaning machine. I have tried the Moth, Clearaudio and VPI units and can recommend them. The only drawback being the clamping of a brittle record to the platter. 78s can take quite frighteningly high tracking weights, but are very brittle and can shatter very easily. I therefore tend not to clamp the record, but to revolve it past the cleaning arm

by hand. It is more laborious, but prevents the risk of a shattered disc. The Loricraft machines do not use a clamp and have an arm that traverses the record groove by groove. It does a stunning job, but is one of the most expensive.

INTO THE GROOVE

Surprising as it may sound, correctly set up 78rpm records are capable of a vivid and immediate presentation of music that even good vinyl has difficulty matching, and CD can only dream about. There are the restrictions of a more limited bandwidth (depending upon the age of the recording) and the ever-resident hiss (hopefully without too much crackle) but there is a physicality to

the sound that places it as a solid entity in front of the loudspeakers. A lot of the classic recordings, both jazz and classical, have been reissued over the years on both vinyl and CD but, where I have the option, I usually find myself playing the original, simply because of the timing, life and pure musical energy that comes out of the recording.

There is a vast amount of music that remains unreissued. A lot of the mainstream artists are reasonably well covered by the archive market, but you only have to scratch the surface of popular music to realise the huge number of less known but equally talented artists who have recorded over the years.

The classical world is a bit better served, most of the repertoire being available in modern recordings. However I do like to listen to Elgar conducting his own work, or Rachmaninov playing his own concertos, and, again, I prefer the sound of the original records to that of a heavily noise suppressed and processed re-issue. They might be crackle free, but I find them to be lifeless as well. Interpretations have also varied hugely over the years, and some of the older performance styles give a different feel to a piece.

If you enjoy the musical genres covered by the shellac era (1900 to 1960) and fancy trying something different, then clean them up and try playing them through hot-rodged modern hi-fi. The sound may not be high fidelity as we like to think of it, but it is extremely musical, enjoyable and, at times, very real.

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Poles Apart?

Goldring claim their new 2500 is like no other high end moving magnet cartridge.

Noel Keywood goes in search of the answer...

Goldring's new 2500 is priced at £185 and lies at the top of their recently introduced 2000 range of moving magnet (MM) cartridges. It isn't meant to supercede Hi-Fi World's fave affordable audiophile MM, the £130 G1042 (which continues in production), but simply offer somewhere to go for customers who are able to spend more... A brand new, clean sheet design, it shares nothing with the older (but still excellent) 'G' range, and is distinguished from lesser models in the 2000 series by having a tapered cantilever fitted with a 2SD stylus. Tapering the cantilever tube improves strength, reduces tip mass to improve tracking and disperses modal resonances to reduce colouration.

The finest nuances are teased out deftly. However, as impressive as the 2500 is, its emphasised treble is often obvious. With albums possessing goodly amounts of treble energy, like Phil Collins' "Hello I Must Be Going" (180gm version) horns sounded a tad thin and tinselly, lacking the timbral richness they possess with a more tonally balanced design.

I was aware of this phenomenon even with mildly balanced recordings like Eleanor McEvoy's 'Yola' and the Scissor Sisters' 'Ta-Dah'. Things got better, as I suspected, with Nat King



talented results expected from Goldring, but what you make of its bright tonal balance will depend upon taste and the system it is used in. Personally, I am happier with the more accurate 1000 Series designs (which if anything err the other way, towards an oversmooth treble), but some listeners might prefer the 2500 for its zest, linked with an undoubtedly finessed set of talents in all other areas. Class with character undoubtedly, but match carefully all the same.

"in every way it offers the talented results expected from Goldring..."

The 2500 is sturdily built and weighs in at 8.2gms - quite high but all arms should accept it, as their upper limit is commonly 10gms. The stylus is detachable, like most MMs, so that it can be user replaced and the body has tapped holes so fixing nuts are not needed. A cartridge like this is easy to use, inexpensive to run and should give fine sound quality. As always with Goldrings, tracking force is 1.75gms, but a range of 1.5-2gms is quoted.

SOUND QUALITY

Much like the 2400, which we reviewed in our July 2007 Vinyl Supplement, and to which I listened, the 2500 has an enticing midband transparency that makes it crisp and clear with vocals. I fancy the better cantilever and stylus tidy up the presentation a wee bit, especially in the high treble, which now sounds very finely differentiated and delicate in its internal detailing.

Cole's 'After Midnight' LP (180gm), recorded in 1956. With little high treble to cause distraction the 2500 showed how pure, composed and delicate it can sound, given the right source material to work with.

Spinning Pink Floyd's 'Money' showed the 2500's absolutely fabulous imaging, with cash registers and the clink of coins sounding densely detailed across a wide, spacious soundstage. The repetitive bass line was strong and firm, up there with the best MMs.

CONCLUSION

In every way the 2500 offers the sort of

VERDICT

Highly accomplished all rounder whose brightly lit presentation may not be suit all ears.

GOLDRING 2500 £185
Armour Home Electronics
 ☎ +44 (0) 1279 501111
www.goldring.com

FOR

- clear and open
- wonderful imaging
- finely detailed treble

AGAINST

- bright sound
- high treble sting at times

MEASURED PERFORMANCE

The new 2500 lacks midrange generator droop in its frequency response. This will give it a detailed and forward sound against traditional designs. Above 8kHz treble peaks up sharply to a very high +7dB at 18kHz giving an audible sting to the sound of LPs possessing extended treble. Tracing losses from the 2SD stylus were low, doing little to reduce treble output on inner grooves.

Tracking was excellent laterally, but the 2500 was close to its limit on a 45µm vertical cut, which is unusual as most cartridges sail through this test. Output was high and vertical tracking angle well set, measuring 27 degrees, giving rise to reasonably low distortion figures.

The 2500 measured well, but it will have a bright sound with distinct treble emphasis. NK

Vertical tracking angle	27degrees
Frequency response	20Hz - 8kHz
Channel separation	38dB
Tracking ability (300Hz)	
lateral	90µm
vertical	45µm
lateral (1kHz)	25cms/sec.
Distortion (45µm)	
lateral	0.7%
vertical	3.6%
Output (5cms/sec rms)	6mV

FREQUENCY RESPONSE



Tracking force
Weight

1.75gms
8.2gms

Red - outer grooves
White - inner grooves

The Vinyl Frontier

Adam Smith takes a look at a few of the latest turntable gadgets and upgrades.

SLATEDECK UNIVERSAL ARM MOUNT from £145 SLATEDECK UNIVERSAL RISER £46

As regular readers will know, I am something of a fan of SME products, especially their tonearms, and a large part of this is down to the sheer engineering quality their designs



Slatedeck's Universal Arm Mount system, showing (L to R) Universal Riser; main bedplate with Alphason adaptor fitted; Rega adaptor...

possess and their ease of setup, often aided by specific tools for each job.

Part of this ease of setup is undoubtedly down to the mounting system that SME came up with, consisting of a base with a long slot on which a mounting sled beneath the arm is fitted. It allows a good two inches of fore and aft adjustment of the arm, in order to minimise tracking angle error, without changing effective length. Now, don't get me wrong, there is little wrong with the simpler, single hole Linn/Rega type mounting method, until you come to replace your arm and find that the new one either has a different mounting method, a different effective length or both.

This was exactly the situation I found myself in recently when I came to upgrade the arm on

my Garrard 301. When I had the plinth made twelve or so years ago, it was cut for an SME mount as the then-new Audio Technica AT1130 I fitted on it uses this mounting pattern. The trouble is, my recently-acquired Alphason HR-100S has a Linn fitting and I was looking at having to have either a new plinth, or a 'bodge-board' made, neither of which appealed.

Luckily, Slatedeck have come to the rescue of poor souls like me with the Universal Arm Mount. This is a very nifty device, which has a

base that fits an SME cutout and, when you order, Slatedeck's Darren makes a suitable adaptor collar to fit into this, which accommodates whatever arm you possess. Change your arm again? No problem - just ring up and order another adaptor collar, it's as simple as that.

As a further aid to compatibility, Slatedeck also make the Universal Riser, rather like SME's own PI spacer, to lift the whole mounting

base, up in the case of a deck with a high platter. Beautifully machined and available in both brass and stainless steel, the Arm Mount starts at £145 for brass versions and the Riser at £46, both plus P&P, and I am happy to report that, thanks to these items, the Alphason is now happily in residence on the Smith 301.

As a result, when you order your brand new turntable in the future and are asked what arm mount you would like, it would be well worth considering an SME cutout, regardless of which cutout your arm uses. Then, thanks to Slatedeck, you can fit whatever arm you like onto it at any time.

Contact
Slatedeck on
+44(0)7723 603065 or click on
www.slatedeck.com

REVOLVER PIG 2 £60

Record clamps have a tendency to attract differing opinions from defenders and dissenters but I feel that they definitely have a place in analogue replay.

Their advantages are twofold; firstly, they can help to iron out warps if they are heavy enough. In addition, those old LPs that have gone somewhat dish-shaped (and we all have a few I'm sure) will be flattened out nicely by a good solid clamp plonked onto them.

However, the second and more important aspect of a clamp's use is when you consider that, as a result of the stylus wiggling away furiously in the groove, vibrations are set up within the vinyl itself. Now, remembering that the whole point of a turntable mat is to couple the platter to the record properly in order to minimise these stray vibrations, adding a clamp assists this



...and hey, presto - Rega into SME does go!



Revolver's elegant new Pig 2 record clamp.

greatly and should help to clean up the overall sound very effectively.

Newest to the market is the latest incarnation of that superb eighties oddity, the Revolver 'Pig'. The original item was made from rubber and was pushed onto the spindle where it gripped both it and the record. Often smirked at, it actually worked rather nicely and was a fine budget addition to any deck.

The all new Pig 2, however, is a much more conventional and solid proposition, made of a sturdy lump of metal and replete in a very aesthetically pleasing 'black chrome' finish. Weighing in at a healthy 450g, the Pig 2 simply sits over your spindle and rests on the record via a felt pad on its underside.

Sitting it on to the Rega P3 used last month fitted with the Funk Firm's Achroplat upgrade, the Pig 2 made some noticeable differences. Firstly, the improvements the Achroplat itself made seemed to be even more prominent as a result of the record being even more tightly coupled to the platter. Most noticeable, however was that some of the low bass clout I lost in the change from the original 2kg glass platter to the 500g Achroplat returned, no doubt as a result of the mass added to the platter system by the Pig 2, and the consequent increase in inertia.

Ultimately then, the Pig 2 is a cheap but effective upgrade for your turntable and looks good as well. Do bear in mind, though, that if your deck has a suspended subchassis, its suspension will need to be reset to account for the clamp's additional weight.

Contact

The Acoustic Partnership on +44(0)1752 847779 or click on www.revolveraudio.co.uk.

ANALOG TUBE AUDIO KOKOMO BEARING KIT €79

It is well known amongst vinyl aficionados that the quality and health of a turntable's main bearing contributes greatly to ensuring that it performs at its best. When applied to Garrard 301 and 401 decks, this is even more important because, as our very own Noel Keywood found, this

contributes greatly to the age-old rumble problems suffered by these otherwise superb units.

Of course, quite a few specialists have now cropped up that will sort this problem out for you, including Dr. Martin Bastin, whose bearing modifications magically silenced Noel's 401. Until recently, however, there has been relatively little that the home DIY-er could do to their own deck in this area. This has now changed, however, thanks to Germany's Analog Tube Audio.

Available for both 301s and 401s, the Kokomo kit consists of a brand new, one-piece bronze alloy thrust plate and a ceramic ball bearing that replace the original Garrard items. The kit also includes a bottle of special bearing oil that can be purchased separately for £8.50.



Analog Tube Audio Kokomo bearing fitted to Adam's Garrard 301.

Using my own 301 as the test bed, I stripped out the old bearing and cleaned everything thoroughly with isopropyl alcohol, before commencing fitment of the new item. The instructions are very clear and, half an hour or so later, the job was done. The first aspect I noted was that, with the 301s brake disconnected, giving the platter a good spin sent it merrily spinning for a very long time - a good sign!

These continued when spinning a few choice tunes. That fabulously deep and solid Garrard bass was still present and correct, but there was a definite tightening of upper bass and an improvement in detail in this area. Although the old Garrard could still make the walls shake if required, it seemed to have gained something of a velvet glove to cover that iron fist and was exhibiting a lightness of touch that had been missing previously.

Even more impressive was the blissful silence between tracks. Obviously, people tend to notice an increase in noise less when they live with the item day to day and it was only hearing a 401 a few months ago that made me realise my own deck had become a little more rumbly than it should be. With the addition of the Kokomo, however, it is quiet once more.

All in all, the Analog Tube Audio Kokomo kit is a simple and easy to fit upgrade for Garrard 301 and 401 motor units that works a treat.

Contact

Analog Tube Audio on +49 471 941 4777 or click on www.analogtubeaudio.de.

PRO-JECT ALIGN IT €75

As we all know, setting up your cartridge correctly is vital in obtaining the very best performance from it, as well as ensuring that your precious grooves remain undamaged. The problem is that, bar some high end designs, most arms come with a floppy and easily lost piece of card to achieve this, an approach that has always seemed to me a little Heath Robinson.

It seems Pro-Ject thought so too, coming up with the rather swanky 'Align It' cartridge alignment tool as a result. It consists of a solid metal base into which a plastic bar is slid. This bar has a height-adjustable cup on the far end which locates above your arm's bearing and the bar and its adjustment guide are then adjusted to the correct position according to the arm's length. Arms



Pro-Ject's comprehensively adjustable 'Align It' cartridge alignment gauge.

from eight to twelve inches in length can be accommodated.

All you need to do then is adjust the cartridge's position so that the stylus sits onto the corresponding marking and there you have it - you are aligned! The base also has a mirror for checking cartridge azimuth.

£75 may seem a lot for a gadget that does the same job as the aforementioned piece of card, but it offers super robustness, allied to ease of use and the feeling that you won't get it wrong with one of these. Consequently I would say that it is an essential item for vinyl enthusiasts.

Contact

Henley Designs on +44(0)1235 511166 or click on www.henleydesigns.co.uk.

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Letter of the Month

BBC SNITCH

I have been stirred to write by Steven Green's piece in the October issue of *Hi-Fi World* concerning the BBC's disastrous choice, and misuse, of DAB. Lately here in Bedford, analogue VHF has been suffering random discontinuous 'snitches' in their signals, at least on Radio 2, 3 and 4, and possibly on other BBC channels. These sound somewhat like a tape with occasional random bad splices, very short and sharp, and they are absolutely irritating. We had a previous episode of this a year or two ago, since corrected.

Concerning the latest episode, at the moment things seem to have improved, for reasons likely not connected to my complaints to the Beeb, however. Considering the extent to which the maintenance of quality seems to have become a tertiary consideration for the BBC, I have been wondering whether these occurrences might not be intentional. In any case I would very much like to know how widespread they are and what is the cause. I suppose that digital techniques permeate throughout the BBC's broadcasting, not a bad thing if done properly, but it is really quite impossible to listen to analogue VHF on a decent set with a background of these random snitches.

Tom Smith

I recognise what you describe because I heard it myself briefly, and it was the result of the failure of the BBC's national distribution network on 5th August, which affected all of the BBC's national FM and AM stations across the whole of the UK, including Radio 1 being completely off-air in Birmingham for about an hour. The problem was caused by the air-conditioning in an equipment room failing, which led to the equipment that was carrying the BBC's distribution streams overheating and malfunctioning. However, this shouldn't have caused a problem, because the distribution network uses two duplicated paths that are meant to take different routes on their way to the transmitter sites in order to specif-



A large German engineering company, Siemens has a significant role in UK services, it says, as well as a presence in the UK dating back to 1843.

ically avoid a single problem like this bringing down the whole network. But on this occasion both paths had been routed through this same equipment room, so the equipment carrying both paths failed due to them overheating! So there wasn't anything sinister going on here, just plain old incompetence.

Unfortunately, the BBC sold off BBC Technology (which used to look after these things) to Siemens in 2004, which led to 1,400 people who used to work for the BBC becoming Siemens employees, and Siemens has a ten year contract to carry out the BBC's IT and engineering work. The broadcasting union, BECTU, accused the BBC at the time of "handing its central nervous system over to the private sector", and considering that this was the fourth major failure of the BBC's FM/AM distribution network in the last year (twice in Scotland, once in the South West,

then this recent UK-wide failure), it looks like their concerns were well-founded. The BBC Controller of Operations & Technology described the recent events as follows: "In my twenty five years in the BBC I have never seen both the quantity and high duration of such major faults that we are experiencing currently (in the last year)".

The BBC still makes the high level decisions, such as what level of quality to use and what equipment to purchase and so on, but it is Siemens staff that look after the implementation side of things, so the audio quality of BBC Radio is now to a large extent in the hands of the commercial sector...

The BBC has done something similar to this in the past when it sold off its transmitter business to Crown Castle for £233m in 1997, and the BBC then contracted Crown Castle to do their transmitter work

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for them. Crown Castle then sold the transmitter business on to National Grid Transco for £1.13bn in 2004. It must be to do with the unique way the BBC is funded. **SG**

VIRGIN VALVES

I wonder if you could possibly give me a helping hand regarding hi-fi on a budget? I am very interested in entering the world of valve amplification and what I wish to do is purchase a World Designs WDKEL84 kit, augmenting this with suitable loudspeaker upgrade. Could you suggest a good modern pair of loudspeakers, either floorstanding or standmount that would match this unit, used along with a Goldring GR1/Electra turntable with budget interconnects, and give the lovely, warm sound that I aspire



Celestion Ditton 15 loudspeakers - oldies like these, with their 84dB sensitivity, are not ideal with low powered valve amps.

to, please? At present my loudspeakers are a pair of old Celestion Dittons, with a quoted impedance of 4-8 Ohms and a sensitivity of 84dB or thereabouts! They have been recently serviced however, and the crossovers were given a tweak.

I love acoustic-based music, particularly folk, some classical and even jazz, and this is mainly what the system will be used for, so soundstaging and depth of field are very important. I would be very grateful for any help or advice you can offer on this upgrade.

Anthony Davies

You do not specify your budget but, when it comes to loudspeakers for low powered valve amplifiers, we often tend to head for the Revolver range as designer Mike Jewitt nearly always endows his loudspeakers with high sensitivity. The £650 Music 3s that Noel reviewed last month are perfect examples, with their 88dB measured value or, if you can stretch to £1,000 or so and fancy some huge behemoths, the RRR FS100s reviewed in the same issue boasted a figure of no less than 92dB. Both of these models we found to be excellent in terms of stereo imagery and soundstaging, so they could well fit the bill for you.

If your budget is somewhat less,

the floorstanding £300 Mordaunt Short Avant 914is boasted a very respectable sensitivity of 87dB, which would suit the WDKEL84 very nicely, and the smaller standmounting Avant 902is will work equally well for just £150.

Beware, however, that loudspeaker technology has moved on since the day of the good old Dittons and most of these old timers sound slow and blurred in comparison to modern designs. As a consequence the more insightful sound of a modern unit may take a little getting used to but do persevere - you'll hear much more of what is on your records. **AS**

If you can stretch higher, up to £2,000, I can heartily recommend the Yamaha Soavo 1s - they worked a treat with my World Audio K5881 (20W approx.), sounding super-fast and dynamic, and causing no stress to my tubular belle. Downmarket somewhat, the Revolver Music 3s are surely ideal, as Adam suggests. Of course if you're buying secondhand the original R45 floorstanders (about £400 a pair) from the same company work beautifully with tubes. **DP**

UPGRADE PROJECT

Having rediscovered the sonic and tactile joy of good quality 'black stuff' via the ubiquitous Pro-Ject Debut III, I now (and I suppose you hear this all the time) find I am wanting more. I have even managed to pass the 'disease' on to my wife and I know this because she has let loose the purse strings. Over the years, pre CD, I have been lucky enough to have lived with various vinyl spinners including models from Thorens, AR and Marantz. However, having perused various 'classifieds' (not eBay, I might add!) I find myself in a quandary. I have the opportunity to buy a twelve year old Linn Sondek/Ittok for not very much. Worst case scenario, what will I need to do and spend to bring this up to a reasonable standard? Would a complete rebuild be viable or should funds be

diverted towards a new Michell GyroDec SE/SME IV ?

I very much enjoy your magazine's vinyl angle and hope you can provide me with the information I need to make an informed choice, thus developing my passion and increasing the vinyl-loving numbers even further.

Terrance Cunnett

They say that curiosity killed the cat but I cannot help myself from wondering just how much "not very much" for that LP12 is! Ultimately, a twelve year old LP12 is still a very capable machine and, as my article from the October 2007 Issue of Hi-Fi World showed, it can be tweaked to improve its performance even further. Power supply upgrades can be had from as little as £170 for the Stamford Audio Hercules but you should also budget for a new set of springs at the very least, although a full spring/bearing/armboard 'Cirkus' upgrade can be had for around £400. Basically, the sky is the limit as far as LP12 upgrades are concerned.

However, I have to say that, personally, I would go for the GyroDec SE/SME IV setup as this is still one of my favourite turntable combinations. There is still plenty of tweaking potential as you could upgrade the SME to a V at a later date, or turn the GyroDec into an Orbe, but for my ears the standard item is still a mighty fine record player and will show you just what vinyl is capable of. Don't forget to budget for a good phono stage if you don't have one already, and at least £300 for a good cartridge like the Ortofon Rondo Red or Audio Technica AT-OC9MLII if you fancy going MC, or the incredibly impressive Ortofon 2M Black if you'd rather stay MM for the time being. **AS**

It's a tricky one, as the Gyro and Sondek have quite different presentations, and your question is a bit like asking, 'which is better, coffee



Linn Sondek LP12 - would you choose this or a GyroDec?

or tea?' The Sondek (of any vintage) has a softer, smoother and more romantic presentation - a tad vague and loose for some modern tastes, although of course the various new mods and/or Keel upgrade really tighten it up. The Gyro has a more neutral (albeit still quite warm by the very latest standards) sound with far superior left to right soundstaging and projection, at the expense of a slightly less 'hypnotic' sound. You pay your money, etc. In my view, a new GyroDec SE at around £1,000 is a very good investment and is 'there or thereabouts' with, for example, the SME Model 10 at nearly three times the price in most respects. It's not the best deck in the world, but it's still superb value and a great first high end turntable (and indeed last for many people too!) **DP**

QUADS ON COURSE

I would really like to have a go at rebuilding my Quad 57s, but would need a lot of practical knowledge (and confidence) before embarking on the project. Are you aware of any courses for beginners that might be suitable? There is enough published information on the web to be able to do the job, but I would have to know how to switch on the soldering iron first!

Andrew Mackay

There appear to be a few City and Guilds courses that will give you practical experience of servicing domestic electrical and electronic equipment and I'm sure your local colleges can advise on their availability. Click on www.city-and-guilds.co.uk for more details. However, with the 'official' answer out of the way, I have to say that you are a braver man than I for wanting to delve straight into the deep end and rebuilding a pair of Quads. However, the very best of luck to you if you do go for it, as we have heard the sort of results that can be obtained by fettling these loudspeakers. Please be very careful, though, there are some lethal

voltages lurking inside the ESL 57s and we like our readers to still be around to enjoy the fruits of their labours! **AS**

Specifically, there is a mains power supply that is potentially lethal, and the stepped up audio voltage is also able to kill I am told (haven't tried it for myself yet). The polarising supply sounds nasty at many kilovolts but it is, apparently, non-lethal as it is a high impedance source that delivers little current. Obtaining a suitable film and resistive coating, and working with them to get the film correctly tensioned and the coating applied consistently requires both knowledge and skill that is beyond simple DIY though. I wouldn't underestimate this aspect of the electrostatic. **NK**

TWO'S COMPANY

As an audio enthusiast and regular reader (and subscriber), could I make a heartfelt request - please, please do not continue down the A/V path in the wake of Hi-Fi News (which is currently morphing into "A/V News"). After seeing your October issue with the comparison test of A/V receivers, etc. I finally felt strongly enough about this to contact you - I'm sure there are many readers out there who feel the same; we're music fans, not action movie enthusiasts - the two are not one and the same thing. Two-channel forever!

Richard Hercus

Well, the diplomatic answer is that there's a place for every magazine on the news stand, and each unto their own! I must say however, Richard, that I think the chances that we at Hi-Fi World will be reviewing £5,000 plasmas are - well, start at zero and work downwards. We could all bore for Britain on the joys of two-channel, and are dyed-in-the-grain stereo-types at heart. Still, we all have A/V systems - mine is my main hi-fi with a 37" inch Sharp LCD in between my twin NS1000Ms which occasionally gets switched on by her indoors, although she's taken to

playing LP records more than DVDs these days...The reason we did the A/V receiver group test is that we feel readers (and us) should keep abreast with developments, and one thing we learned was that they're not the nasty, stinking sonic aberrations they once were. Standards are on the up, and that's surely great for music lovers of all persuasions? **DP**

Richard, I appreciate your point of view, however, the fact is that David, Noel and I all have multichannel setups in our homes in addition to our two channel systems and we all believe that there is well and truly a place for them, both in the magazine and in a quality reproduction system. Yes, we are well aware that some can be quite ear-wounding at times but the same is true of a shiny, flashy new stereo 'hi-fi' from your nearest high street digital retailer, so we all feel that it is our duty to help separate the wheat from the chaff, no matter how many channels are involved.

Another important aspect to consider is that the new multichannel formats such as Blu-ray should, in theory, allow digital reproduction to scale previously unheard-of heights, with up to seven channels of 24bit/192kHz material comfortably eclipsing the performance offered by CD. This will obviously impact stereo replay but, given that you'll most likely have to buy a multichannel player to play the material, it seems a shame not to make use of the other software available and stick on a nice action-fest featuring inappropriately scantily-clad ladies, car chases and the odd exploding helicopter now and then...

Consequently, we do feel that such items have their place in Hi-Fi World, but please rest assured that we do not intend to start unplugging our soldering irons, lugging all our LPs to the car boot sale and spending all our time reviewing plasma TVs. Speaking personally, I greatly enjoy using my surround sound system, but it is set up, left alone and used every now and then when I feel the need. I gain much more enjoyment from fiddling with turntables than exploring the world of centre channel volume and frequency cutoff settings, and I certainly also never intend to ditch my precious turntable collection in favour of a pile of "classic" DVD players! **AS**

Surround-sound systems can deliver high quality audio, but for some reason I don't quite get, the A/V brigade seem to feel it is too twacky to talk about, whilst the "audiophile" brigade are convinced A/V is all about



QUAD ESL 57s - be careful when tinkering with them, as they contain lethal voltages!



At Japan's CEATEC exhibition, October 2007, Panasonic said it would launch Blu-ray recorders in November (in Japan) that record up to 18 hours of full High Definition content on a dual-layer disc. The company also said it will offer DVD recorders that can store full High-Definition programmes on ordinary DVD discs.

shoot-em-ups. There is a lot going on in A/V to raise sound quality standards and, I am afraid to say, this is where the future lies whether we like it or not. But that is not to say Hi-Fi World will be careering off into plasmas, projectors and what have you. **NK**

THE LONG RUN!

Help please! My problem is that I just seem to be unable to adjust my system so that stereo music sound, principally from the main front speakers has me riveted in my chair enough that I just have to put another CD in the tray. The stereo sound seems distant and uninvolved with little projection or soundstage. I am confused as to whether the weak link in my system is either, or a combination of, the main front speakers, the A/V receiver, connections between the components, mismatching or me?

If you folks can kindly sort me out so that I can quit fretting then that would make me happy. My current system comprises Celestion A1 main speakers (Bi-wired to A/V receiver), Celestion centre/rear speakers, a Panasonic TH-42PX60B television, Panasonic DMR-EH60DEB DVD Recorder, Mordant Short MS309W subwoofer, Cambridge Audio DVD86 DVD player, Pioneer VSX-1016 A/V receiver and a Pioneer iPod dock. Cables are QED Silver cable to the main loudspeakers and a mixture of Chord and Ixos interconnects.

My previous system consisted of the above speakers and NAD L77/L55 set-up, until the L77 died. A review of the VSX-1016 made it sound very promising and I actually ended up getting this unit instead of my preferred one which was the VSX-2016, due to its unavailability. Setting it up was confusing, however, since there appeared to be so many conflicting ways to connect. Please don't ask why I had the microphone

perched on my head at one time, will you?

One more thing that caught my eye was a section in the review, I quote; "The VSX-1016 carries HDMI video but digital audio must be connected separately". Uh, er, what was that? I hadn't a clue then - and looked front to back in the manual at home, to no avail - and still don't. Have I in my ignorance failed to carry out a necessary, but vital, install procedure/connection as a consequence, bearing in mind that I took a lot of care in making the connections between the components as few and as simple as possible. Is there any room for improvement on connectivity that you advise me on?

Anyhow, my system is connected, it does operate and I really must say that the DVD86 is a little gem. It is perfectly behaved and responds to the remote wonderfully. The VSX-1016 also pleases too. It starts and responds very well and using the 5.1 surround sound when viewing a DVD is very pleasurable and in that respect I am content.

It's back to the sound that I get from the two main front speakers when playing two channel stereo. There is something lacking - the listening experience is simply not there for me.

The sound IS there but there seems to be no projection from the front of the speakers INTO the room. The stereo image is right there, between the speakers, but on the same plane as the front of the speakers themselves. They are on spikes on pads and Blu-Tack between speaker and stand. I have even cut out and placed circular sponge pads in the rear ports, all to no avail. If my sound problem lies with how these speakers are required to be positioned in order to bring out their best then I confess to being stumped.

If not the speakers is the A/V receiver the weak link? I am eager to hear recommendations if this is the case (like the new Onkyo A/V receivers). Are the connections to it and between it and the other components optimal? Am I the weak link? Don't say that I am as I really don't know how I would go about replacing myself. I probably wouldn't get a fair price anyway...

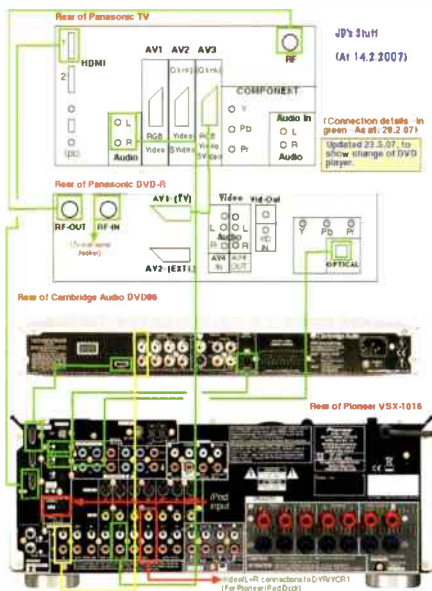
If you have read through this far and are still with me [zzzz - Ed.], then I hope you will realise that all I want is riveting stereo performance with CD with great DVD viewing. I believe that I have the latter covered as I cannot complain about DVD viewing/playback. I want only improvements in my two channel stereo playing. If the speakers are the problem than I would appreciate advice on ones that will rock me once more. If the A/V receiver is itself the problem, or if I've cocked up the connections then please tell me where and how. I don't mind being told off and if it is a matter of this HDMI switching mis-implementation thingy then words of one syllable - or less - to explain what I must do to bring about any possible improvement would be gratefully received!

Jon Davis

Well, Jon, I can see a heartfelt plea when I read one but rest assured I think I can point a finger firmly at the problem. First of all, though, let me reassure you that the steps you have taken with regards to connections



Reader Jon Davis's setup - where is the problem?



One system, one connection diagram.

and optimising your loudspeakers' locations look fine. With regard to your HDMI query, what it means is exactly what it says - the HDMI input on the Pioneer can only carry video inputs and, unless you connect the digital audio lead as well, all you'll get is silence! Fortunately you have done this so you need worry no further on that score. Also, I am not familiar with the Celestion AIs, but reviews when they were new were very complimentary with regards to them, so I feel it is unlikely that these are at fault. All of which leads me back to my first conclusion when reading your letter - it's the DVD player that is the problem.

The Cambridge DVD86 is a fine DVD player, as you have found, and in true Cambridge tradition, an absolute bargain for its £150 selling price. The problem is that, like quite a few DVD players, it really isn't a very good CD player and if you want the best from your CDs then

you really need to look at investing in a separate CD player. If you like the general Cambridge sound, then £200 spent on an Azur 540Cv2 will make an astonishing improvement, but it would also be well worthwhile auditioning the NAD C521BEE and Yamaha CDX-497 which are similar prices.

However, there is another route you can take if you'd prefer to keep the box count low. You see, Cambridge Audio also make a DVD player called the Azur 540Dv2, which retails for £250. Now, not only is this a superb DVD player, it's also a jolly fine CD player in its own right. You could use this to replace your DVD86 and you should notice a considerable improvement in two channel CD replay as well. In comparison to the 540Cv2 CD player mentioned above, the 540C is still better, but the gap is quite close and I feel that you would have to listen to the two units side by side to really notice the improvement. **AS**

ANOTHER COG IN THE WORKS

Regarding the August edition - I get the mag occasionally when I visit the UK from France - I read the letter from Andy Moore of Arcam offering a new cog for a reader's Arcam CD player. I have exactly the same problem with my Marantz CD52Mk2 SE, and I wonder if it has the same mechanism, the Philips CDM9. Please, as I have been told there

are no spares, can you suggest a source, and the easy fitting instructions if possible for this? I can't expect Mr. Moore to supply his spares to all and sundry. Perhaps this is a FAQ?

The CD52 Mk2 SE is a lovely CD player, at the moment replaced by a Marantz DV6400 multi-format player I bought at a car boot fair for a few pounds. It's good and detailed but a bit cool and bright to my ears. Now I have started I had better outline my whole system which, me being a pensioner, has all been collected from second hand sources such as car boot fairs. The turntable is a Linn LPI2, with Valhalla, Origin Live modified Rega arm and a Supex SD 900 super cartridge. I bought the deck many years ago secondhand and the cartridge mail order from Japan. It has been VdH modified, again a long time ago, but is still excellent.

The amplifier is an Exposure VIII/VIII combo, the no tone controls version, which I picked up for about £40 in a car boot fair last year. This offers a very clear sound with superb bass extension. Along with this I have a Nakamichi BX300 cassette deck, bought for little, but expensively renovated by B&W, and a Hitachi FT5500 Mk2 tuner, again second hand some years ago, but an excellent tuner and well worth being a world classic.

The speakers are Tannoy Mercury Mk2s and another bargain that set me back £5 in a boot fair. Speaker cables are a TNT Cat5 braided DIY design. The



Marantz CD52 - a different transport to that of an Arcam Alpha 5+.



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Hitachi FT-5500 Mk2 - one of the most sensitive tuners ever made and a worthy secondhand buy.

speakers are very directional but as I am usually listening alone I just sit in the groove in the sofa!

I have also some EJ Jordan 4 unit linear array speakers with bass boxes I DIYed, but I am waiting for Ted Jordan's holidays to be over so that I can, if possible, get damaged units mended. Then they will replace the Tannoys.

As well as this I have lots of stuff that I no longer use, so perhaps I should offer for sale. What about an A&R A60 amplifier, a Leak Troughline 3, complete but probably not working, Quad II and 22s plus tuner with decoder, dirty but complete, with two sets of GE valves? I also have a whole host of lesser stuff, but the trouble is I really need to be in the UK to sort these out.

Well I hope you can assist me with the cog, unlike the 'usual suspects' who say that 'It's too old mate!' Best wishes, and keep up the excellent magazine. I will get another in a month or so when I come back to the UK.

Chris Wigzell

Chris, it's too old mate! Seriously, though, if my memory serves me correctly, the CD52Mk2 SE actually used the Phillips CDM4 transport, which isn't quite the same as the CDM9, although the drawer loading cogs may well be interchangeable. To be honest, if you're really attached to the unit I would keep an eye out for a secondhand one from your local free paper's classifieds or on eBay, and use this as a donor unit for spares in order to keep your soldiering on. My personal preference, however, would be to use this as an excuse to buy a newer item as, despite loving my CD94, Marantz's more lowly models have never really floated my boat. The only exception I can think of is the CD63Mk2 KI Signature and you should be able to find one of these for around £120.

I have to say that you not only have some very nice equipment in your "no longer used" collection, but you've found some impressive items at your local car boot sales, particularly the Tannoys and the Exposure amplifiers. You're going to have to tell me where these fruitful locations are, as I appear to have exhausted the car boot sale hi-fi supply in the south Hampshire region!

AS

USB LP READY

Seeing Adam Smith's comment (letters November) on a CPC brochure containing a cassette machine featuring a USB link to computer, reminded me of a similar USB turntable system in an earlier brochure. Can these be any good in the sense of audio quality? They cost peanuts compared with the low end hi-fi often complained about, so how about a short article on same. The turntable surely cannot be very good when one considers that there is a pick-up arm, presumably MM cartridge, phono stage and last but not least A-D converter! At between one and two hundred pounds how good can these be for transferring any vinyl onto digital storage and talking of digital storage how about a revised look at the various pieces of software and hardware for archiving?

Incidentally if Richard Smedley (letters November: Shell out for Shellac) hasn't already seen it then www.restoring78s.co.uk might be worth a look. A multi page site, it even has equalisation curves and the circuit diagram for a multi-position equaliser complete with component values. I do however think that valves sound better with 78s so how about a WD multi phono equaliser! Perhaps I am being cheeky here but one has to ask!

Also the Expert Stylus Company make a range of very good styli for both 78 and LP work. Info from w.hodgson@btclick.com, the proprietors email, as page 122 October Hi-fi World. I find his styli long lived and excellent and use a Shure SC35 for 78 as, tracking at 4-6 grams, it adds that extra bit of weight to proceedings often needed by 78s! If you can get hold of one the old Shure M3D with 78 styli these are very good although a bit of a blunderbus for vinyl! The Ortofon OM range are very good with their own 78 stylus.

Mike Bracey

Hi Mike - almost every USB turntable I've seen to date is little more than a toy - they're rubbish and just don't go there. However, Pro-Ject's Debut III USB is better - it's a cracking little budget deck, and has a phono stage and USB connectivity built in. I was quite impressed with the sound - expect a full review soon. Better still, both Pro-Ject and Sonneteer have USB phono stages out very soon - this is when things start getting

interesting, as we can use our existing (known quantity) hi-fi decks and just buy a small box of tricks. **DP**

LONDON SOUND & VISION SHOW - A READER REPORTS...

A couple of years ago I vowed I'd never again bother to visit a hi-fi exhibition. After the traumas of the Bristol event in preceding years I had grown tired of the poor demonstration facilities, inadequate rooms and lack of customer care exhibited by those that hoped to impress with their products. As a fully signed up grumpy old man I remember similar events many years ago where decent demonstrations were given by people that clearly understood their wares. There were timed demonstrations behind closed doors (keeping as much extraneous noise out as possible), demos where information about not only which equipment was being used, but about the music too. Listeners were considerate and quiet when needed, interest was high.

In recent years much of this seems to have gone by the board - demo rooms are simply open access at all times allowing inconsiderate and noisy members of the public to ruin anyone's listening experience. Little, if any, information is provided by the demonstrators about their equipment or their music - it's just a case of whacking a CD on, letting it play, and hiding in a corner where, hopefully, one would not have to respond to questions or requests. I generalise of course, and there are always exceptions.

Yet I'm only human and this autumn found myself dropping into the Heathrow show once again. Overall I must say it was a pretty positive experience, but I shall elucidate...



The September 2007 Heathrow Hi-Fi show - reader Stephen Judge pens his thoughts.

Organisation - not that good! Following the instructions found on the exhibition's website I duly printed out my "privilege" ticket and scurried along with it. First obstacle - the car park attendant happily informed me that the paper version I had printed could not be used for the special offer parking charge! Luckily the irritation of potentially being asked for a fee three times that

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advertised was abated once I'd checked in and been issued with a card parking stub. So off round the corner to – a queue.

Despite the phrase "enjoy reduced queuing" brazenly printed at the bottom right hand corner of my Internet ticket I spent a tedious forty five minutes waiting to get in and pay my hard earned pounds. Seemingly not enough cashiers had been set up and people started to get frustrated. Several things could have reduced congestion with a little thought which I won't raise here, but are quite obvious to any event organiser worth their salt. Nevertheless, once checked in I was like the cork from a champagne bottle – so many stands, so little time!

So how did the exhibitors fare? Well, I must say I was impressed by the number and range of those present, even though a handful had either closed early on in the day or not turned up at all – shame. Rooms too, seemed a cut above the offerings normally found at similar events with more space, less noise from air conditioning and reasonable access along corridors. Drinks and snacks were available and not priced into the stratosphere to rip off a captive market – kudos to the Park Inn. So on to the stuff you all want to hear about. In these few lines I can't report on all of the exhibitors I visited so I'll just have to make do with a selected few. I make no apologies for focusing on a few loudspeakers as that is what I went to listen to (to me the loudspeaker is the foundation of building a system).

One of the principle reasons for my visit was to hear the Podium panel loudspeakers, demonstrated by Signature Audio. Well, here they were in all their glory in a big listening space, both the 0.5s and 1s. Initial impressions were very, very favourable – huge soundstage with depth and width, natural sounding and with decent low frequency extension if lacking a little top end sparkle. Had Podium really lived up to their advertising and managed to subvert the laws of physics that impose real world limitations on panel dipoles? Unfortunately the question wasn't answered – all of the music I heard played was restricted to "easy listening" kind of stuff – Madeleine Peyroux anyone? – music to die by, not for, in my book. The raunchiest test I could encourage the demonstrators to try was some of Keb Mo's quieter stuff. All in all not a real test designed to push the envelopes – I'll need to hear more...

Much keener to reflect the interest of the listener was Rountree who were demonstrating their radical, omnidirectional loudspeaker. Based around a resonating, floating cabinet driven by an inverted cone and topped with a ribbon tweeter. Reported to be rather

independent of floor types due to a 30kg stainless steel plinth (speakers may be shipped without this to allow the buyer to choose their own style and save a not inconsiderable shipping charge) they pushed out another expansive soundstage with a natural and extended top end. They've certainly kicked off a real interest in omnidirectional speakers for me at least. Impressive as they were though, price seemed a bit steep at over £5k.

The biggest surprise though came when I walked through the doors of the Audio Note room – wow; dynamics, detail and music! All from a pair of old fashioned looking rectangular wooden boxes (AN Es) and 8 whole watts of valve power. None of your sloping-sided, polymer-loaded cabinetry here, no powerhouse amps (though the 8 watter



Audio Note AN-E loudspeakers impressed Stephen.

was plenty big enough physically) and a nice selection of music from orchestral to choral, blues and rock. This kit took it all in its stride and has made me seriously question whether I need to keep my beloved Martin Logan panels.

Another surprise came from the Bosendorfer room. I'd never heard their loudspeakers before and expected this to be a shrine to classical music as might befit the legendary piano manufacturers. Surely any music with modern pulsing bass lines would just be too much for the Bosendorfer's resonating boards to cope with. Huh, how wrong could one be – this room displayed the tightest bass heard at the show courtesy of their £6,500+ VC7 – Frankie Goes to Hollywood anyone? The rest of the audio spectrum was decently portrayed too and the speakers appeared very domestically friendly which just goes to show that size is less important when design aesthetics are nicely executed.

I didn't pay too much attention to sources and amplification on this day – my path to audio nirvana is currently set along the road built by the little Class T amps (if you haven't tried one yet you really ought, as long as you have loudspeakers of more than 88dB efficiency). That said the Bel Canto Class D 1000W monoblocks were a popular

choice and valve amps were having a heyday with many brands on offer. Shanling demonstrated their £6,000 two box 18W offering with aplomb, driving a pair of Duevel omnis and sourced from the new CDT 1500.

Room treatment was also making inroads – one very affordable approach was being taken by Audiosmile with their wall mounted diffusers and absorbers. Add a fabric based picture to the frame and you may have a domestically acceptable way to improve room acoustics.

Disappointing was the almost complete lack of anything related to computer-based audio. Where were the Squeezeboxes, NAS servers, Linn and Sonos? Perhaps there was just too much to be feared from this quarter for the traditional behemoths. I long to hear what lossless music played over a network into a class T amp into efficient speakers can really sound like (that's my next project and I'm half way there).

Demo of the day went to Electrocompaniet where it was all but impossible to resist the lilting Norwegian charms of their company director. Women swooned, children cried and husbands were busy plotting assassination, just in case. At last, a demo that shared some passion for the equipment and the music. Shame that, for me at least, the setup just didn't gel – 800W amps driving huge KEF References in a small room was just hoping for too much. It sounded like the system could do so much more, but was just too constricted by the environment.

So that about it really – I stayed all day, finally getting kicked out of the Podium room again as the curtains came down. All in all a worthwhile experience with lots to follow up. I've unashamedly commented on just a few manufacturers and largely restricted my interest to loudspeakers. In doing so I've ignored or glossed over many other worthwhile concerns – DCS put on a lovely show which was absolutely stunning with female vocals. The Music First passive preamp was being used in more than one set up with excellent results, pushing stage depth to previously unheard of boundaries.

Turntables were obviously enjoying a considerable resurgence (nice to see Transcriptors back again with their idiosyncratic designs) although I can't say any I heard on that day that really floated my boat. Audio visual stuff was limited in range, but good demos of Blu Ray vs. HD DVD and some rather appealing Pioneer plasmas were to hand. Now, if I only I had the space for that Home Theatre extension...

Stephen Judge

See also our very own Show Report on Page 61.

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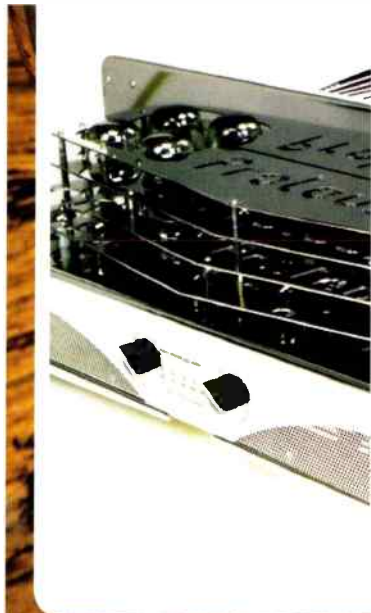
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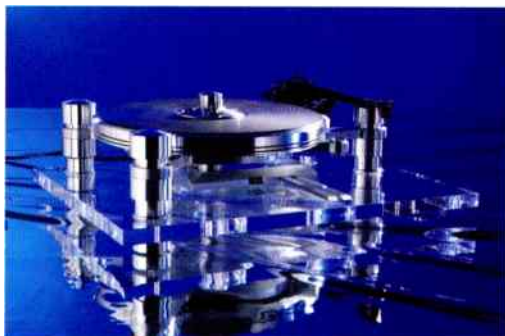
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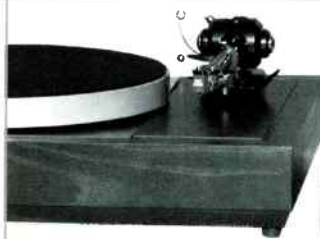


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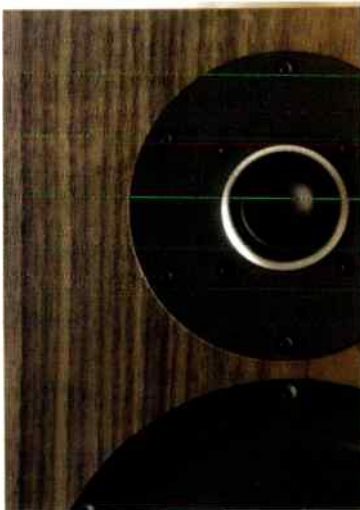
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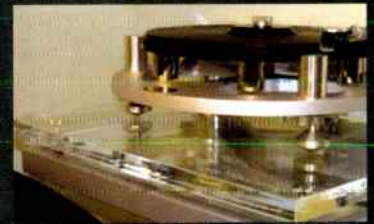
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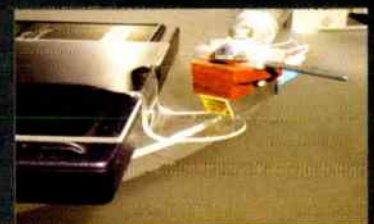
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Is this the future.?



Last time I referred to a new AVI active system (ADM9's - see www.avihifi.com), and said I would report on it, once I had time to evaluate it. If the way it is selling is anything to go by, it has to be good!. Certainly, now having had time to evaluate it, I have to say it would be difficult to beat for the money, a mere £1000, plus whatever you wish to feed it with, say around £400 for a Mac mini computer, or similar cost for a CD/DVD player. A complete system for under £1500, as you also need a connection from source to digital input on the speaker, and possibly a phono/phono lead if wanting to also input an analogue signal. Obviously, being a small speaker the ADM9's won't produce deep bass, but AVI now have their new matching sub-woofer with 10" bass driver, which can be added for an extra £750. Considering the speaker cable I use on my top system costs more than this system, it has to be the bargain of the year!

V'audio HIFI Consultants
36 Druid Hill, Stoke Bishop, Bristol BS9 1EJ
Tel/Fax: 0117 968 6005
email: icvhifi@yahoo.co.uk

CLASSIC CONTACTS

When a classic goes poof your troubles have just started, but there may be a good ending. Replacing failing parts can improve the sound, so here is a short listing of all those companies who specialise in getting a classic up and running again after its deposited a small ring of soot on your ceiling!

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AUDIO PHYSIC Luna 2 sub-woofer, cherrywood veneer, mint with boxes (£1690) £845. Pioneer A400, vgc, £95. M+K V-125 subwoofer, 12 inch driver, good condition, £225. Tel: Paul 07776 143 890 (Southampton)

ORPHEUS SPEAKER cables, solid silver, Teflon. 5.75 / 2.75 metre pair. Half price £300. Audionote ANV-X silver Litz interconnects. 1/2 metre £95. Audioquest Diamond X3 solid silver interconnects, 1/2 metre £95. Tel: 01274 632 492 (Bradford)

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WORLD DESIGN WD25A XL speakers, latest X-Overs, silver laquered £385. 16" Atacama stands £40. Usher S-520 piano black bookshelf speakers, shielded. Few months old, boxed, mint. £200. Tel: 0115 975 4070 (Nottingham)

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AUDIOLAB 8000S £250. Audiolab 8000P £150. Both mint with boxes, manuals, mains leads. Would swap for vgc valve integrated same value. Pair B&W DM620's slightly scruffy cabinets £70. Tel: 01782 205 922 or 07794 732 840.

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GARRARD 301 turntable, cream finish, strobe platter, oil bearing £450. Quad FM2 tuner £45. Tel: 01189 413708.

MUSICAL FIDELITY Trivista Dac (£1,200) £625, Tannoy DMT15 speakers (£3,000) £1850, Music First Passive preamp (£1800) £925, Canary 301Mk2 300B power amp, upgraded, £3,000 (£1,150), Townshend Supertweeters, (£800) £500, 0788 915 6202 (London)

WANTED: AUDIO Research D400 Mk2 . call: 00491725754976. Email: cadillactramp53@hotmail.com or leave message on 01234 838848.

TANNOY 'MANSFIELD' loudspeakers (pair). HPD/315/8. 84x53.5x32cm 1975 model. Renovated. Fantastic sound. Full working order. £300 ono. Tel: 01275394155. Bristol.

MONARCHY SM70 pure Class A power amp. 25 watts per channel. Smooth valve like sound. HiFi+ 2001 Product of the Year. £250 ono. Tel: 07905 320 220 or Email: ian.berkoff@hotmail.co.uk

LINN KLIMAX Solo power amps (2) £4250. Linn Klimax CD12 brought up to final spec by Linn, with flightcase and 5101 remote, mint. £4250. All boxed. Tel: 01778421397

NAIM NAT 03 £300; Rotel RCD 971 £125; Cambridge Audio DAB 500 £75; Dynaudio Audience 50 £175; Call Mat on 01509 262172 or 07952 326 253.

GARRARD 301 Turntable and Decca arm with FFSS Cartridge. £300. Quad 33 and 303 amps, £200. Tel: 01798 342020. (W. Sussex.)

REL STORM 5 Subwoofer. Light oak, excellent condition, award winner, 200W, down to 16Hz. £600. Contact: garrard301@hotmail.com or 077088 66231

ROGERS RD amp+pre amp. Rogers RD control unit. Wharfedale super8/FS/AL speaker. Garrard turntable type A. specs available. £75 complete, Wimbledon. e-mail: ray.murnane@gmail.com

THORENS TD160B MK2 belt drive turntable £70. Hadcock super GH228 Mk3 unilift, unipivot arm plus VMS20E cartridge £90. Both mint condition. Oxon area. Tel 01993 881661.

CADENCE ANINA Speakers. Floorstanding electrostatic hybrid speakers in cherry. Superb dynamic sound quality. Retail £2350 accept £750. Complete with speaker covers and original boxes. Tel. 01325 264420 / william.smollett@ntlworld.com

QUAD 34 pre 306 amp £280.00. Systemdek Turntable IIX-900 Black Rega RB300 Goldring G1042 £150.00 Sony CD Player XB930E QS £75.00. Tannoy 633 Floor Standing Speakers £100.00. Email md.e@tesco.net Tel: 01303 265194

MARANTZ SA-7S1 the best CD/SACD player, list £5000, accept £3950 mint. Tel: 020 8951 3178

KIMBER/RUSS Andrews accessories. Mains, speaker cables, purifiers & supports. Buy the lot for £165 (less than half price!). All items boxed & mint. Call or email for list. Lee, West Midlands. Tel: 01384 412234 lee-t@lycos.co.uk

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CYRUS 8VS silver, cost £850 sell £500. Cyrus PSX-R silver, cost £400, sell £200. Tel: 01444 414 878 (West Sussex)

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NEXT MONTH



Yes, it's that time of year again! Christmas is coming, and what better way to see it in than with the January issue of *Hi-Fi World*? A festive feast of high performance kit to warm the cockles of your heart, top of the menu is our annual Awards Special, a 10-page section detailing the latest and greatest products we've reviewed over the past year. Then we audition a bumper selection of new products, from the stunning Avid Volvere Sequel turntable [pictured] and Duevel's Bella Luna omni-directional loudspeakers, to Trichord's brand new D300 power amplifiers and Shanling's striking CDT-1000SE CD player.

Here's some of what we hope to bring you:

SCOTTISH HI-FI SHOW REPORT
ARCAM MUSO LOUDSPEAKERS
REVOLVER REPLAY TURNTABLE
AUDIO PRO PORTO IPOD SYSTEM
SHANLING CDT-1000SE CD PLAYER
AVID VOLVERE SEQUEL TURNTABLE
REVOLVER MUSIC 5 LOUDSPEAKERS
HI-FI WORLD AWARDS 2007 SPECIAL
NAD C315BEE INTEGRATED AMPLIFIER
DUEVEL BELLA LUNA LOUDSPEAKERS
MYSTERE ia11 TUBE INTEGRATED AMPLIFIER
YAMAHA M170B & MARANTZ CR601 SYSTEMS
TRICHORD D300 MONOBLOCK POWER AMPLIFIERS
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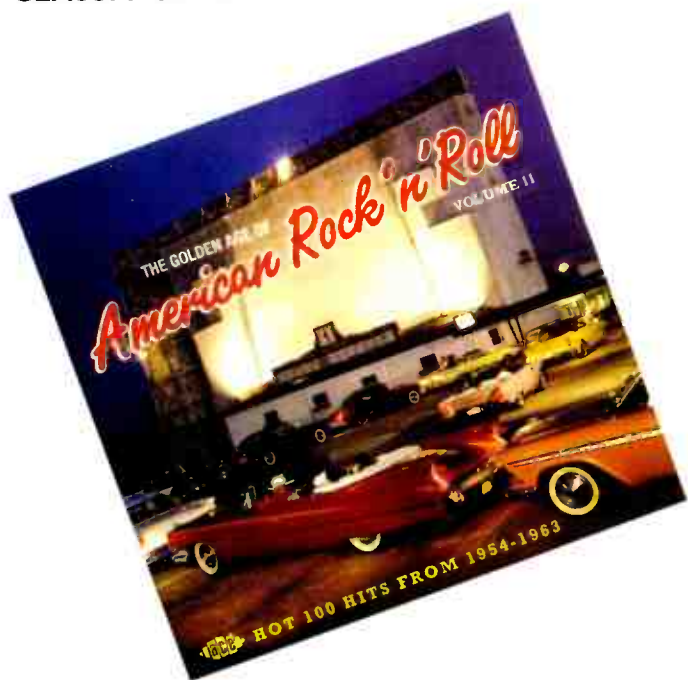
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JANUARY 2008 ISSUE - 8TH NOVEMBER 2007

FEBRUARY 2008 ISSUE - 3RD DECEMBER 2007



THE GOLDEN AGE OF AMERICAN ROCK'N'ROLL VOLUME 11

**VARIOUS
2007**

The music business is full of short-lived groups, one-hit wonders, no-hit wonders and the like. The majority of these older artists are often ignored by the major record labels because they lack potential income return for any published reissue. This is where the specialist record label comes to the rescue...

UK-based outfit Ace Records is a prime example, and its excellent collection of music, 'The Golden Age Of American Rock'n'Roll', is a *tour de force* of rare gems that would otherwise have been lost forever. The series started almost accidentally, when Ace found that, through other projects, it had a collection of licenses for a batch of rock'n'roll songs. Volume 1 featured big hits such as 'Louie Louie' – and other songs which were familiar to the general listener.

"It kind of took off," said Rob Finnis, Ace Records' music consultant, "and sold well so more CDs were published. I got involved from Volume 3 onwards and, by that time, the series had a momentum of its own so we went out actually fishing for stuff. The idea was not just to include really big hits – we didn't want to do a sort of K-Tel approach – but also have more obscure things on the CDs too."

The criterion is that everything on the CD has to have made the Hot 100, the American chart of the time. So even if one song had made number one hundred for one week back in 1958 it would qualify. These

"well mastered and produced, this is a superlative series that does Ace Records credit..."

sort of songs would be as interesting, in their own way, as the big hits. That blend has resulted in a highly successful series.

"The further we got into the series," said Finnis, "circa Volume 4 or 5, we then had to go and find who owned the recordings. We had a sort of wish list and thought, 'Well, who the hell owns that?' Of course, if a record came out of some obscure studio in Texas back in 1958 and everyone concerned with the record is dead or has disappeared, you'd have problems. So we'd have to go to the person who might have the nearest claim on the record – even they might be dead so we'd have to talk to their son or daughter and do a deal with them. There's an awful lot of detective work involved."

Also, finding the right source is a problem. A lot of the time Ace couldn't find the tapes, "Although, 90% of the time we managed to source direct from master tape which is a fantastic achievement. But that's part of the deal, that we go to incredible lengths to find tapes. You'd be surprised how difficult it is to find tapes – even tapes of relatively well known hits."

For example, there is a track on the latest album, Volume 11, called 'Last Chance' by Collay & The Satellites, which is about as obscure a record as you can get, "He's a guy out of New Orleans and he's got

that kind of Fats Domino sound," said Finnis, "It was a minor hit, got to about No.70 or something back in 1961 and we traced the owner, eventually, a long retired disk jockey living in New Orleans called Jim Stuart and, after a lot of trouble, he luckily had the original tapes. It included the original slate count-ins too. I think, on the CD, we kept those count-ins just to prove that it was a master tape."

Generally however, the tape would have been lost mainly because, when a record had been mastered, the cut acetate would be grabbed and the tape would be left. "Then the studio would go broke and close down and all the tapes would be binned. However, you do get these guys, out there, who had the foresight to keep the tapes. Maybe they were a mastering engineer or some such. We occasionally have to do a disk dub, from a very clean record, as a fall-back, if the tape doesn't exist. You can get a fantastic result from this method nowadays."

The latest volume packs thirty tracks of wonderful songs ranging from No.2 in the original 1963 chart (Dion's 'Ruby Baby') to No.93 (Conway Twitty's 'I Need Your Lovin'') from 1957. Well mastered and produced, this is a superlative series that does Ace Records credit, for no other reason that it has saved a slice of music's cultural heritage. **PR**

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