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Audiolab's 8000S integrated amplifier reborn...



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CLASSIC SPECIAL ISSUE:

EASTERN ELECTRIC MINIMAX TUBE PHONO STAGE
FIVE GENERATIONS OF APPLE'S IPOD PORTABLE
A.J.VAN DEN HUL'S SENSATIONAL COLLECTION
NAIM ARO TONEARM - LIFE BEYOND THE LP12?
PIONEER PLC-590 DIRECT DRIVE TURNTABLE
MANLEY LABS STINGRAY VALVE POWER AMP

LONDON SOUND & VISION SHOW REPORT * RUARK CRUSADER III LOUDSPEAKER
* LEEMA XEN LOUDSPEAKER * BEHRINGER A500 AMPLIFIER

DECEMBER 2006



BUYING GUIDE * 8 PAGES OF HI-FI QUESTIONS ANSWERED * CLASSIFIED ADS



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WHAT HI-FI?
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What Hi-Fi? Sound & Vision
 August 2006



8, 5, 6, 7

welcome

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testing

Hi-Fi World has its own advanced test laboratory and acoustically treated listening room, and a dedicated team of experienced listeners. We review thoroughly by extensive auditioning, rather than by quick-fire group listening tests. Our engineering team designs a wide range of products in-house. No other hi-fi magazine is so expert and dedicated.



Hi-fi is an unpredictable thing. Who'd have thought that the vast, sprawling consumer technology empires of Philips and Sony would lose the global portables market to a company hitherto famous for computers good at desktop publishing? Philips misjudged massively with Digital Compact Cassette, then Sony with MiniDisc, and then Apple comes along with a hard disk based music player and cleans up. How did that happen?

In the last months of 2006, we find ourselves in a hi-fi world where literally anything seems possible. It seems like there are more new valve amplifiers coming out than solid-state ones, and the transistor amps that do appear are beginning to get tube preamplifier or buffer sections inside. It's opened up a whole world of choice. Ten years ago you'd have the choice of four similar, greying sounding integrations at £1,000, but now - as our group test on p15 shows, there's Class A and Class B, tube and transistor - and all combinations thereof...

Elsewhere, we see the rise of the 'retro brand'. In the same way that the Mini name flourishes once again, so International Audio Group is hoping its recently acquired Audiolab marque will motor back to the top of the charts. The new (old) 8000S reviewed on p10 proves that something ten years old - if repackaged and repriced (dramatically lower) - can still cut it with the young ones.

Elsewhere in the analogue world, there appear to be more turntables on sale than CD players now, and phonostages are growing exponentially. In a world of competently engineered solid-state designs, surely the only way to go is valve - exactly what Eastern Electric have done with the MiniMax Phono - see p47.

As you'll have guessed, this month's magazine is devoted to audio classics of all varieties. We have Naim's seminal ARO tonearm reviewed outside of its natural habitat (the Linn LP12) on p56. We have a classic Japanese direct drive turntable resurrected from the dead on p42. There's a look around one of audio's most amazing wonderlands, the listening room of the one and only Mr AJ van den Hul on p32. And what is surely the first classic of the twenty first century - the Apple iPod - gets its first UK retrospective on p52.

Finally, I'd like to welcome a fresh new face to the magazine - **Adam Smith** is our new assistant editor. With his engineering background, he brings yet more expertise and technical know-how to our growing team. Be kind to him, for he has nineteen turntables to support!

David Price, editor

verdicts



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extremely capable
worth auditioning
unremarkable
seriously flawed
keenly priced

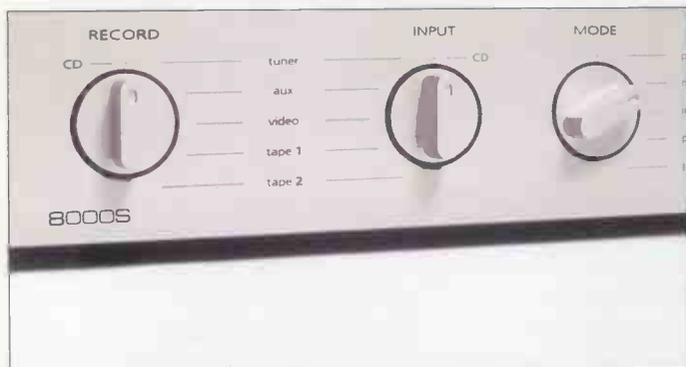


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Audiolab is back, with a new 8000S amplifier at a dramatically lower price.



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Channa Vithana
HiFi-World Nov 06

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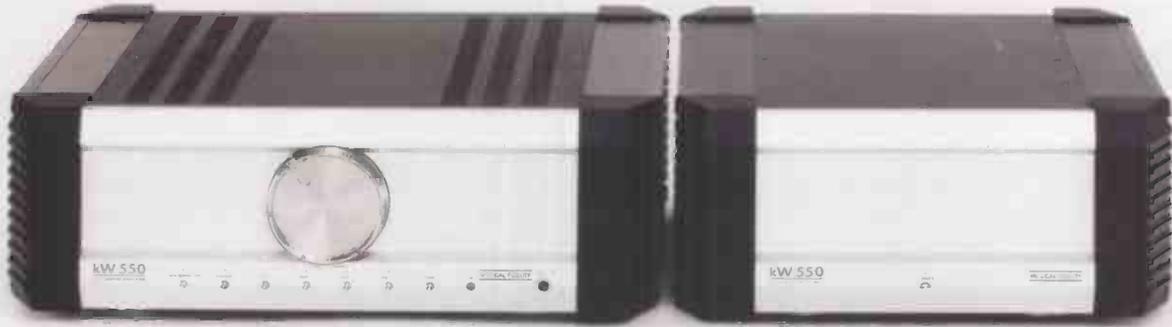
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NEW MUSICALS, EXPRESS

Those with large rooms and even bigger wallets will be interested in what Antony Michaelson calls, "the top performing integrated in the world, regardless of price", no less! The kW550 [above] is the latest in a long line of Musical Fidelity super integrated amplifiers that began with 1990's A1000. It contains a standalone (6SL7) tube preamp with two fully independent monobloc power amps, which just happen to be in the same casework and share the same grounding system. Production versions claim over 600W into 8 ohms, 880W into 4 ohms and have a peak transient capacity of well over 3000W. Distortion is claimed to be less than 0.005% right across the frequency up to about 20kHz. Price is £4,999 and it's "available in a limited edition of 500 pieces".

A more modest £899 buys you Musical Fidelity's new X-RAYv8 CD player [inset]. The company says it's the first ever CD player to adopt the same external PSU concepts as its super integrated series, and boasts the same transport as an A5CD and a similar DAC architecture system to the kW25's (single differential rather than double differential). The company claims an exceptional measured performance, with "vanishingly low" jitter at around 135pps. The X-RAYv8 will also operate from the new X-T100's external PSU (see below). Musical Fidelity says it "offers stunning value for money".

The matching new X-T100 super integrated amplifier offers 60W, "very low distortion", a tube preamp and a dedicated external power supply for just £899. The circuitry of its tube preamplifier is said to have, "low distortion over a very wide bandwidth, and excellent noise ratio, a huge overload margin, and a very high input impedance". The power amp stage employs a derivative of one side of a kW550's bridged circuit, with "very low distortion, an excellent noise ratio and loads of voltage and current delivery."

The free-standing Triple-XPSU will power the X-T100 (pre and main together), the X-RAYv8 24-bit 192kHz upsampling CD player and the X-Plora DAB FM tuner, simultaneously. It has very low magnetic field and excellent regulation characteristics. For more information on these products, contact Antony Michaelson at Musical Fidelity on 020 8900 2866 or fax 020 8900.



SEVENTY SOMETHING

Arcam's latest product release marks a pleasing return to its purist roots, with the new £500 DiVA A70 two-channel stereo integrated amplifier. Replacing both the DiVA A65 plus and A80, it boasts 50W RMS per channel into 8Ω, a "massive toroidal transformer based power supply", ultra short signal paths, unique 'Mask of Silence' and 'Stealth Mat' technology, two switchable speaker outputs, six inputs including a high-quality MM Phono and a recording loop, a sophisticated menu with text display and full function remote control. The A70 incorporates lessons learnt from the high-end A90, including the current feedback power amp, which "helps the amp to resolve impressive levels of detail and insight into the music", Arcam says. The A70's electronics are built on one double-sided, fibreglass PCB, with heavy copper tracks and liberal use of surface mount components. Other key parts are Sorbothane damped, and electronic controls are used, which avoids the need to pass delicate audio signals through mechanical devices such as potentiometers and switches. Arcam has used their proprietary Mask of Silence technologies to reducing stray electromagnetic interference and provide critical vibration dampening. Gold plated RCA phono and speaker sockets complete the picture. For more details, click on www.arcam.co.uk or call 01223 203 200.





UNIVERSALLY YOURS

Marantz's DV6001 is a lot of digital player for not much money - full upsampling CD, SACD, DVD-Audio and DVD video functionality, plus 1080p upscaling for £349.90, to be precise. The machine boasts "incredibly low profile styling", an upscaled 1080p video signal "for the ultimate High Definition picture", HDMI connectivity, a premium 216MHz/12-bit video DAC from Analog Devices with Noise-Shaped Video technology, and the famous Faroudja video processing DCDi technology for "class-leading progressive scan video". The DV6001 plays audiophile quality formats such as SACD and DVD-Audio, as well as DVD-Video with Dolby Digital and DTS surround sound in either two channel or multi-channel formats, along with DVD-R/RW, DVD+R/ RW and CD-R/RW. The design is also compatible with the latest video and audio compression technologies, including the MP3, WMA, JPEG and DivX formats. This is underpinned by "an extremely high-quality" low jitter 24-bit/192kHz audio DAC across every channel from respected manufacturer Cirrus Logic. There's built-in CD upsampling, gold plated line outputs and a "beautifully finished" chassis, with thick metal front panel, double layer bottom plate and shock-absorbing feet. Completing the package are on Dolby Digital, DTS and Dolby Pro Logic II decoders, as well as an RS232c port, IR Flasher input, D-Bus connectivity and a remote handset. For more information, click on www.marantz.co.uk.

T-TIME

From ITOK Media in Hong Kong comes the Trends Audio TA-10 Class-T "audiophile mini palm-top" amplifier. The company says that, "although Class D amplification technology has the advantages of mini-size, energy saving and low heat, the sound is not very good", so the TA-10 uses Tripath's proprietary Class-T audio technology. "This integrates Class D digital audio signal processing techniques with Class AB power amplification into a small IC, with the size and heat advantages of Class D, and the high fidelity sound quality of Class-AB". Much effort has gone into the circuit design, component matching, sound tuning and even the case grounding and shielding, says the company, and audiophile electronic components are used in an aluminium case with gold-plated sockets and a separate high-quality AC power supply. Passive componentry is listed as: all 1% metal film resistors, Thomson & EVOX small film capacitors, ELNA (brown/gold) electrolyte capacitors as power filter, ERO MKT capacitors as input coupling, large air-core inductors as low-pass-filters - all on a high quality double sided PCB. The amp can be used as a power amplifier. The Trends TA-10 Class-T Amplifier is now available online for just US \$99 including the AC power adaptor. For more information, click on www.TrendsAudio.com or email sales@TrendsAudio.com.



ELEC-TRON-IC

The Tron Cantata is a Graham Tricker-designed 300B valve amplifier that promises truly superb sound. GT's designs are very concise, using the shortest possible signal path, and the Cantata (rated conservatively at 8 watts), is constructed with three carefully divided partitions to eliminate the disruptive effect of magnetic, mechanical and electrical fields for the critical aspects of the circuit. The amplifier is built around the famous 300B valve, has only three resistors and not one capacitor in the signal path! Graham says all components are hard-wired and of the highest quality, as well as being oriented to limit interference. A range of internal wiring options are offered, including silver wire throughout with WBT Next Gen sockets in silver or gold. Most passive components are specially made to order like the strip core transformers and chokes that are hand wound. "This guarantees perfect pitch, tonal colour, timing and harmonic structure of the music", he says. Taking over 110 hours of skilled labour to build, the Cantata is not cheap. To find out more details, including pricing options, contact Graham Tricker at www.gtaudio.com.



STREET STYLE

Sennheiser has a range of three new 'style' in-ear phones. The £39.99 MX 90VC Style earphones come complete with a case and an feature an innovative 'twist-to-fit' system that guarantees optimum fit during sports. There's a volume control in the cable. The £49.99 Sennheiser OMX 90VC Style are elegant 'Earbow' or 'Clip' earphone which have won a coveted iF Design Award. The aluminium bows have individual height adjustment and ear adapters for a comfortable fit in the ear canal. In this model too, the cable has an integrated volume control. The £34.99 Sennheiser LX 90 Style [right] are ultra-lightweight stereo headphones said to combine the comfort of earbuds with the security of a flexible self-configuring headband. The headband has been replaced by a thin, flexible plastic tube with a metal core. This extremely lightweight model (patent pending) has a single-sided cable attachment and comes with various ear adapters, a cable clip and a stylish case into which the headphones elegantly slide after use. For more information, call 01494 551 551 or click on www.sennheiser.co.uk.



A LOT OF BOTTLES

As valves gain in popularity, it's good to see new retailers supplying all manner of vacuum tubes, from new to classic old stock. Tubesonix has an excellent range of attractively priced products - for more information, click on www.tubesonix.com.

LEEMA-JORS

Two key products have been launched from UK specialist audio manufacturer Leema Acoustics. First is the £2,495 Antila CD player [below], which is fully LIPS (Leema Intelligent Protocol System) compliant, allowing a press of the play button to power up the relevant amplifier(s) from standby and select the relevant source. If used in a purist one-source system with the Hydra power amplifier, the Antila will even control the volume by adjusting the level of the Hydra via LIPS commands. The MD2 Active Differential Multi-DAC technology employs twenty



24bit/192kHz Delta Sigma converters, fourth order digital filters and data pipelining to eliminate jitter. Ten DACs produce a positive phase signal and ten produce a negative phase signal. This produces a fully balanced signal entirely within the digital domain

Second is the £2,250 Leema Xone [above right], a small footprint floorstander, claimed to "combine the musical insight and precision of the Xen, with superb bass timing, pitch, punch and extension". Anti-resonance bitumastic panels, acoustic foam liners and natural wool help ensure that smearing and blurring is eliminated whilst the single low-mach port provides optimum reflex alignment of the drivers. These are made by SEAS, and boast large magnetically screened magnet assemblies mounted onto the latest open basket design. The Xone employs these in a two-and-a-half-way configuration alongside a screened high-flux neodymium-magnet, ferrofluid-damped 'Tymphany' fabric tweeter. Nordost Micro-Mono-Filament wiring is used. The Linkwitz-Riley second order crossovers use 'Clarity Cap' capacitors and air and iron dust cored inductors. The design is fully RoHS compliant and features the use of lead-free 2% silver-loaded solder to prevent precious-metal migration between gold and silver plated parts and the solder joints. For more information, call 01635 291357 or click on www.leema-acoustics.com.



FUSION CHEMISTRY

Oehlbach's Fusion Two Speaker Cable isn't cheap at £425 for a custom-made 3m terminated pair, but the company claims it to be "a very serious high end cable, competing with cables up to 4 times the price". It is said to be an "all-copper cable using outstanding quality components and design to deliver audiophile performance". Each pair is made to order at Oehlbach in Stutensee, Germany. The signal path has 12 ultra-pure HPOCC® Copper solid cores of 0.45mm, each wrapped in a very thin 10 micron skin of ultra pure HPOCC® Copper foil. This gives a large surface area with very little volume. Time compensation is provided through foil wrapping. For more information, click on www.oehlbach.com.



THE FLAT RESPONSE

It's good to see budget mass market audio products implement technically excellent and innovative systems, and Teac's new £180 CD-X9 CD/tuner system does precisely this - it comes bundled with ultra slimline NXT flat panel loudspeakers. Finished in matt silver, the CD-X9 is claimed to offer "unparalleled performance per pound and is the ideal desktop or wall-mounted audio system for the modern home".

The system features aluminium honeycomb diaphragm NXT flat panel speakers (just 2.5" deep) with 1" NXT Exciters and a 4" active subwoofer. The CD-X9 also has a vertical CD drive unit supporting CD, CD-R/RW and MP3 discs, and incorporates a quartz PLL synthesized FM/AM/RDS stereo tuner - all in a 3.5" deep unit. For more information, click on www.teac.co.uk.

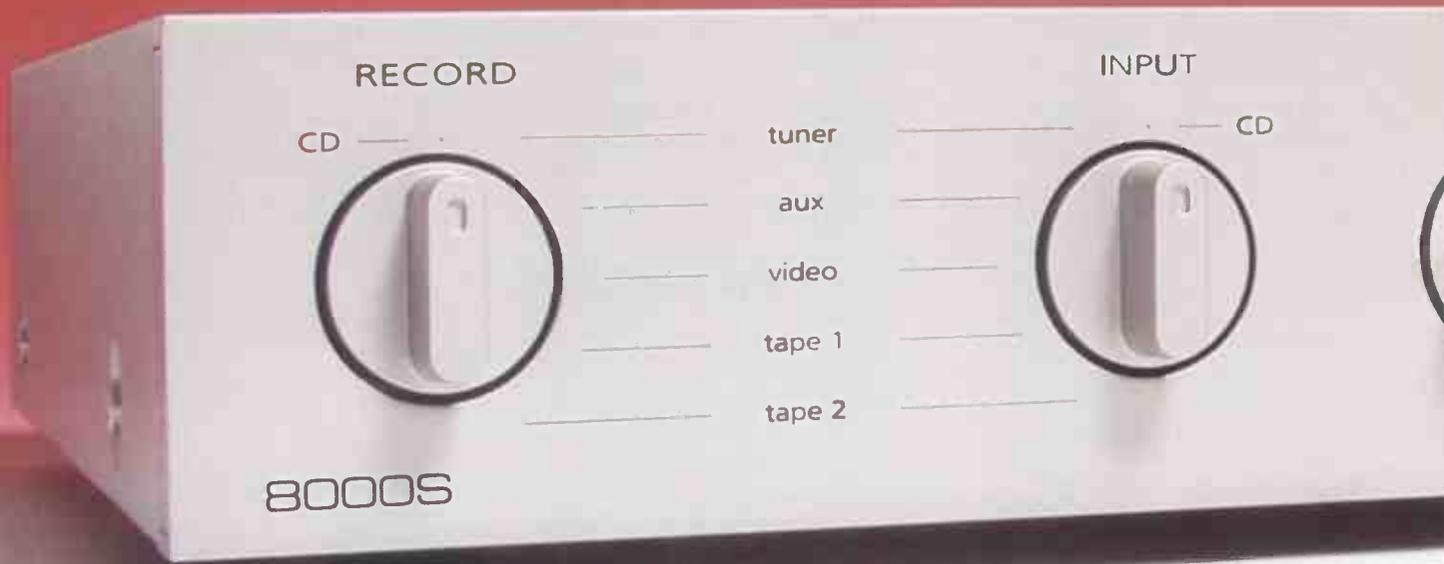


THREE WAY

Denon says its new DVD-3930 is three machines in one: a superb music player for CD, SACD and DVD-Audio, a high end DVD player and a "world-class video processor running at one trillion operations per second". This new £1,099.99 1080p universal disc player uses High Definition broadcast-quality Teranex video processing to upscale DVDs to FULL-HD 1080p (the same technology used by US Hi-Def TV networks when they run out of HD content. If bought separately, the Teranex technology in this player would cost around £35,000, Denon says). It also boasts Denon's 'Advanced AL24 Plus' digital audio processing for stunning sound, and a Gigabit DenonLink3 for the best digital audio via matching components. Its sonic performance is claimed to be a big jump in audio quality (especially in stereo performance) over its predecessor, the DVD-3910. It boasts heavy anti-vibration construction - weight increased by 2kg, a double layer lid, triple layer bottom and heavy transport structure. All audio and video boards are separated with multiple power supplies, there are five Burr-Brown 24/192 DACS with stereo in double differential configuration, an additional EI core transformer just for the for audio stages, and pure stereo path and audiophile capacitors for the analogue power supply. For more information on the newest product from Japan's oldest hi-fi company, click on www.denon.co.uk or call 01234 741 200.



Future Shock!



The Audiolab story is an amazing one. Starting as a niche British brand, it hit the big time, got bought by a Formula 1 motor racing company and was then sold to a Chinese pro audio conglomerate - all in twenty years. Now the name is back; first came the 8000CD reviewed last month, and now it is time for the relaunched and repainted 8000S amplifier. David Allcock listens in...

Throughout the eighties, Audiolab was the definitive 'affordable audiophile' brand. The 8000A integrated amplifier was a breath of fresh air in a world of minimalist 'cottage industry' Brit hardware, with appalling build and tragic reliability. It was built well, and loaded with sensible features - five inputs, including a very good MM/MC phono stage (a rarity at the price), 60W of solid power which could drive even difficult loads and a full tape record loop to allow you to record from one source whilst listening to another, for the princely sum of £399.

In 1996 the 8000A got a bigger brother - the 8000S. This was essentially an A sans tone controls, a beefier power amp stage and no phono inputs, selling for some £600. Later, the TAG McLaren incarnation also gained a remote control, plus a much larger price tag - in excess of £1,000. This, the 2006 8000S has all the board updates done to the TAG McLaren F3 (which finished its life at over £1,200!), with the original 8000S styling, but with a coat of silver paint instead of the original

eighties-tastic black. Courtesy of Far East manufacture, International Audio Group, the new custodians of the brand, have shrunk the price to a mere £499.

The new 8000S still has the styling touches familiar to Audiolab owners of old, with three line level inputs and three full tape loops, plus a Mode button, which allows the 8000S to be used either as an integrated, just a preamplifier, pre-power, which still powers the amplification stage but also drives the preamp out to bi-amp with an outboard amplifier. There is also the Pre-power AV setting, which allows the 8000S to be inserted into loop with an AV processor and drive the front speakers through its internal amplification, and an infra red receiver window with a power LED.

Around the rear, from left to right, is a fused IEC socket, four pairs of five way binding posts for bi wiring purposes, three pairs of RCA phono sockets for power amp in (for when AV mode is used) and two pairs of pre outs. Next along are the twelve RCA sockets for the three tape loops, two marked tape and

one marked video, though the inputs of these can easily be pressed into service as extra line level inputs, and there are the three line level inputs on the far right. Vital statistics are 74x445x335mm and 8.8kg

SOUND QUALITY

Once warmed up and on song, it was clear that the new 8000S is quite a different animal from the original 8000A, this new model sounded considerably more agile, albeit sacrificing some bass bloom and extension. On the title track from Tangerine Dream's 'Optical Race', the track opened with a run of beats from a kick drum, and whilst the 8000S offers superb timing and speed on this initial flurry, each note was a little lacking in absolute power. Whilst there was a slight lack of drive, there was no questioning the resolving capability in the lower registers - this track has a complex, multi-layered percussion line, and the 8000S was very good at pulling out each instrument and allowing the listener to hear exactly the contribution being made to the overall mix by each instrument.



The midrange was outstanding for the price. Initially you notice the transparency, which allows you to hear so far into the track that you notice details which comparably priced amplifiers could only hint at, yet the 8000S is capable of laying this information out in a musically coherent manner, rather than taking the easy route of just mining as much musical detail out of the music and throwing it at the listener as a musically incoherent mess. Compared with my reference amplifier, the 8000S was just a little thin in the lower midrange - electric guitars lacked a little presence and weight within the mix, likewise Anastacia's voice on 'I'm Outta Love' was just a shade lighter than I usually hear.

In comparison with the similarly priced Creek A50iR I found the 8000S better balanced and somewhat richer through this band, whilst moving to the upper midrange the Creek can be a little over enthusiastic, as I've heard with many amplifiers at this price point, but the 8000S keeps this area fully integrated within the overall frequency spectrum, making it excellent for vocals, both male and female - not to mention simply recorded jazz, where transparency and an even hand across the midrange are a prerequisite for making material sound convincing in the listening room. Even on an album which has a slightly exuberant upper midrange/ high frequency band, such as Celine Dion's

'One Heart', where Sony seems to be using some monitors which are seriously reticent in this range, I was unable to turn the 8000S into a forward, aggressive device. Whilst this kind of insight is expected in high end amplifiers, it's remarkable to find a £500 integrated capable of this kind of resolving capability.

The score card was maintained in the high frequencies, with a smooth and extended high frequency range, and again the outstanding

transparency led the way. This amplifier was incredibly resolving, but it wasn't just the amount of information which it was bringing to the fore, but the way the 8000S could capture the texture of instruments in this band. Even when pushed hard, where transistor amps - especially budget ones - can turn hard in an instant, the 8000S kept its composure and allowed you to hear, for example, both the cymbals and the lower level maracas in 'If Everybody Looked the Same' from Groove Armada. Usually

REFERENCE SYSTEM

Basis Gold Debut/ Graham 2.0/ Benz Glider L2 turntable
Klyne System 7 PX3.5 phonostage
Krell KRC-3 preamplifier
Bryston 3B-SST power amplifier
NuForce Reference 9 power amplifiers
Leema Acoustics Xavier loudspeakers
Onyx Rocket RS 550 Mk II loudspeakers
Atlas Elektra interconnects
Townshend Isolda DCT biwire speaker cables

lower cost amplification will lose the maracas in the mix, being drowned out by the cymbals and synthesisers.

Imaging was once again very good, the 8000S proving capable of

"this amplifier is astonishing at its very modest price point..."

astonishing imaging given its price. It's one of the lowest cost integrateds to deliver imaging solidly and consistently beyond the outer edges of the speakers, and which was capable of presenting a soundstage in which the speakers could just disappear, leaving behind nothing but the music playing on a solidly defined stage. The 8000S was also capable of well defined layering and very good image depth, placing instruments against the front wall of the room, and correctly illuminating them, allowing



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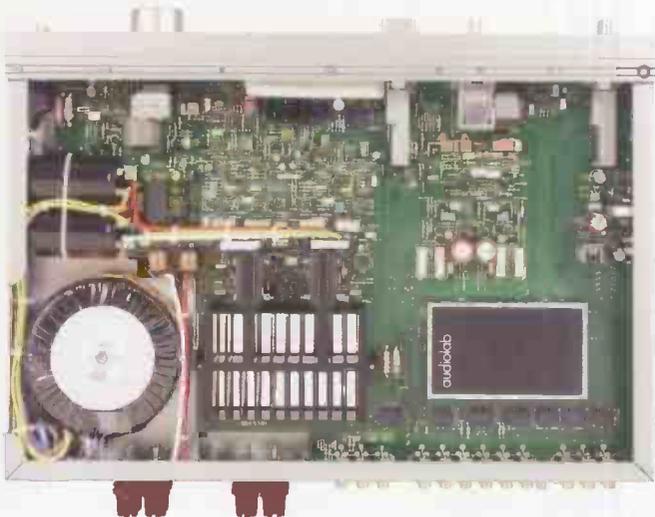
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the relationships between instruments to be easily discerned.

CONCLUSION

As a former Audiolab 8000A owner, I approached this review with both excitement and trepidation. I'm delighted to report that Audiolab have kept the excellent build quality of both the original and the TAG McLaren versions, along with the design improvements, and have simultaneously persuaded this amplifier to let its hair down a little and allow the music to flow more freely. The resulting amplifier is astonishing at its modest price point.

As long as you remember that this only a 60W amplifier (and I am used to triple that), and match it accordingly with a speaker which is not too demanding of current, and use a smooth sounding speaker cable, then you will be repaid with a sound hard pressed to match at anything like the 8000S's price. This amplifier is still incredibly honest across the frequency band - with just a slight lack of absolute bottom end extension and weight, plus a subtle lightening of the lower midrange - but otherwise, you have a super fast, dynamic sound with an absence of euphonic colouration and excellent imaging. Add in the full remote control and its myriad options for use as a preamp, in a bi-amping configuration or integration into a

full surround sound system, and what you have is a highly versatile amplifier that's sure to be a success. Audiolab is not just trying to cash in on its forebear's incredible reputation - this amplifier stands on its own as an excellent design.

MUSIC

- Tangerine Dream, 'Optical Race'
- Anastacia, 'Not That Kind'
- Celine Dion, 'One Heart'
- Groove Armada, 'Vertigo'
- Dave Brubeck Quartet, 'Time Out'
- Jan Hammer, 'Snapshots 1.2'

SECOND OPINION

Could the 8000S capture the old 8000A's strengths, whilst lessening its weaknesses we wondered? Adam felt the old 8000A was a bit lifeless. I saw it as a great budget slogger, with plenty of bass, if a somewhat grey tonality that could be seen - especially by today's standards - as dynamic restraint across the midband.

Partnered with Spondor S8es the new amplifier immediately showed conspicuously strong bass control and fine dynamic resolution at low frequencies, making the Spondors sound taut and clean with the metronomic bass beat that opens Celine Dion's 'I'm Alive'. This can make loudspeakers sound very boxy and, when the bass kicks in, the sound sinks into a poorly resolved bass waffle. The 8000S showed itself adept in keeping the loudspeakers under control and the bass lines clearly separated in time and nature. We were both impressed by this and found it quite an obvious subjective feature of the amplifier, but there's less bass than the old A.

Celine Dion's voice was well established between the loudspeakers, with plenty of air and space, whilst treble seemed detailed. The whole performance hung together well I felt, sounding cohesive and natural. Adam felt there was a trace of harshness in the treble and in the end we both agreed that this was in the upper midband. With Wagner, strings were clean and brass in particular entered with a full bodied rasp and a rich tonality.

Hooking up a Quad QC twenty four valve preamp to run the amp as a hybrid was an interesting experiment. It showed the Audiolab has a very good preamp, as we didn't get the obvious gains the Quad pre usually brings. Most of the upper midband harshness vanished, but we were still left with the Audiolab's sound. I heard deeper bass, but also a softer delivery, and slightly greater midrange depth. So the 8000S could be upgraded by a valve preamp into a hybrid. Horns and strings were even better differentiated with Wagner's Lohengrin, this performance becoming even more impressive.

The 8000S handles classical nicely, but it has enough low end power and control to deliver Rock with gusto too, so here's a balanced and nicely honed design I feel, one I could sit in front of and am happy to recommend. On balance then the 8000S is a greatly improved 8000A and, as such, we feel offers great results at a fantastic price. NK & AS

MEASURED PERFORMANCE

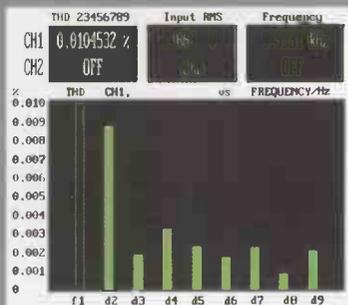
Measurement showed the 8000S produces 78W into 8ohms and 121W into 4ohms, much like the original 8000A. So like the original it has enough power to drive most loudspeakers, delivered from a neat, easily accommodated package. Distortion was very low at low powers in the midband and it rose little even close to full output, hitting just 0.003% into 4ohms. More importantly, at high frequencies distortion was predominantly second harmonic in nature, as our analysis shows quite clearly. Producing a worst case result of 0.03% near to full output into a low 4ohm load, the 8000S is very tidy in its distortion behaviour. It is likely to sound easy on the ear as a result.

Noise was low, channel separation high and sensitivity usefully high *at 330mV too - quite an important point for those who may be using an external phono stage having limited gain.

Like the old 8000A this amplifier reaches right down to 0.8Hz (-1dB), but gain starts to roll down above 36kHz (-1dB).

The 8000S measures very well in all respects. It is a good, modern design where attention has obviously been paid to the nature of its behaviour. It will likely sound clean and powerful. NK

Power	78watts
CD/tuner/aux.	
Frequency response	0.8Hz-36kHz
Separation	86dB
Noise	-103dB
Distortion	0.01%
Sensitivity	330mV
d.c. offset	



VERDICT

Tight, transparent sound allied to superb real-world versatility make this a brilliant value budget buy.

AUDIOLAB 8000S £495
 Audiolab UK
 +44 (0)845 458 0011
 www.audiolab.co.uk

- FOR**
- low profile
 - functionality, versatility
 - fast, transparent sound

- AGAINST**
- tonally lean
 - no black finish option

"A little champ of price/quality ratio: available at an affordable price, especially for a tube amplifier of more-than-usual power."

AUDIO REVIEW Italy, July 2004, Claudio Checchi

"PrimaLuna ProLogue One is now my 'affordable reference amplifier'. With apologies to various British and Italian geniuses, this amplifier has to my ears - no equals at its retail price."

HI-FI NEWS and record review, July 2004, Ken Kessler

"A refreshing change from the transistor competition with a captivating presentation. Excellent finish and build quality makes for a package strong on value."

HI-FI WORLD, August 2004, Dominic Todd



PROLOGUE ONE



PrimaLuna

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

Since the arrival of the Prologue One, the audio community has been unable to contain its joy nor reign in its praise because PrimaLuna has revolutionised the concept of 'affordable audio.' With a pair of integrated amplifiers with prices more typical of mundane, solid-state products, PrimaLuna showed other manufacturers that compromises in fit and finish, styling and facilities are unnecessary.

Now PrimaLuna can offer the pride of ownership of true separates to aficionados on a budget. As promised, PrimaLuna has expanded the range upward with three exciting new models for users whose requirements demand separates rather than integrated amplifiers.

To meet these needs, the music lover can now consider the Prologue 3 dual-mono valve preamplifier with four line level inputs, and a choice of two matching stereo power amplifiers. The Prologue 4 provides 35W/channel from EL34 valves, while the Prologue 5 delivers 40W/channel courtesy of the classic KT88 tube.

And there's more good news: PrimaLuna has also announced retro-fittable auto bias boards for the Prologue 1 and 2, and a moving-magnet phono stage for the Prologues 1, 2 and 3. Additionally, there is now a choice of optional gold or silver front panels in place of the standard finish.

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Classic Dilemma

It's the quintessential hi-fi conundrum - which type of amplification to choose? Adam Smith and Noel Keywood put amplifiers of the tube, transistor and hybrid variety from Icon Audio, Naim, Sugden and Vincent against one another - with interesting results...

Classics aren't just things you see at the side of the road with the bonnet up. There are classic concepts too, like the steam turbine that someone poured paraffin into and called a gas turbine, 'paraffin turbine' sounding a little prosaic. Similarly there are classic amplifier operating concepts, one not included here being the granddaddy of them all, the Single-Ended. Costing considerably more than our £1,000 target maximum, we left the SE for another time to cover other popular operating principles. Each approach considered here is a classic in its own way, and it is for this reason we decided not to include some of the newer or less common technologies, such as Class D.

Amplifiers can have a big effect on the sound of a system and in some extreme cases may even be the over-riding influence. As an example that proved this point nicely, we recently listened to a pair of speakers that had returned from one of our reviewers. After half an hour or so we found ourselves beginning to wonder if the speakers we were listening to were the same ones that were praised by said reviewer. We swapped sources around, changed amplifiers three times and were just about to ring up the men in white coats to go and collect him when we spotted another pre/power combo that had just arrived and decided to have one last go. To cut a long story short, the speakers absolutely sang, hammering home the point that the amplifier's importance in the system hierarchy should never be underestimated!

With this in mind, we duly present our classic candidates. First up and making use of push/pull all-valve technology is Icon Audio's Stereo 40i Classic Mk2.

On the transistor side of things we have two long-lived designs in the forms of the Class A Sugden A21a and the Class AB Naim NAIT5i and our final contender is the valve/transistor hybrid Vincent SV-236.

The model designations "NAIT" and "A21" should be well known to any students of hi-fi as they have been found on amplifier front panels for over twenty and thirty years respectively, so their place in a classic amplifier test is well deserved. The SV-236 is a new product but combines two (or, strictly speaking, three) well proven technologies, and the Stereo 40i Classic not only takes us back to where amplification all started with valves operating in push/pull but even has the word "Classic" in its name.

Which classic is the one to go for? Does Class A justify its reputation, for example? Or is this inconsequential to sound quality and a cool running classic Class B a better option? Or should you get a classic KT88 based valve amp? Read on...





ICON AUDIO STEREO 40i Mk2 CLASSIC (KT 88 Version) £1,000

Representing the 'all-valve team' is the Icon Audio Stereo 40i Classic Mk2 amplifier. Our version used KT88 output valves to deliver 40W per channel, a classic arrangement if ever there was one, used in the past and becoming ever more popular today.

Icon Audio make use of the increasingly common method of UK design and Chinese manufacture. Any old prejudices that anyone is still harbouring regarding the quality of Chinese manufacturing should have them nicely dispelled by this unit,

as it is superbly built and finished. All controls are well weighted and give a good tactile response and all socketry is solid and of excellent quality.

The styling is quite distinctive and made the other valve amplifiers sitting around the office look rather drab by comparison! I suppose that ultimately the overall mainly gold and chrome colour scheme is a matter of personal taste but if nothing else it will ensure that the Stereo 40i fits perfectly into yo' bling crib if that's your thing! It is certainly a perfect antidote if you happen to be

currently suffering from a nasty case of black box boredom and is helped by the fact that the all of the valves are shown off, although they are well protected from any inquisitive fingers/paws.

The original Classic 40i is still available and makes use of good ol' EL34 output devices - the Classic Mk2 is a development of this available in versions featuring either KT66 or KT88 output valves and it is the KT88 version we are considering here. With switchable ultralinear and triode operation modes offering power outputs of

42 and 19W respectively the unit has enough power to drive all but the most demanding loudspeakers to good levels, and 4 and 8 Ohm output transformer taps should ensure broad 'speaker compatibility. Three line inputs plus a tape loop are provided and Icon manufacture a suitable matching phono stage, the PSI.

SOUND QUALITY

It's been a while since my ears were treated to any thermionic delights, and after a suitable warm up period, it was good to hear what I'd been missing. Listening in ultralinear mode the traditional and much-vaunted valve strengths of open midrange and detail were immediately obvious. Female vocalists in particular were larger than life and Diana Krall seemed to be literally breathing down my neck, which I can assure you was not an unpleasant experience! Treble was more than up to the task of keeping up with the midrange and was satisfyingly smooth, the only caveat being that it was not as incisive as some of the other amps in this test and lacked a certain amount of detail in some respects; some subtle high frequency effects such as a delicately tapped background cymbal tended to be somewhat lost in the overall picture.

Shifting the music to a classical theme, a blast of Wagner showed that the Stereo 40i was well able to reveal the details of strings, which had a pleasing edge to them, and brass instruments avoided the common malady of being reproduced sounding like a poor electronic imitation; they had a highly satisfying rasp. Once more, midrange detail was shown to be very good.

Funking things up a little with some Steely Dan, the Stereo 40i continued to remain neutral and revealing but ultimately generated some mixed results at the lower end of the frequency range. On the positive side it proved itself to be quite adept at reproducing upper bass detail - a finger slide along a bass guitar fret board was nicely revealed and not blurred as I have so often heard it, but lower bass notes tended to soften and blur into the overall mix and ultimately added a certain amount of wallowing to the underlying rhythm of the music. Having a sudden (and

uncharacteristic, of course!) attack of mean-spiritedness I loaded up a Jazzanova remix track and it firmly showed this weakness up. Whilst the Stereo 40i never started to fall over itself or sound confused, the whole track sounded like it was being played on a turntable which was running slightly slow - the punch and impactful underlying nature of the track were somewhat lost. Another side effect of this is that any speakers exhibiting a lack of bass control will have their low frequency issues exacerbated by the Stereo 40i, meaning that careful partnering will be required.

A brief listening session on the triode setting showed very similar results to those mentioned above but with further very slight gains in detail retrieval, although there was an overall further softening of the sound

CONCLUSION

The Icon turned out to be something of a mixed bag, displaying the

traditional valve strengths of smooth treble and excellent midrange detail, but suffering from a looseness and poor sense of rhythm at the bass end of things - all classic valve traits. The unit is certainly never unpleasant to listen to and never makes any noises that can be described as offensive; its sins are benign, in the best valve traditions. The delicate and pleasing midband will appeal to many, but all is not quite as it should be at either end of the frequency spectrum with

"the delicate and pleasing mid-band will appeal to many..."

the inexpensive Icon, measured performance shows. Getting the best from any classic valve amp demands using suitable loudspeakers, high sensitivity floorstanders being a primary requirement, preferably with good acoustical and magnetic damping, as valve amps apply little electrical damping. You can only judge this by listening to bass quality.

THE HISTORY...

The KT88 power valve was a larger version of the popular KT66, but with higher output, and was found in quite a few high end amplifier designs in the days when valves ruled the roost. One of the most notable was the Leak TL50, which used twin KT88s in push/pull to achieve its power output of 50W, like the Icon here.



MEASURED PERFORMANCE

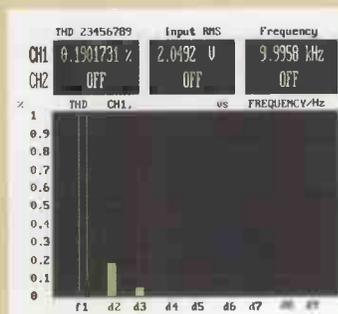
The Stereo 40i delivers 40W in Ultralinear mode and 20W in Triode mode, using the full 8ohm secondary winding. Reduced coupling efficiency with the 4ohm section brought these figures down to 36W and 18W respectively. Less power is available from Triode mode and distortion levels were much the same as Ultralinear too, but the distortion pattern was different. Triode mode gave a smoothly diminishing harmonic structure, whereas with Ultralinear higher harmonics in some cases were stronger than lower ones. Triode mode is likely to sound a trifle more natural as a result. Distortion was a little higher than is possible, especially at high frequencies where it reached 0.8%.

Sensitivity was high at 340mV, and noise low enough in view of high gain. Frequency response was wide, stretching from 5Hz up to 27kHz.

The Icon 40i has a little more distortion than more expensive KT88 valve amps, but it is flexible in use, with Triode mode. It is a classic valve amp in

that it may not measure so well but sound quality is radically different from its solid-state brethren. NK

Power	40watts
CD/tuner/aux.	
Frequency response	5Hz-27kHz
Separation	67dB
Noise	-81dB
Distortion	0.2%
Sensitivity	340mV



VERDICT

Excellent showcase for the traditional strengths of valves, but certain aspects of the sound demand careful auditioning and system matching.

ICON AUDIO STEREO 40i Mk2

CLASSIC (KT 88) £1,000

Icon Audio

+44 (0)7787 158791

www.iconaudio.co.uk

FOR

- lovely midband detailing
- excellent build
- super value

AGAINST

- bass lacks control



SUGDEN A21a £1,049

Few amplifiers better fit the description "classic" as well as the Sugden A21. The descriptive model number - this is a Class A amplifier - has been used for over thirty years and whilst the basic design ethos has never wavered from a high quality transistor design, the details have been continually updated to ensure that it remains highly competitive.

Sugden have always been champions of Class A operation, citing its elimination of switching distortion as a significant advantage, and all of their current ranges (and future ranges according to their website!) make use of this method of operation. One aspect that has been changed over the years, fortunately, is the styling! I say fortunately as I can't quite imagine the large silver fascia of the original, bordered by its delightful teak case, would be too well received in a modern living room, despite the current fashion for all things retro.

This latest incarnation of the A21, designated the A21a, is very well built and comes in a sleek black case with front panel colour options of semi-gloss black or the rather stylish brushed titanium of our review sample. The large side-mounted heatsinks give a pleasing sense of purpose to the design, as well as something of a surprise if you touch them unsuspectingly when the amplifier has been on for a few hours. Whilst not an out-and-out room-heater like a valve amplifier such as the Icon, the A21a is still

more than capable of keeping your Chinese takeaway warm and caution should be exercised if it is located within reach of inquisitive small fingers or the family tabby.

The connectivity lineup consists of four line inputs and one tape loop, plus an optional internally fitted MM/MC phono stage. The A21a has one set of speaker outputs and also a set of variable preamp outputs to which can be connected the separate power amp only version, the A21p, for bi-amping duties. Power output of the A21a as a standalone unit is 25W per channel into 8 Ohms

SOUND QUALITY

Listening to this amplifier straight after the Icon Audio, the well-known differences between valves and solid state were immediately apparent as soon as it started to play. Starting with the midrange, the Sugden acquitted itself well, offering a clean, precise and open presentation but the sound lost a little of its emotion and detail. Diana Krall's voice still exhibited the wonderfully intimate and 'breathy' quality for which she is known (and of which I am a big fan) but she definitely seemed to have moved away from my neck, which was obviously very disappointing!

Wagner's strings and brass were well reproduced, with insight and clarity. However, there was something of an underlying restraint to things - the whole presentation was quite 'polite' and I imagine that this could well be interpreted by some as sounding a little mechanical

and possibly even slightly artificial. I felt this was most likely due to my ears' transition straight from valves, and is not something that would immediately jump out at a listener during a solo audition.

At the top end of the frequency spectrum, things definitely improved with the A21a. Treble was sweet, detailed and well extended, with no sense of harshness or tendency to smear detail. Subtle nuances of cymbals and hi-hats were picked up instantly and the amplifier placed them in a solid spread of images between and beyond the speakers.

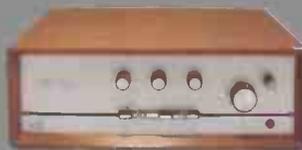
Results went from good to even better at the bass end of the business. This time, 'Jazzanova' held no fears for the Sugden and it romped happily through the pounding bass line, stopping and starting with alacrity and bringing forth a definite twitch in my right foot - always a good sign! The track I used is very well recorded but quite complex, with many synthesizer bass lines vying for top place in the mix. With the A21a, each of these was clearly identifiable and no overhang between one note's end and the next's start could be heard - excellent!

Moving to Steely Dan, the A21a resolved upper bass details very well, but this time adding pace and proper timing to the lower bass underlying 'Jack of Speed', a track that caused problems with other amplifiers. I picked out a few other complex multi-layered tracks to run past the A21a but it refused to be caught out and took all that I threw at it



THE HISTORY...

The very first A21 was designed back in the 1960s by James E. Sugden, the founder of the company, and was the apparently the world's first commercial solid state Class A amplifier. Back in those days it sported traditional 1960s styling (lots of silver and the obligatory teak case!) and boasted 10Watts of switching distortion-free output, for the princely sum of £52. Input lineup was disc, tape, radio and aux and the amp featured tone controls and full switching for mono operation.



without breaking into a sweat. Throughout the listening session bass remained well extended, tuneful and controlled

CONCLUSION

It would appear that Sugden's adherence to the Class A method of operation, and their persistence in refining and updating it clearly pays off. The A21a is an excellent showcase for the technology and a real credit to the company. The unit seems happy with all genres of music, but it does not impart any heavy sonic signature on the sound it makes. It is interesting that Sugden like to talk about the "Sugden Acoustic Signature" which is designed into all their products, but it appears to me that this signature is essentially one of neutrality rather than any particular sonic peculiarity, and in my opinion this is a good thing.

Finally, it is worth mentioning that the overall even and quite neutral nature of the A21a means that it will work well with a wide variety of loudspeakers without imprinting a noticeable sonic signature on them, although using units with a sensitivity of 90dB or above is probably wise due to its ultimately limited power output.

"an excellent showcase for the technology, and a real credit to the company..."

MEASURED PERFORMANCE

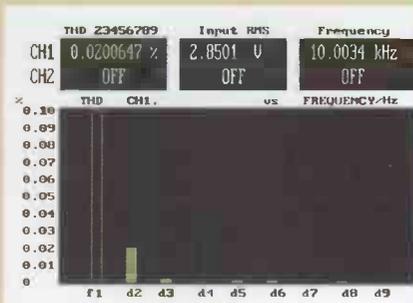
Under measurement, the main features of this Class A amplifier are low power output and a distortion spectrum dominated by innocuous sounding second harmonic components. Into an 8ohm load the A21a produced just 18W, current limiting circuits kicking in. Into 4ohms this apparently fell to 16W. However, tone burst tests showed the Sugden could manage short bursts to 18W into either load, before clipping (output overload). Obviously, this isn't an amplifier for high volume levels unless you have particularly sensitive loudspeakers - over 90dB preferably.

A significant difference between the Sugden and most other amplifiers was the way it produces mostly second harmonic distortion, with upper harmonics falling progressively. Even at high frequencies this is the case, as our analysis shows.

The line inputs were very sensitive, needing just 130mV for full output of 18W to be achieved.

This amplifier has a phono input too, for MM cartridges and it was accurately equalised. The Sugden shows distinct Class A attributes. NK

Power	18watts
CD/tuner/aux.	
Frequency response	5Hz-32kHz
Separation	82dB
Noise	-85dB
Distortion	0.02%
Sensitivity	130mV



Superlative clarity and musicality, this amp is peerless at the price in what it does best, which is to make music.

SUGDEN A21A £1,049

J.E. Sugden & Co. Ltd

+44(0)1924 404088

www.sugdenaudio.com

FOR

- deep and tuneful bass
- sweet and clean treble
- wonderful musicality

AGAINST

- polite midband
- limited power



VINCENT SV-236 £999

There was some debate as to how exactly a hybrid fitted into this month's 'classic' theme, as few famous hybrid designs hail from yesteryear, with the exception of Luxman's LV103 and LV105 amplifiers from the late 1980s. Even these weren't hybrids in the truest sense of the word as they made use of valve buffer stages between their solid-state preamp and power amplifier sections. However, whilst researching this, we found that quite a few manufacturers in the late 1970s were intermixing thermionic and solid state technologies, albeit in separate preamplifier and power amp combos, such as the aforementioned Luxman with their MQ Series valve power amplifiers and C Series solid state preamps.

Thus, we present Vincent's SV-236. This was fully covered by Noel last month but we felt that it more than merited comparison here, against other classics. The Vincent represents a solution to the classic solid-state or valve question that plagues audiophiles, especially as valve amps become ever more plentiful. Thanks to its valve preamplifier stage and solid-state power amplifier (one that utilises both Class A and B operating modes *à la* Marantz's classic late eighties 'Quarter A' PM74 integrated), I am not sure Vincent could have squeezed another technology into it if they tried! To

briefly recap, the line-only valve preamplifier stage uses 6N4 triodes on its six inputs and the solid-state power amplifier works in Class A up to 10W and then switches to Class B, allowing it to deliver 100W into 8 Ohms and 200W into 4 Ohms.

As with all of the units on test, build quality is excellent and the unit's mass is considerable, thanks in no large part to the substantial toroidal mains transformer and the impressive array of heatsinks down each side. These, combined with Class B operation at higher powers mean this amp. ran only pleasantly warm even after being on all day. All switches and knobs have an excellent tactile response and the glowing valve in the front window with its selectable levels of orange backlighting is an interesting addition that may well polarise opinion - personally I like it but then I am a sucker for unusual front panels! Unusually, for a modern design, tone controls are provided but these are defeatable - this turned out to be fortunate as it was found that the tone switch introduced a 4dB bass lift when activated, even with the bass control set at zero!

SOUND QUALITY

The danger of any hybrid design that attempts to combine the 'best of both worlds' is the slim chance that the designer hits horribly wide of the mark and inadvertently combines the

worst of each, but fortunately this is not the case with the SV-236. Starting once again with vocal material, the thermionic influence of the preamplifier could be instantly heard in the midrange which, although not as fluid as an all-valve design like the Icon, had very good detail, clarity and emotion. Classical instruments were beautifully defined and offered up with excellent presentation in a solid image across the soundstage, and the lead instruments were well outlined without ever losing the details of those in the background. Overall presentation was dynamic and strong, with well extended treble, however some acoustic guitar tracks did reveal that some of the top end could be prone to a slight fizziness and occasionally there was a noticeable splash effect to viciously struck cymbals - this would seem to tally with the measured performance which shows evidence of increasing high order distortion at the top end of the frequency range as the output rises. Never intrusive, this might however be something to be aware of, and to check out, if you like your music loud!

The bass end of the spectrum is an area where many all-valve amplifiers start to show their weaknesses, but the solid state part of the Vincent acquitted itself admirably here and proved that it was well matched to the preamp. The copious reserves of grunt from the



power amplifier endowed the lower end of the spectrum with weight and extension, and bass lines were kicked out with aplomb. Rhythms were easy to follow and timing was generally spot on - my ubiquitous Jazzanova track did not catch out the SV-236 and it hung on to the complex low frequencies with a vice-like grip.

The only less-than-excellent aspect of the bass performance appeared in material that made use of a bass guitar as a proper instrument rather than just having it strummed along in the background, as so many groups seem to do these days! In this situation, there was a definite slight masking of detail and it was necessary to actually concentrate in order to pick out subtleties in this situation. From a compatibility point of view, this does suggest that loudspeakers with less than detailed bass may not be totally happy on the end of the Vincent.

CONCLUSION

An interesting design, Vincent have combined two (well, three really if you count the two operating modes of the power amplifier separately!) classic amplifier technologies in an attempt to make use of the strengths of them all. In doing so they have succeeded in creating a successful union. The resulting amplifier has the depth, weight and rhythmic capabilities of a good solid state design, but it adds in the midrange detail and clarity that generally only

comes from glowing glass bottles.

Class A operation of the power amplifier undoubtedly assists in lower volume detail but the Class B switchover ensures good high volume abilities and a cheerful willingness to party when required! Bearing in mind the aforementioned caveat regarding bass detail, a wide selection of speakers will work happily on the end of the Vincent and I can see its blend of strengths winning it many fans. It is a great combination of classic technologies.

THE HISTORY...

Not a widely explored technology in one-box solutions, there have nevertheless been one or two interesting hybrid designs over the years. Probably the most well known were Luxman's LV103 and LV105 amplifiers that dated from the late 1980s. These awoke some long-forgotten interest in valves as they featured two glowing tubes peeking cheekily through a window in their front panel. Sadly these were merely a buffer stage between the solid state preamp and power amp stages, but it seems likely that they started a few designers thinking, and no doubt helped a thermionic resurgence.



MEASURED PERFORMANCE

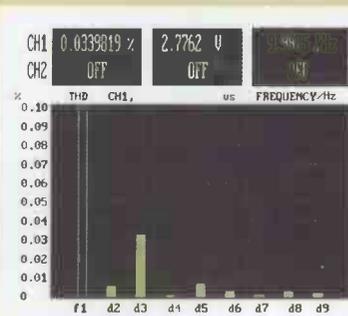
The solid-state output section of this amplifier gives it a level of power difficult to achieve with valves, 136W into 8ohms and 225W into 4ohms. Regulation was good from the massive internal mains transformer, so bass should sound well controlled, and this again is a common weakness of valve amps. that a hybrid with solid-state output avoids.

The amplifier runs in Class A up to 10W (and Class B thereafter). At all power levels third harmonic distortion dominates the distortion spectrum and as output increases higher order products appear. This is quite unlike the pure Class A Sugden A21a and not surprisingly the two sound quite different. But whilst the Sugden produced 0.2% of 2nd harmonic distortion at high frequencies the Vincent produced a significant 0.25% with a slew of higher harmonics, largely explaining their differing treble qualities.

The SV-236 is less well honed

than the Sugden or Naim measurement shows, but it still combines classic technologies well in its attempt to offer the best of both worlds. NK

Power	136watts
CD/tuner/aux.	
Frequency response	6Hz-73kHz
Separation	78dB
Noise	-86dB
Distortion	0.03%
Sensitivity	160mV



VERDICT

An interesting and successful hybrid design that combines the best of valve and solid state technologies.

VINCENT SV-236 £999
 Distributed by Ruark Acoustics
 ☎ +44(0)1702 601410
www.ruark.co.uk

FOR

- successful blend of technologies
- good midrange and detail
- extended and tuneful bass

AGAINST

- Some treble fizziness



NAIM NAIT 5i £700

The Naim NAIT 5i is the latest incarnation of Naim's integrated amplifier that first appeared on the scene in 1983. Back then it was packaged in a dinky little half width case and featured little more than three inputs and a bare minimum of controls. Twenty years of development have seen it mature into a full width unit styled to match Naim's current line-up, but it still remains true to its minimalist origins. As far as front panel feature count goes, there is a volume control and source selectors and the unit is supplied with Naim's iCOM remote control handset, but that's about it! One additional feature is that, when used with other Naim equipment, the inputs can be configured to switch automatically upon source selection, so that if you press Play on the remote for the CD player, for example, whilst listening to the radio, the NAIT5i will automatically switch to CD. Granted, Bang and Olufsen may have had this feature on their component systems as far back as the mid 1980s but it's still a nice touch!

Input count is now four at line level, two of which are duplicated in Naim's preferred DIN input connectors alongside the more usual phono socket option. One of the inputs is labelled 'AV' and has the option to be programmed to be unity gain, bypassing the volume control. This allows the NAIT 5i to integrate into AV systems, where the volume control of the surround-sound processor is used to regulate all channels simultaneously - without

this the channel set-up must be carried out with the amplifier's volume control at a predetermined position which would always need to be accurately reset when using AV mode, so this is another nice touch by Naim. Power output of the NAIT5i is conservatively rated at 50W per channel but it has Naim's traditional current delivery ability and so difficult loudspeaker loads should not prove a problem...

SOUND QUALITY

Plugging the Naim in and firing it up proved to be a very interesting experience right from the start. Straight from the opening bars of Norah Jones' 'Feeling the same way' it became abundantly clear that the NAIT 5i means business and takes a firm grip on the music! Vocal presentation was incredibly solid and singers' images hung beautifully between the speakers. Detail retrieval was superb and the Naim never missed anything in any of the music we used for audition, picking out all subtle effects and offering them up with no sense of confusion. Treble was clear and incisive but never tended towards any sense of harshness.

The low end of the spectrum is, of course, where a gutsy Class B biased transistor amplifier can usually be expected to shine and this was, for me, the real highlight of the Naim's performance. Bass was deep, detailed and superbly controlled - if you have a pair of speakers with a suspect level of control at the low end, then this is exactly the sort of

amplifier you need, as it will force them firmly into line! Moving through a variety of source material, from Dance music to acoustic double bass, with brief bursts of synth bass in between, the Naim pinned us against the back of the sofa with its low end transients and dynamic presentation! Naim owners have often cited their units' PRAT (Pace Rhythm and Timing) capabilities as a major strength of the brand generally and, listening to the NAIT5i it was obvious what they mean.

Now, at this point eagle-eyed readers may have noticed the absence of adjectives such as "sweet" and "fluid" and this is the area where I feel the Naim will start to lose some fans. Whilst the musical presentation was beyond reproach, the overall sound was quite clinical and tended to be rather emotionless - the NAIT5i appeared to be telling you everything that was going on in the music but without any attempt to really dig into the heart of it - if a former work colleague and fellow acoustic engineer had been listening with me I know he would have made a comment along the lines of "it's all a bit too hi-fi and not enough music". This may be overstating the case but prospective users who like to feel that they are sat right in the middle of their favourite band whilst they play may find the NAIT5i a little wanting in this department.

Spinning some classical material, strings were once again clear, sharp and larger than life, but the horns lacked the characteristic raspiness on the leading edge of their notes



THE HISTORY...

Back in the days of new romantics, Naim's new Nait caused something of a stir amongst audiophiles who were still recovering from the visual (and aural!) assaults of 1970s feature-packed behemoths. It had all the facilities that any self-respecting audiophile would ever use - input selectors plus volume and balance controls. All the extra money that could have been wasted on tone controls, filters and big meters instead found itself spent on design and quality components, instantly establishing a well thought-out and successful amplifier that has gradually evolved into today's 5i.



that makes you sit up and take notice - this never made them sound 'fake' but robbed the music of some of its character and passion.

CONCLUSION

Class B operation is by far the most common method of amplification to be found in the hi-fi market, and has been so for a number of years. It is deservedly popular for the good results and high power outputs that can be obtained, the relative ease of implementation and the lack of issues regarding power consumption and waste heat that afflict valves and Class A solid state units.

With the latest incarnation of their famous NAIT, Naim have made good use of these strengths and developed a versatile and robust amplifier that amply demonstrates what a good Class B design can do. It isn't the last word in transparency or emotional presentation, but if ease of use, muscular power output and current delivery, bass performance and the aforementioned 'PRAT' factor are at the top on your priority list, then you owe it to yourself to audition the Naim. It has a wonderful ability to exert vice-like control over speakers that have a tendency towards waywardness and bring them back into line, which should make it very popular with many listeners.

"the Naim pinned us against the back of the sofa with its low end transients and dynamic presentation!"

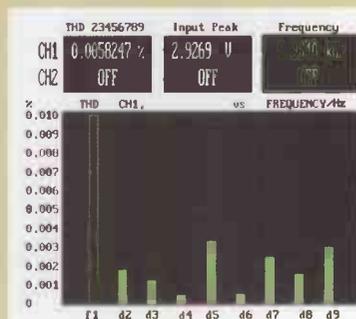
MEASURED PERFORMANCE

Like any well designed Class B the Nait 5i produces little distortion at any level or frequency. Although Class B supposedly produces a lot of distortion at low levels, these days feedback eliminates most of it. The Nait 5i produced no more than 0.006% at 10kHz, falling to just 0.002% at 1kHz when producing 1W of output. Turning volume up produced little change, the 5i producing 0.008% at full output, 10kHz. Only into 4ohms did this worsen to 0.02%, hardly a large amount. Our analysis shows distortion at 1W at 10kHz, where harmonics are not discernible from noise. So Class B gives a near perfect result under measurement.

Power output measured 60W into 8ohms and 110W into 4ohms, so the Nait can power most loudspeakers to high volume, especially nowadays as impedance falls and sensitivity rises. Yet it's a fairly compact package that runs cool at the same time. Add in an unusual sound for a Class B and you

have a classic manifestation of the breed. Other points to note about the Nait are high sensitivity and extended low frequency response that reaches down to 3Hz. NK
Power 60watts

CD/tuner/aux.	
Frequency response	3Hz-53kHz
Separation	88dB
Noise	-104dB
Distortion	0.006%
Sensitivity	260mV



VERDICT

A gutsy and solid performer, the NAIT5i takes you for a thrilling musical ride, without ever becoming tiring.

NAIM NAIT 5i £700
Naim Audio
01722 426600
www.naim-audio.com

FOR

- dynamic presentation
- bass grip and control
- power delivery

AGAINST

- midrange lacks emotion

MEGALINE
EUPHONIA
HELICON
MENTOR - 6
PIANO
IKON
CONCEPT
SUBWOOFER



MEET OUR MENTOR

FEATURES

- Wide Dispersion
- 3D Audio
- Low Resonance Cabinets
- Time Coherence
- Hand Crafted
- Amplifier Optimised



IN ADMIRATION OF MUSIC

The classic amplifiers in this report certainly showed why they each sit in their own well defined categories: each sounded very different from the other - in some cases almost alarmingly so.

Starting with the Icon, we have a fine example of the traditional valve sound that will find many fans. If your main priority is midrange detail and emotion, and you have less concern about ultimate frequency extremes, then the Stereo 40i will fit the bill nicely and is undoubtedly superb value for money at its price. A few years ago when interest in valves started to pick up again after years of being a somewhat exclusive pursuit, 40W of KT88 power for £1,000 was only achievable with some hefty DIY knowledge and a predilection for soldering (and the odd electric shock, usually!), so Icon Audio are to be applauded for being willing and able to bring this sort of technology and

does mean it has large heatsinks however, which add to the size and weight of the beast.

Finally we have the Sugden, and this latest incarnation of a piece of hi-fi history proves that sometimes it really is best not to give into temptation and head off down a new avenue of design or technology just to keep up with market forces. Sugden have always maintained the superiority of Class A operation and the A21a represents over thirty years of evolution for a well thought-out original design, turning in a polished performance, both in terms of measurement and sound quality.



"each sounded very different from the other - in some cases almost alarmingly so!"

build quality to valve aficionados at a reasonable price.

At the other end of the sound spectrum, we have the Naim NAIT 5i. This showcases perfectly the strengths of a good Class B biased design. It presents music with pace, grip and excellent 'boogie' factor, all in a compact, cool running package - classic Class B. Ample reserves of power coupled with the lively character of the amplifier means that it firmly takes speakers by the scruff of the neck and brings them into line. In fact, in the introduction we mentioned that it took one specific amplifier to really bring a particular pair of review speakers to life, and that amplifier just happened to be a Naim pre/power combination!

In the middle ground between the Naim and the Icon lies the hybrid Vincent SV-236. It shows that it is indeed possible to selectively pick the strengths of more than one technology and implement them with great success. This amplifier is an accomplished performer and enthusiastically takes the grip and control of a powerful solid state design and tops it with a generous helping of thermionic clarity and detail. It will appeal to many users who like the strengths of valve amplifiers but do not wish to sacrifice those aspects that a solid state design does so well. Working in Class A up to 10W

It is interesting that its overall character was quite similar to that of the Vincent, suggesting that Class A operation helps to bring about an almost valve-like smoothness to the sound of a transistor design. Whilst I would happily concede that the valves in the Vincent make its sound even more emotionally rewarding than the A21a, the Sugden's superiority in terms of treble clarity and bass detail make it the pick of the crop for me and thus, by definition, a truly classic amplifier!

AS

I felt the strengths of various classic approaches were clearly illustrated by these products. The Icon is very much a valve amplifier as so many think of it, strong across the midband in terms of depth and sheer believability, if a little less impressive at spectrum extremes due to limitations imposed by its low cost. All the same, with sensitive floorstanders it is sufficiently strong in what it does well that, for many listeners, little else is likely to come close at the price.

The Naim 5i has a highly distinctive sound, quite different from the norm. It has gutsy bass delivery, a dark, smooth midband and quite strongly etched treble. Endowed with grip and a good sense of power, plus oodles of detail, it will suit a lot of loudspeakers, seemingly making more

sense of them than other amplifiers. It is a highly refined Class B design, the benefits of which are cool running in a compact package. As such this amp really is a classic, one that is a worthy benchmark of what is possible.

Vincent's SV-236 hybrid manages to offer the best of valve and transistor. Of the group I felt this amplifier impressed me most, but it lacks the sheer composure of the Sugden, and especially its sweet treble. All the same, I see more hybrid amplifier's appearing in future, as the Vincent's minor limitations could be easily overcome.

Sugden's A21a is truly a polished gem. It does have a light, clean sound, but it also seems to lack much of the colouration of so many solid-state amplifiers. It has a crystalline clarity and light, tight bass that leaves other solid-state amplifiers gasping. Its only limitation is low power, one that can be only be accommodated by the use of sensitive loudspeakers, generally meaning big floorstanders. This is not an amplifier for all reasons, as is the Naim and Vincent. It is a classic Class A, done properly, showing just how good such an amplifier can sound.

Given a choice, Adam said he would walk off with the Sugden. I would walk off with the Vincent. Yet, we both would acknowledge it was the Naim 5i that made most sense most of the time; in many systems only this amplifier would be able to cope - and just look at the price. No surprise then that the 5i should be popular.

There's a place for each of these classics, within the great variety of real life audio systems and within the breadth of people's preferences. That's why a variety of classic approaches exist - the world is still a varied place. **NK**



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Eastern gem

Small loudspeakers from the East don't usually shine, but the small Usher S-520 is a real gem, Adam Smith finds...

Founded in 1972, Taiwanese manufacturer Usher are gradually becoming a force to be reckoned with. Their range of loudspeakers is quite extensive, stretching up to the flagship *Dancer* and *Horn* series. But it is the small S-520's we are interested in here, from the other end of the scale. They retail for around £265-£285 depending on the finish you choose and are available in the pleasing birch wood effect of the review samples, or alternatively gloss black or white, giving excellent potential for matching with a similarly finished Rega or Pro-ject turntable for a really eye-catching system!

Finish and build quality of our review samples were superb. The cabinets feature a front-ported 5in bass/mid driver and a 1in soft dome tweeter. Two pairs of gold plated binding posts per speaker plus removable black grilles complete the picture.

SOUND QUALITY

The first thing that captured my attention was clear and detailed treble. All too often the subtle background percussion effects that many bands like to sneak into their songs can be washed over by budget speakers but they were there loud and clear with the Ushers. On a variety of material the high frequencies continually proved themselves to be more than capable - ultimately not as smooth or silky as a more expensive tweeter but never harsh or unpleasant.

Midrange detail retrieval was excellent; Diana Krall's piano on 'They Can't Take That Away from Me' was almost uncannily larger than life in its presentation and the Ushers proved equally adept at reproducing her vocal style with great flair. Moving to a live recording by Johnny Cash and Willie Nelson, their instantly recognisable voices were strong and centre-stage and, even more impressively, the applause of the audience



was loud and clear. I have heard this particular aspect descend into a messy blur through more than one loudspeaker but the S-520's took it all in their stride.

The bass of a small loudspeaker is often where a compromise occurs between trying to wring as much output as possible from the space available, or not even bothering and concentrating on upper bass detail. Naturally the bass from the S-520s isn't going to destroy foundations or upset your neighbours unduly if you start spinning heavy dub reggae, but Usher have struck an excellent balance. There is a definite hint of gentle bass lift at certain frequencies but it never became boomy or unpleasant, and merely served to underpin the detailed and agile upper bass with just the right amount of authority. My only caveat would be that a partnering amplifier with a modicum of low frequency composure is probably a wise idea to ensure that this is maintained.

CONCLUSION

Usher have come along and thrown an impressive curveball into the UK market, serving up a composed and detailed, yet exciting and dynamic budget loudspeaker. The nominal 8 Ohm impedance

SECOND THOUGHTS:

These were lovely! Clear natural midband with depth, great with vocals, and nice sheeny treble. Best of all for the size though was believable bass: tight, supple and punchy. Anyone would like this 'speaker I feel. Top value. NK

and reasonable sensitivity will ensure wide amplifier compatibility and the S-520s were a pleasure to audition. I feel they are more than good enough to make some of the more established British players in the budget loudspeaker market sit up and take note - highly recommended!

VERDICT

An excellent small loudspeaker, offering detail and dynamics in a conveniently small package.

USHER S-520 LOUDSPEAKER £265

+44 (0)845 0525259
www.hiaudio.co.uk

FOR

- detail and dynamics
- value for money
- build quality

AGAINST

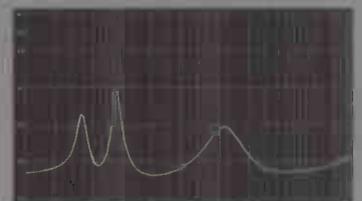
- nothing at this price!

MEASURED PERFORMANCE

Much as in the way they sound, measurement of the Ushers gave an excellent and even result. The frequency response is largely flat across the spectrum with only a small rise in output at the top end, which gives the detail heard clearly when listening. Bass rolloff is -6dB at 48Hz which is a very good result for such a small speaker, and the port extends this down further still.

The impedance curve is generally quite benign with no 'nasties' and is helped by the fact that the impedance never dips below 7ohms. Despite a measured sensitivity of 84dB, the Ushers will not be difficult to drive.

All in all, a well designed and competent loudspeaker. NK



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CINEMA
SEASON

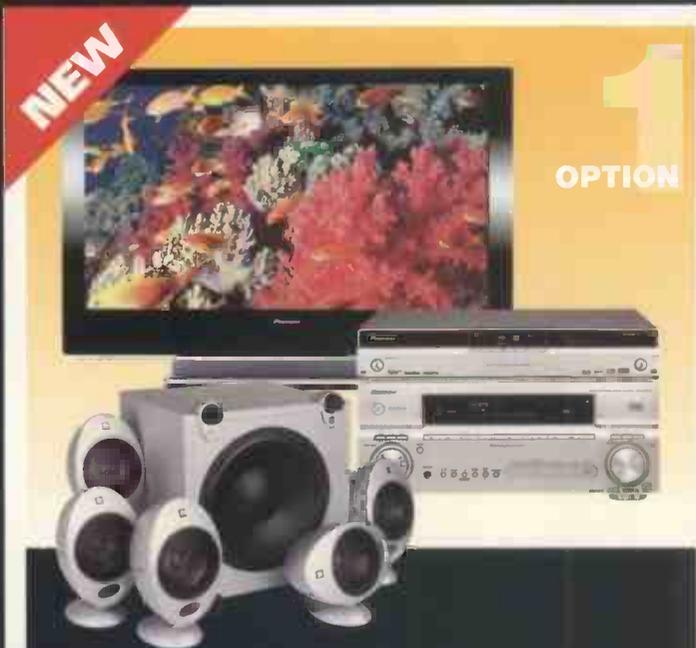
HOME
CINEMA
SEASON

HOME
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SEASON

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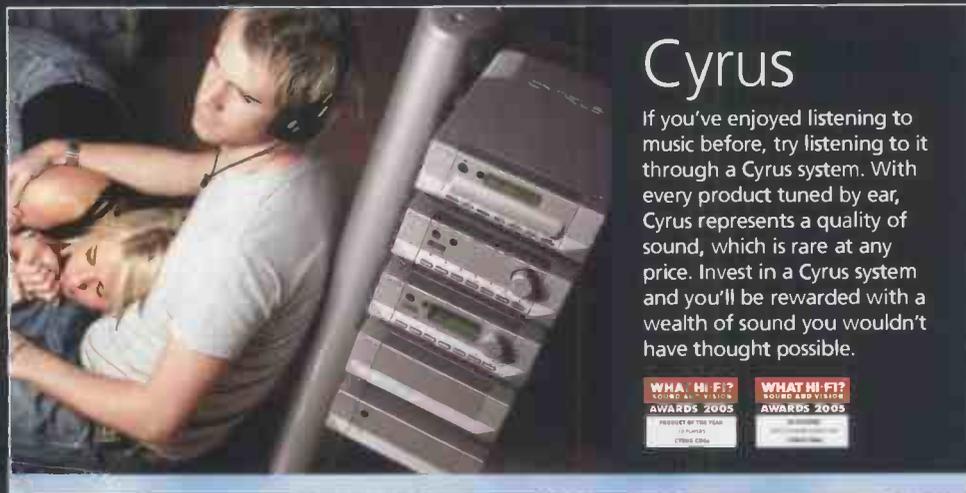
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WHAT HI-FI?
SOUND AND VISION
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WHAT HI-FI?
SOUND AND VISION
AWARDS 2005
BEST CD PLAYER
Primare CD21

WHAT HI-FI?
SOUND AND VISION
AWARDS 2005
STEREO AMPLIFIERS
Primare SA21

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SOUND AND VISION
AWARDS 2005
★★★★★
SOUND QUALITY

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WHAT HI-FI?
SOUND AND VISION
AWARDS 2005
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OCTOBER 2004
S5r

KEF

iQ5

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SOUND AND VISION
AWARDS 2005
PRODUCT OF THE YEAR
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KEF iQ5

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WHAT HI-FI?
SOUND AND VISION
AWARDS 2005
BEST CD PLAYER
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Arcam CD22T

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INTRODUCING Blu-ray



Samsung

BD-P1000 BLU-RAY DISC™ PLAYER

Due for launch in October, Samsung is introducing the BD-P1000, the UK's first Blu-Ray Disc™ player. It will play Blu-ray discs at native 720p, 1080i or 1080p resolutions, upscale existing DVDs and play audio CDs.



What is Blu-ray?

Blu-ray, also known as Blu-ray Disc (BD) is the name of a next-generation optical disc format. Developed to enable recording, rewriting and playback of high-definition video (HD), the format offers more than five times the storage capacity of traditional DVDs and can hold up to 25GB on a single-layer disc and 50GB on a dual-layer disc.

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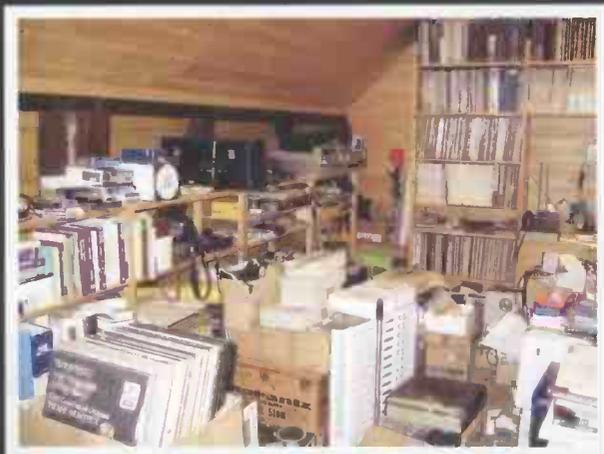
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Mad World!

Welcome to the weird and wonderful world of Mr AJ van den Hul. If ever there was a lover, user and collector of classic hi-fi, it is him. David Price visited one of the most astounding listening rooms he has ever seen...



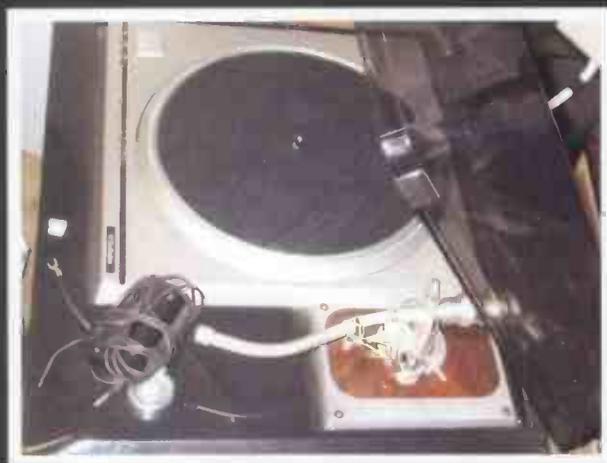
Here is a world of never-before-dreamed-of audiophile esoterica – some of the most stunning hardware and software ever made - and this is just one corner of it...



Numerous classic eighties Sony PCM-F1 digital recorders adorn the den – casually piled on top of one another...



Unceremoniously dumped on the floor lies the most expensive turntable ever made, and arguably the best – the Nakamichi Dragon TX-1000...



Stunning Technics SL1000 turntable, sans headshell, lying around under a pile of dust!



This is a room where monster loudspeakers meet minuscule moving coils, and more!



Yamaha MC-1x - just one in AJ's jaw-droppingly vast moving coil collection...



Lustré GST801 tonearm is an AJ fave – as you can imagine, he rather likes arms with detachable headshells!



The black stuff - as you might expect, there's rather a lot of this lying around, some of which is as rare as any of his hi-fi...



Well, you wouldn't want to dust it, would you?



In most collections, this Dynavector DV505 tonearm would be a stunning centrepiece - but not in this one!



Rare high end Sony PSX-800 'Biotracer' turntable, under a pile of papers, with an ECC83 propping up the dustcover...



As you'd expect of any serious collection, AJ keeps classic Marantz kit too...



This breathtaking Thorens Reference turntable languishes casually alongside all the other esoterica...



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No collection such as this would be complete without a stunning original 'His Master's Voice' gramophone, would it?



FIRST CHOICE

Despite having access to virtually everything of any repute ever made, here's what AJ chooses to listen to when he's off duty...

- TURNTABLE:** H. Brinkmann Reference
- TONEARM:** Technics EPA 100 wired with van den Hul MCS 650M
- CARTRIDGES:** vdH Frog Gold and vdH Colibri (wooden body)
- PHONOSTAGE:** Becker Blueamp
[interconnect: vdH The Orchid]
- PREAMPLIFIER** Jericho Breath (only four ever made)
[interconnect: vdH The Integration]
- POWER AMPLIFIERS:** vdH Array M-1, bi-amping two amps per speaker
[speaker cable: vdH The Third (bass & midrange), vdH MC Silver (tweeter)]
- LOUDSPEAKERS:** Acapella

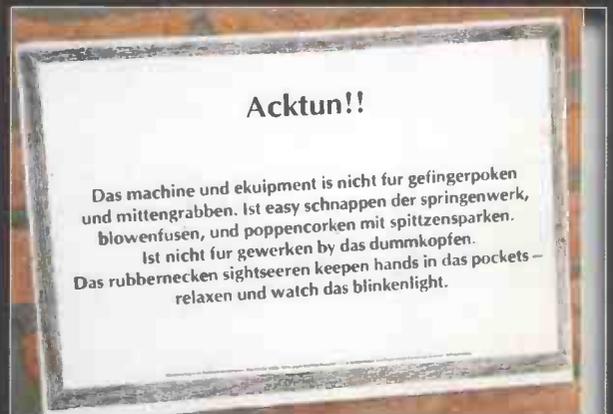


Yamaha MX-10000 – AJ doesn't half like his big Japanese high end power amplifiers...



MAN AT WORK

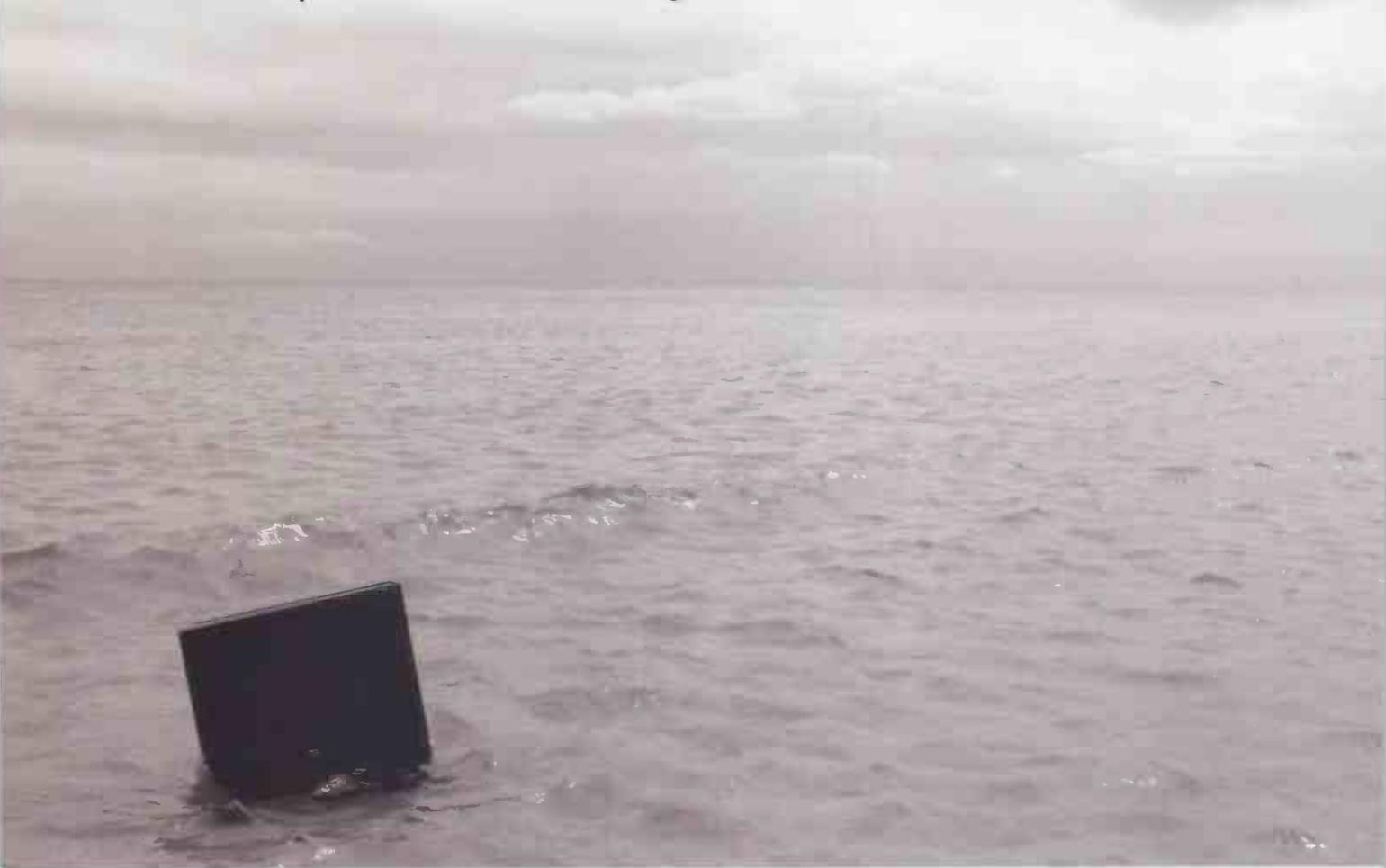
The great man hand building his cartridges – it's an amazing sight to see. Rumour is that he doesn't drink coffee or alcohol for twenty four hours before the build session, because he needs his hands to be totally stable.



"Acktun!! – Das machine und ekuiptment is nicht fur gefingerpoken und mittengrabben. Ist easy schnappen der springenwerk, blowenfusen, und poppencorken mit spitzensparken. Ist nicht fur gewerken by das dummkopfen. Das rubbernecken sightseeren keepen hands in das pockets – relaxen und watch das blinkenlight."

A keen and gifted linguist, AJ speaks many languages and loves having fun with them - as this self-penned spoof 'German' warning notice shows...

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On The Run

This month, it's reviewer Channa Vithana's turn to detail his reference system...

Showing early signs of reviewer behaviour, I 'borrowed' my first system at the age of eight when I began really enjoying music. It was my dad's £500 Sony separates system. This was in 1980 and at that time £500 was a lot of money for my family. Later I bought an almost classic starter system: NAD 3020 amplifier and Dual CS-505 turntable but no AR loudspeakers; instead, heretically, I used a pair of Sony APM22ES standmounters (the ones with flat-surfaced, squared-off 'Accurate Pistonic Movement' bass drivers). Then a Naim Audio Nait 3 integrated amplifier followed, matched with a Rega P25 turntable/Super Elys MM with aforementioned X-LP, Naim Audio NAT 03 tuner and subsequently Dynaudio Audience 50 loudspeakers. As a system, it was an outstanding combination.

As a punter, I think the only upgrading error I've made to date has been to buy an X-PSU for my beloved Musical Fidelity X-series cylindrical components. This was an external power supply upgrade to some of the superbly designed first generation 'X' components from the late nineties, and I thought it would upgrade my then new MF X-LP phonostage - which remains a fantastic, low cost second-hand upgrade today. However, once connected, I could not discern any upgrade or even a difference using the X-PSU! So why was the X-PSU a personal mistake? Because, unlike all my other hi-fi choices from past to present, I didn't listen to it first. Does this idiocy strike a familiar chord?

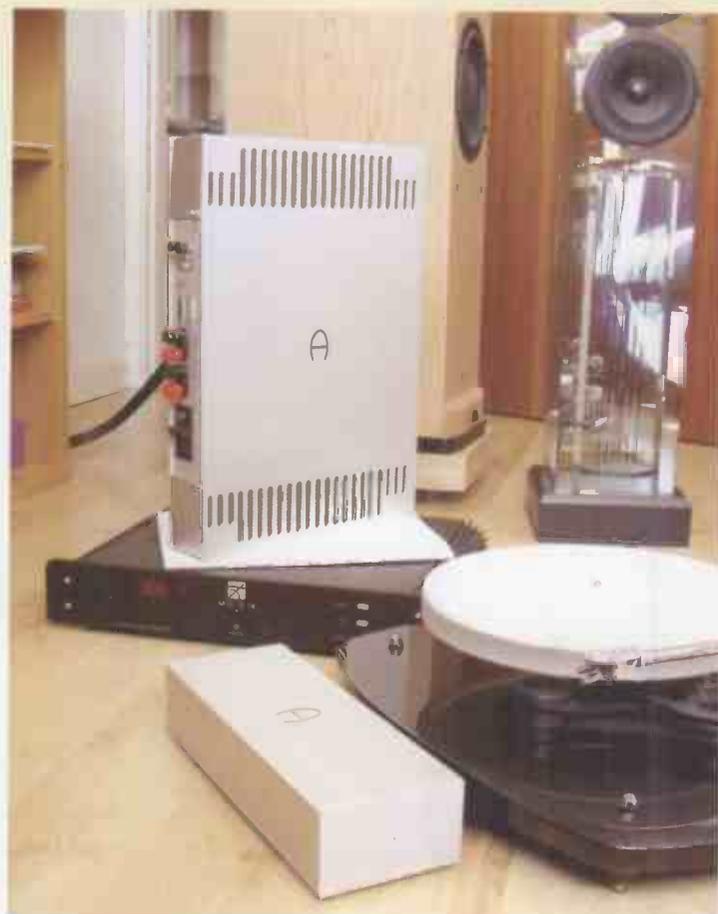
Currently, I have two listening rooms with two independent systems. Although I would absolutely prefer just one system in one room; two systems allow more efficient setting-up and component running-in, and the contrast in price between the two means that I can review a greater variety of equipment. So, in my smaller 4x3m room is a high end system: Densen B-250/B-330 pre-power amplifiers (£3,000 each),

(£3,740) Origin Live Resolution/Encounter MK.II turntable/arm + Ultra speed control & upgrade transformer, Densen DP Drive-04 MM/MC phonostage (£500 approx.) and four MM/MC cartridges costing from £150 - £995. Incongruously, but brilliantly, this system is currently powering a large pair of floorstanding Spendor S9e loudspeakers (£2,995) within the small confines of the 4x3m space.

In the second room (6x4m), I regularly use a (£1,595) Moon Audio i-3 amplifier or occasionally a Marantz PM6010 OSE integrated (£230 when new) with either a Rega Planet 2000 CD player (£498 when new) or (£2,800) Onkyo DV-SP1000E universal player. For loudspeakers it is either a pair of (£2,000) Waterfall Victoria floorstanders or Monitor Audio R852/MD standmounts (approximately £450 in the late eighties).

Nearly all of the components I have chosen in the past and present have a common philosophical thread because they are strong in tempo, rhythm and an energised musical deportment. Latterly, with both systems, but especially the Origin Live Resolution/Encounter turntable/tonerarm and Densen amplifiers (utilising a claimed first 30 of its 120W in class-A and zero feedback), this sound philosophy has incorporated timbral finesse and spatiality alongside the tempos and rhythms which is spectacular with sympathetic loudspeakers, such as the floorstanding Bösendorfer VC2s (£4,750) which embody similar ideals (see HFV August 2006, p46).

Being a reviewer, my house can sometimes resemble the scruffy back-end of a hi-fi shop (not a pretty sight). And unlike some reviewers from other journals, I do not have or want a 'pirate's treasure' full of rows and rows of glistening, extortionately expensive equipment which have been kept on extended loan. It isn't about showing off either, because



my review components are treated as precision tools and not toys; they are used as high-resolution meters for assessment. These components do have idiosyncrasies and room for improvement though. For instance, I wish the Waterfall Victorias had better plinths as its black ones do not have spikes for levelling and stability (I would also aesthetically prefer the plinth in glass/acrylic) and setting-up the Origin Live Resolution & Encounter MK.II turntable/tonerarm properly for different cartridges/phonostages can also be a meticulous process.

My two systems embrace attainable high-end and low cost/high performance respectively. Using them removes another layer of subjectivity from the review process, because they are constantly compared against new review equipment - however flawed they may be (and everything is), at least I have a consistent reference tool. Oh, and they're consummate fun to listen to, too - which is what it's all about, after all.

Fireball

Counting Prince and David Bowie amongst the paying customers, Manley Labs produce a comprehensive pro audio range, and latterly hi-fi. Is the electrifying Stingray valve integrated amplifier a contender for modern classic status? Channa Vithana decides...

Every time you see another new valve amplifier on the market, you can only marvel at the irony of it all. Let's not forget that twenty years ago, if you'd predicted the revival of tube amplification and analogue audio, people would think you mad!

For this product, the story starts when EveAnna Manley joined VTL in 1989, after taking a sabbatical from being a music major at Columbia university. The company was run by David Manley and his son Luke. VTL, a valve orientated hi-fi company, was originally based in the UK, being initially a joint development with David Manley and Zia from Tube Technology, and was established in 1986. Some Manley and VTL designs were based on David's early work, stemming from 1980, in South Africa, where he was a recording and film engineer.

After relocating to the US; VTL, which produced a Manley line of equipment, became a separate company with Luke at the helm, while David formed Manley Labs in 1993. (VTL) Manley and then Manley Labs initially produced professional audio equipment, the first being the '1u Reference 60dB Microphone Preamplifier' in 1989, and latterly hi-fi also. David Manley reportedly left the

US in 1996 and has lately been associated on new projects with his old friend Zia at Tube Technology back in the UK.

EveAnna Manley has been the CEO and owner of Manley Labs since 1999 and the company have a diverse and deep portfolio of products past and present. While not being the slickest or most stylish, their website at www.manleylabs.com is still one of the most enjoyable I have seen. It is a sprawlingly huge library of writing, photographic history and product description, well worth a trawl through. Similarly the Manley Labs Stingray amplifier we have for review comes with an excellent instruction manual that is clear and very informative about the design and practicalities of using a valve amplifier, which makes it easier for those new to 'tubes' to get to grips with it.

THE DESIGN

The Stingray is an integrated valve amplifier with four line inputs, a tape loop which can be bypassed and stereo subwoofer outputs. Manley Labs says that separate left and right silver-contact select switches

(for the four stereo line inputs) go into the premium Noble balance and volume controls before hitting the first 12AT7WA (x2) input tubes. The advantages of a passive preamp (designed by EveAnna Manley) driving an extremely short and low capacitance two inches of cable are well known: transparency, no added noise and extreme signal path simplicity. Following the 6414 (x 2) driver/phase splitter, the EL84 (x 8) output stage can be switched between either around 20 watts of Triode or 40 watts (1.5% THD at 1 kHz) of Ultra Linear mode push-pull operation [see MEASURED PERFORMANCE]. Individual bias for each tube is adjusted using the trim pots and test points located on the top surface of the amplifier.

The Stingray is not only designed



XL!



to look like its marine creature namesake, but has practical advantages for its split layout in that the cables for left and right channels have a wide, attractive spacing that also avoids potential sound degrading contact between them, and the angled shape allows a more compact form than a traditional box. The Stingray measures 483x356x140mm and has a shipping weight of 13.6kg. Build quality is excellent - and I really like the Stingray logo which evokes a 1950s feel! The finish is also very good with attractive lilac/purple anodised plates and feet, plus well damped, confidence-inspiring control and volume knobs. Manley Labs say that the Stingray has outputs suitable for between 3 to 10ohm loads and if customers have any extreme loudspeakers beyond these ratings,

then they can supply appropriate transformers to suit.

SOUND QUALITY

Although impressive across the board, I preferred the Stingray in Ultra Linear mode, with its gutsy, tuneful, superbly well-rounded presentation with bold, three-dimensional musicality. 'Duo' from the 'Songs Of Courtship and other works' by John Bevan Baker starts off with an elongated, sustained and almost atonal opening which then merges into episodic melodic

"it has a superbly well-rounded presentation with bold, three-dimensional musicality..."

parts. The timbre of the oboe and cello was excellent, with a rich and textural quality that remained expressive yet nicely controlled. The sound was rich and deep, but not artificially so - as some valve and Class A transistor amplifiers - and this led to a very enjoyable rendition with excellent phrasing. The tempo was surprisingly very good also via a clearly expressed interaction

and layering of notes from the instruments. The John Bevan Baker compositions were full-bodied, well tempered yet clear and expressive, which made it a delight to listen to the texturing of the instruments.

Listening to 'On The Beach' from Chris Rea, the music had tight, crisp and deep bass lines that were clearly discernible as the music flowed along its atmospheric and languid stride. The accompanying instruments were also suitably expressive with excellent timbre and phrasing. Tempos were also very good and combined with the lush background instrumental harmonies, this made for a very musical rendition. Chris Rea's lead vocals were appropriately

a mixture of gruff 'smoker's voice' melancholy and nicely recorded complex tonalities which made for a spacious and tangible overall performance.

The superb version of Led Zeppelin's 'D'yer Maker' by Sheryl Crow from the compilation Encomium, 'A Tribute To Led Zeppelin' had outstanding bass lines, as well as good timbre from

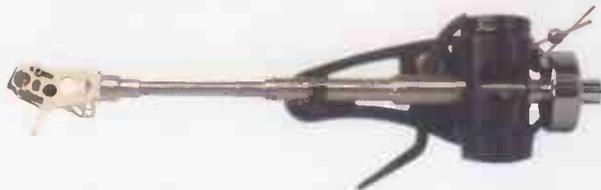
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the briskly strummed guitar and her vocals. Deep, clear and tuneful, the bass reinforced the groove of the song perfectly. Instrumental separation was also excellent, revealing the fine layers of quirky guitar tunings and phrasing while Sheryl Crow's lead vocals were a thing of breathy, longing beauty.

As the rough and ready collection of sounds from the deeply immersive dance track 'Binary Finary' blasted through into the listening room, the Stingray handled the beats and rhythms with ease as the snake-like melodies emerged sinuously throughout the mix. When the electronic beats and melodies speeded up as the nine-minute version progressed, the Stingray did not have the wayward bass drift of some valve amplifiers and as such kept the momentum constant. The Stingray also had an excellent ability to discern between good and poor recorded samples using very good instrumental separation - without stifling the music or making it sound mechanically workmanlike.

When I compared the £1,895 Stingray to the £1,595 (approx.) Moon Audio i-3 integrated amplifier (using the 'Songs Of Courtship and other works' by John Bevan Baker), the Moon was less deep and atmospheric than the Stingray in comparison; as such the Moon had a lighter and airier feel to the music. Phrasing of instruments was more fluid though, where there was even better layering between notes over the already excellent Stingray. The Moon i-3 really does capture the quintessence of music, but can sometimes lack dimensionality - and this is where the Stingray was so great with the Bevan Baker recording, as it had superior timbre and expressiveness to the instruments. Additionally, and surprisingly, the Stingray had a discernibly quieter background canvas to reproduce the music than the Moon. Both amplifiers had similar levels of instrumental separation though.

The Moon had slightly more spatiality than the Stingray with 'On The Beach' by Chris Rea, where the music and vocals sounded more atmospheric as the lyrics of the song

and composition dictated. However, the Stingray is clearly superior with bass lines and here it outclassed the Moon with a deeper and more convincing dexterity to the lower frequencies. Similarly with the version of 'D'yer Maker' by Sheryl Crow, the bass lines from the Moon - while cohesive with the rest of the music - were neither as deep nor enjoyably powerful as on the Stingray. Sheryl Crow's vocals also had better timbre and texture on the Stingray, as did the drum track which had more impact and power. Where the Moon remained superior was with the overall communication of the rhythms of the music - compared to the Stingray, the Moon had a more effortless if less gusty and emotional flow.

The Stingray was superior to the Moon with the bass lines to the nine minute version of 'Binary Finary 1999', as the Moon made them sound a little congested and diffuse in comparison. The trance melodies were more enjoyable with greater feel via the Stingray. Interestingly the Moon had a finer, more sympathetic affinity when revealing the inner workings of 'Binary Finary 1999'. And as such, the various samples and electronic sounds used for the exhilarating trance melodies were more palpable, which means that the Stingray is less forgiving and more critical of the comparatively rougher dance music recordings. It was with tempos and rhythms that the Moon showed its strengths as it dispatched the rapid electronic beats and grooves with precision animation and spatiality in comparison to the earthier, deeper Stingray.

CONCLUSION

I really enjoyed the Stingray. Its strengths are bass extension and dexterity, which

REFERENCE SYSTEM:

- Moon Audio i-3 integrated amplifier (£1,595, approx.)
- Onkyo DV-SP1000E universal player (£2,800)
- Waterfall Victoria loudspeakers (£2,000)
- Spendor S9e loudspeakers (£2,995)

MUSIC

- Baker/Hebrides Ensemble, 'Songs Of Courtship and Other Works' (2004/2006)
- Chris Rea, 'The Very Best Of' (2001)
- Encomium, 'A Tribute To Led Zeppelin' (1995)
- Binary Finary, '1998/1999' (1997/1998/2003)

when combined with the revealing and tuneful midrange, made for emotionally convincing music with oodles of timbral expression for both instruments and vocals. One of its strengths is that it is a very revealing amplifier, and combined with excellent instrumental separation, the Stingray can be quite a detail communicator.

I can give the Stingray a very strong recommendation for its ease of use and good loudspeaker driving ability - it controlled and exploited the different presentation styles of the harder-to-please Waterfall Victoria speakers with their easier 90dB sensitivity and the more forgiving but bigger and harder to drive Spendor S9e. Add the excellent build and funky design and you have a great music-maker.

VERDICT

Fulsome bass, revealing midband and real musicality make this a fine tube integrated purchase.

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FOR

- excellent bass dexterity
- instrumental separation
- funky design, build quality

AGAINST

- no remote

MEASURED PERFORMANCE

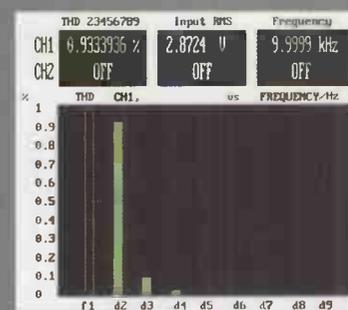
The Stingray uses EL84 low power output pentodes, known for their sweet sound, in push-pull pairs, using fixed bias in order to get satisfactory power, as the EL84 usually delivers around 5W. This means bias adjustment is occasionally necessary. Under measurement its single nominally 8ohm output winding delivered 25W into an 8ohm load and a 4ohm load, so it is well coupled and works across a wide load range. This power was delivered right across the audio band, from 40Hz up to 10kHz, measurement showed. In Triode mode it managed 12W into 8ohms but 16W into 4ohms, exact overload point being imprecise as always in this mode due to soft clipping.

The Stingray produces a lot of distortion, especially at low frequencies, where levels from 1% at 1W to 4.5% at full output were measured, enough to produce slightly plummy bass. The saving grace is that under all conditions second harmonic predominated, with higher harmonics descending steadily. This pattern held under all conditions and at all frequencies, as our 10kHz spectrum analysis shows, so the Stingray is likely to sound sweet and inoffensive.

Frequency response reached from 14Hz up to 36kHz, a wide range. Sensitivity was high at 250mV for full output.

The Stingray is likely to sound sweet in classic valve amp tradition, but will have soft bass, measurement suggests. It measures well enough, distortion levels excepted. NK

Power	25watts
CD/tuner/aux.	
Frequency response	14Hz-36kHz
Separation	67dB
Noise	-81dB
Distortion	0.6%
Sensitivity	250mV



Vinyl Revival

Noel Keywood breathes new life into two classic Pioneer PLC-590 Direct Drive turntables...

Outside Britain at least, the cream of the turntable crop before CD arrived were Direct Drives, which came almost exclusively from Japan. Big Japanese manufacturers competed furiously through the late 1970s, releasing some extremely complex models. With the arrival of CD in 1983 the flood ended abruptly, leaving behind a sea of now ageing super decks. You can pick one up for £400 or so these days. Fitted with a modern arm they offer an affordable and convenient way to play LPs. But there are difficulties. Recently I hauled a couple of long abandoned Pioneer PLC-590s from my loft, once used for arm and cartridge comparisons, to see if I could resurrect them. Fitted with a good modern arm, are they good value by today's standards, I wondered?

The Pioneers reached my loft long ago for good reason: they started to behave erratically and one eventually stopped altogether, after little more than a few years service. I didn't possess the will to do much about this at the time, because CD and the new digital age had arrived, making all else "gaslight" as Von Karajan said. Nowadays, gaslight is back in fashion and the Direct Drive a technology that's being reinspected. At the time the UK Press poo-poo'd Direct Drives I should add, saying they had intrinsic speed control problems that affected sound quality. They may not have been entirely wrong. But to find out I had to get the two PLC-590s working and, as I guessed, doing so illustrated the sort of problems you are likely to encounter if you fancy one of these late 1970s technological wonders.

At the heart of Direct Drive lies a brushless, slotless DC motor held under tight speed control by servo feedback. The motors are strong, silent and reliable. However, they need

a mountain of control electronics and this is a potential weak area. If an electronic component fails, spares

are unlikely to be available some twenty five years later. It may be possible to find equivalents, as I did, but Japanese parts then were often quite different to what was and is available in Europe, so finding a generic replacement isn't guaranteed. This is something to bear in mind if you intend to buy a non-working unit cheap, or if you have a DD that cost useful money but has just expired. You could of course buy a new DD like the Technics SL1200 or 1210, a Numark TTX1 or a Vestax PDX-2300 MkII Pro, but these modern Direct Drives are for DJ use and come with integral arm.

Before getting down to their faults, let me describe the PLC-590, because the way it is built is fairly typical of the breed and influences sound quality. A sturdy Direct Drive motor is housed in a purpose designed diecast chassis that is enormously strong and rigid. Pioneer did not take an OEM motor and mount it in a separate plinth, as happened later in cheaper Direct Drives. The lower bearing is

supported by a steel thrust plate and the windings lie within a strong and very rigid diecast bucket shaped housing bolted into the cast chassis.

I could not criticise the design in terms of fundamental rigidity and mechanical referencing of the arm to the platter so there is no relative movement between the two. But the chassis is hollow and sits on some dodgy adjustable rubber feet that allow the whole assembly to wobble. The idea was to decouple the turntable from its surroundings, but it is quite unlike the vast, solid plinth supporting my Garrard 401, which sits on a marble base, on a heavy MDF table, the lot constituting an enormous amount of well anchored mass. Ideas about all this have changed since the 1970s and for reasons that became apparent during listening tests I prefer the high mass route.



My plinth, by the way, came from Dr Martin Bastin and was thoughtfully developed by him to get the best from the 401. Plinths like this work. I note also that Numark claim that "solid core construction and a rubber base helps fight vibration" in DJ use in the TTX1, so I have reservations about decoupled plinths like Pioneer's, as good as it is.

Pioneer provided a 20mm MDF arm board on top of which sat a 5mm thick

make up an arm board.

This was cut from MDF, sealed and sprayed with many coats of black metallic paint to get a sheen that approximately matched the Pioneer's hard gloss surface. The board had to be adjusted for height using washers, in order to get the arm parallel with the high turntable platter. You are likely to be faced with little difficulties like this when fitting a modern arm.

Happily, today's arms are still designed for a 220mm arm pillar to turntable spindle distance (between

centres), so modern arms will fit old Direct Drives with a bit of fiddling, unless you decide on a 12in SME.

What was wrong with the decks?

Removing the bases revealed a complex interior comprising a screened motor drive control board, plus a power supply board and meter drive board. Two fuses were obvious and both were corroded, but intact on both decks, testing showed. Cleaning them and the holder got one deck working properly straight away, but a bulb behind the 33rpm indicator had blown. So faults can be minor and taking a risk by buying a cheap non-working unit may just net you a fine deck... or it might not!

The second deck struggled into life with the fuses cleaned, but all its lights were out. The platter was spinning and the meter working, showing all was well at heart, but not one indicator was functioning and the meter was unlit. Tests showed a power supply had failed. This proved

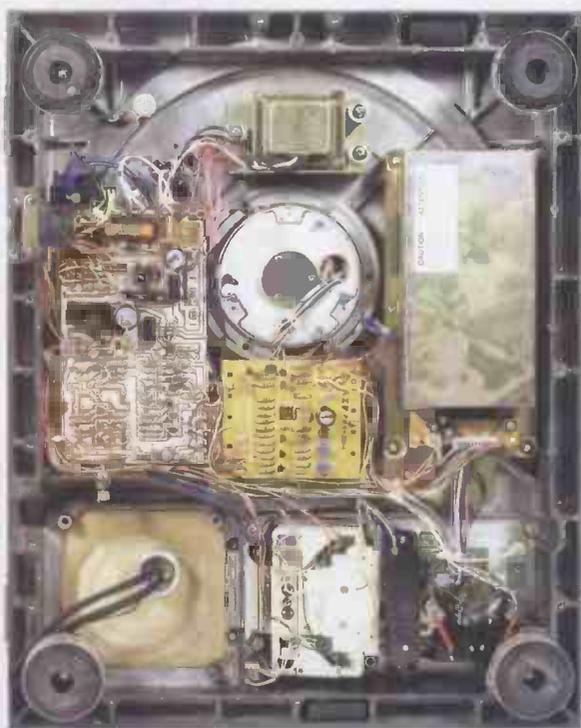
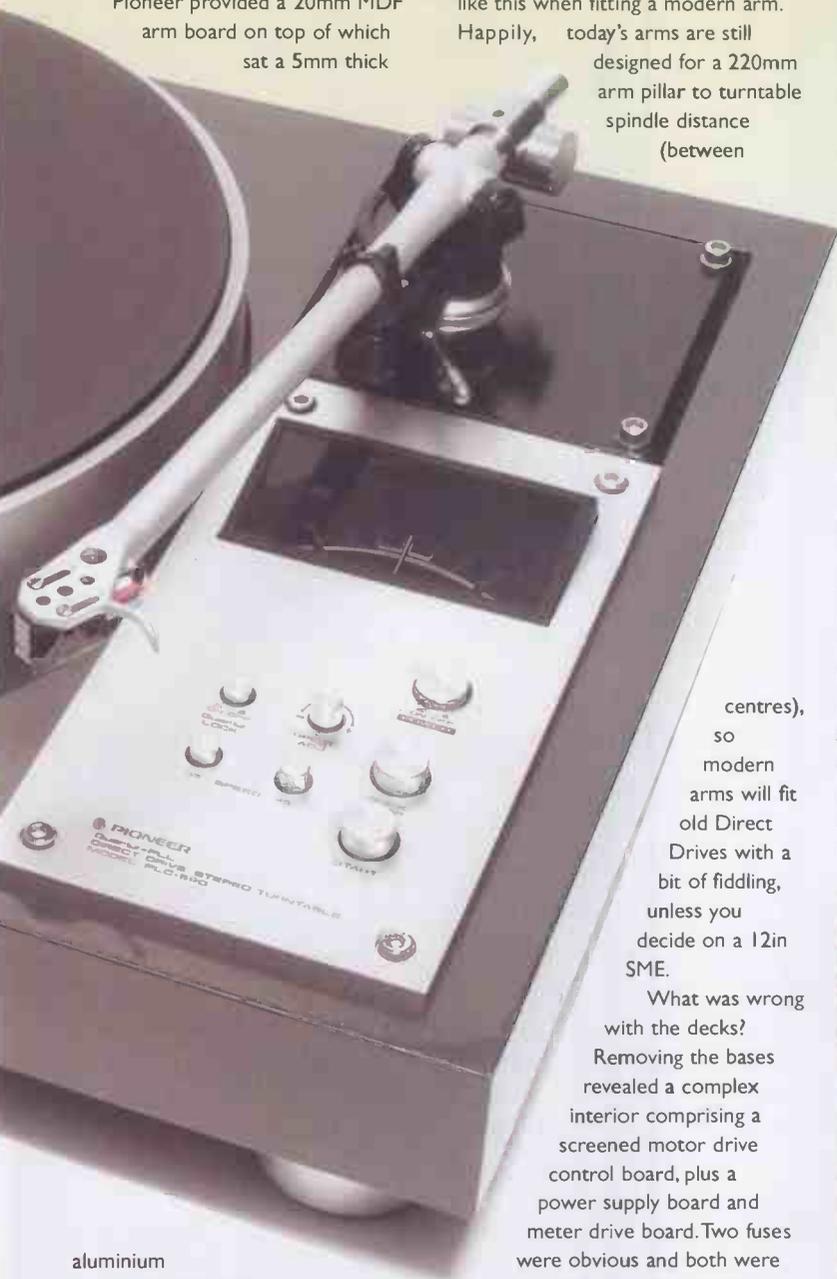
to be easily repairable using modern parts [see REPAIRS], but I needed a circuit diagram and this showed it could just as easily have been an unreplaceable motor control chip - there are two of them - that had gone. The 1970s Japanese audio power transistor that had blown was replaceable by a Western equivalent that usefully existed - I was lucky.

Quite obviously then, old Direct Drives can be repaired but there is a risk associated with buying one, even if it works perfectly at the time. Hunting down a service manual and knowing a repairman increases your chances of keeping life sweet, if you are not handy with a soldering iron. And even if you can wield an iron you need a fair knowledge of electronics to source the parts and make the repair. Contrast this to an all-mechanical Garrard for which spares exist and an old Direct Drive starts to make less sense, unless you pick it up for a song...

IN USE

How did the PLC-590 sound? I was keen to find out, feeling convinced that a new Ortofon Rondo Bronze moving coil cartridge in a Michell TecnoArm mounted on a Direct Drive of this quality would be an interesting experience. Mounted atop a sturdy equipment rack it was quickly evident that this combo was both composed and analytical. I could clearly hear the superb timing of the Direct Drive. Musical beats came in

aluminium trim plate. The MDF base was drilled for SME sliding arm base and 22mm (maximum diameter) arm pillars capable of attachment to what was a 25mm deep arm board. The top plate came in SME or circular pillar options; I could find only one SME plate in my loft and I decided to fit a Michell TecnoArm, so had to make up an arm board for it. And here lay the first difficulty. The arm, a tuned up Rega RB300, was chosen as a good, inexpensive modern design. But it needs a 23mm diameter circular fixing hole and 19mm deep MDF is the maximum depth it will fit. So I had to



Underside view of the PLC-590 with protective bottom cover removed. Inside lie a power supply, meter drive and - under a shield - motor drive circuit boards.



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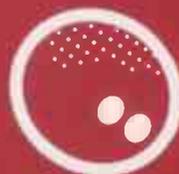


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perfect procession; it sounded very controlled. But at the same time there wasn't the punchy precision to drum beats that the Garrard is known for; leading edges were a little muted, softened in impact. Where the Garrard is challenging in this area, having me pinned against the settee, the PLC-590 sounded timid.

It also lacked the Garrard's heavy bass. At the same time it resolved upper bass better and could be said to be more revealing. The Garrard almost sounded overblown. On balance though, 12in 45s in particular showed the Garrard was dynamically much more capable. Carol Kenyon's "seduce me over again", from her 12in 45rpm 'Dance With Me' single lacked the force of delivery I'm used to from the Garrard, robbing this single of dynamic impact. It was interesting that the Pioneer seemed least capable with high level cuts like this and best with low level ones like Phil Collins' 'In the Air Tonight', suggesting dynamic wow could be a problem in these early Direct Drives, as always claimed.

So much for a quick snapshot of a complex situation. I was using a new cartridge in the Pioneer and some of the tightness could well be due to it needing more running in. The other reservation I had here was the large difference in physical structure between the massive Garrard system and the modest (17kg) Pioneer, complete with wobbly rubber feet. So I moved the Pioneer to the Garrard marble topped table, took off its plastic under-cover and mounted its cast metal chassis directly onto two 2in x 1in wooden battens, one either side, instead of the feet.

This brought up low frequency output nicely, suggesting the Pioneer could usefully be hard mounted on a sturdy wooden base to improve its sound; the wobbly feet are an impediment, but they can be easily removed. So mounted, it is now working nicely, giving a good account of itself. It still does not have the

REPAIRS

Replacing a bulb, the only broken part in one deck, should be easy enough, but this is a Japanese deck from the 1970s. The wire ended bulb was 4mm diameter and held in a grommet, so a replacement had to be this diameter maximum. It was fed by 7.3V. Not surprisingly, the 'RS' Catalogue listed no such thing; small wire ended bulbs like this come in 3mm or 6mm sizes, at 6V or 12V. There is a 4mm with pins, but again it is 6V or 12V. I bought a packet of 5V, 3mm wire ends and just trimmed a series resistor, ending with 38 ohms, to get the right brightness. This improvisation worked well enough, bringing the 33rpm legend back to life.

The other deck appeared to have a dead series regulator transistor in its power supply, as one pin had no voltage on it. Armed with the circuit diagram it was clear that this pin, the emitter of a Japanese 2SD234 audio NPN power transistor, had gone open circuit, cutting off output. However, input had risen from 9V to 15V - very suspicious, as this is more than expected even with the parallel smoothing electrolytic out of action. I should have used a d.c. coupled 'scope to check, but for speed decided to haul out the 2SD234 and replace it with a TIP41C, along with a new electrolytic and bridge rectifier, as I suspected failure in this last part may have caused the others to collapse. Bits like this are cheap and plentiful, of course.

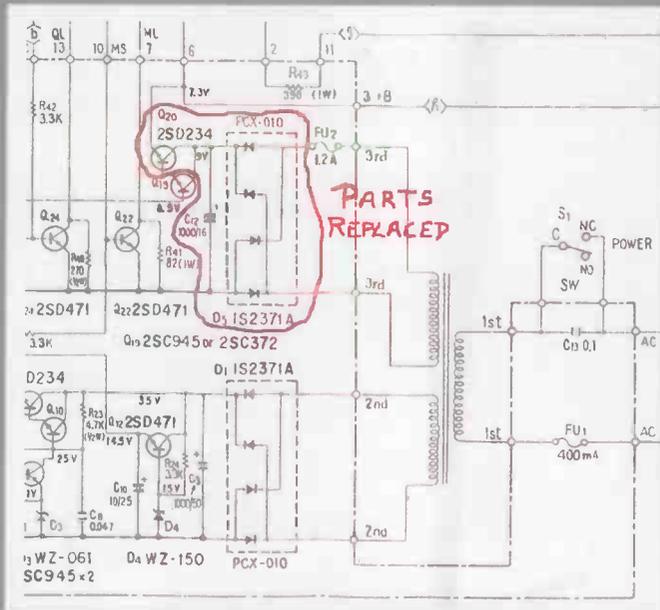
The only practical difficulties lay in measuring circuits voltages with live mains close by on a IEC mains input socket and on the pcb - a very 1970s approach to safety! I taped off as much as possible for safety. And all components had had their leads turned over on the board, making them a pig to get out. You need a chisel ended soldering iron bit and solder sucker for this sort of extraction work. With the new parts in place I brought the deck up progressively on a Variac and measured the voltages with a Fluke meter, checking waveforms on a 'scope, to ensure everything was correct. The deck worked perfectly after this simple repair.

So the PLC-590 has plenty of unavailable Japanese parts inside, like the 2SD234, but it is possible to find modern replacements for most. With twenty discrete transistors in the power supply alone, however, and logic chips elsewhere, this is not the simplest of units to repair, even if you do know what you are doing. Other Japanese Direct Drives are likely to be similar, so if you do buy one bear in mind that if it goes pop, repair may be expensive or impossible!

(sans rubber feet). Whilst I have to stop the Garrard to change to 45rpm though, the Pioneer can be changed on the fly. I put on 'Ta Dah' for the first time - the Scissor Sisters new album - and wondered why it

slower, suggesting it has been speeded up deliberately, as I believe The Saints were prone to do. As 12in singles come in 33rpm and 45rpm nowadays, with no advice of speed anywhere, and LPs in 45rpm as well as 33rpm, a deck with the Pioneer's swift on-the-fly speed change is pretty handy. This is where Direct Drive scores highly; it combines high performance with high convenience.

Whether an old Direct Drive like the PLC-590 is good value depends as much upon its owner's ability to exploit its strengths with a bit of DIY, and keep it going with yet more, as it does upon more obvious factors. I would not say my two Pioneers are stunning value at the high asking prices occasionally seen for them, but if you can pick up an old Direct Drive like this at a low price then it does offer a high end sound coupled with great ease of use at low cost and risk.



Part of the PLC-590 power supply board, showing parts replaced, a 2SD234, 1000uF capacitor and bridge rectifier.

"old Direct Drives can be repaired, but there's a risk associated with buying one..."

transient force or brutal sense of pace of the Garrard, nor its ability to keep musical strands well separated. But it is close, and it is more analytical, especially in the upper bass.

Old Direct Drives like this one are convenient and easy to use too, even easier than the Garrard. As I hand cue, the Garrard's rock solid plinth is handy, and so is the Pioneer's

sounded so slow. Hitting the Pioneer's 45rpm button showed that this is a 45rpm double-LP, with no mention of playing speed anywhere (!). The Pioneer copes with this even more slickly than the Garrard; I feel sorry for those with 'get out and get under' belt drives. The Pioneer's variable speed even shows that 'Ta Dah' sounds more natural when run 6%

The Missing Link



Binary Star DIGITAL



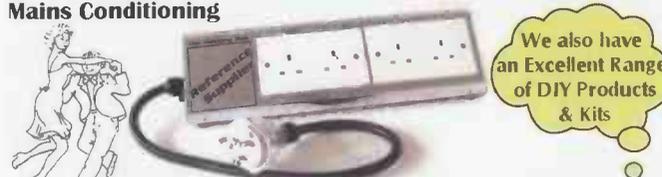
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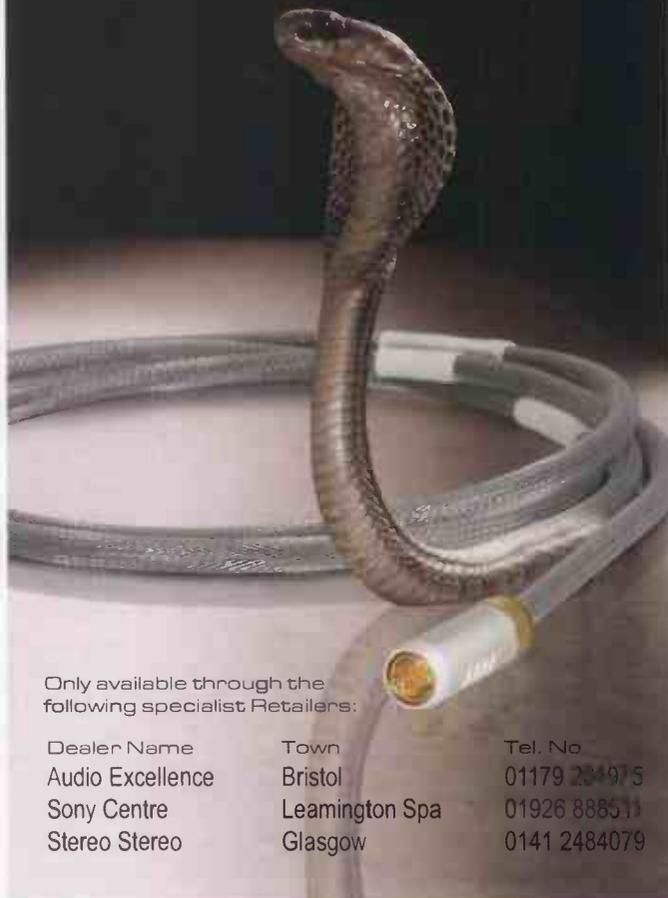
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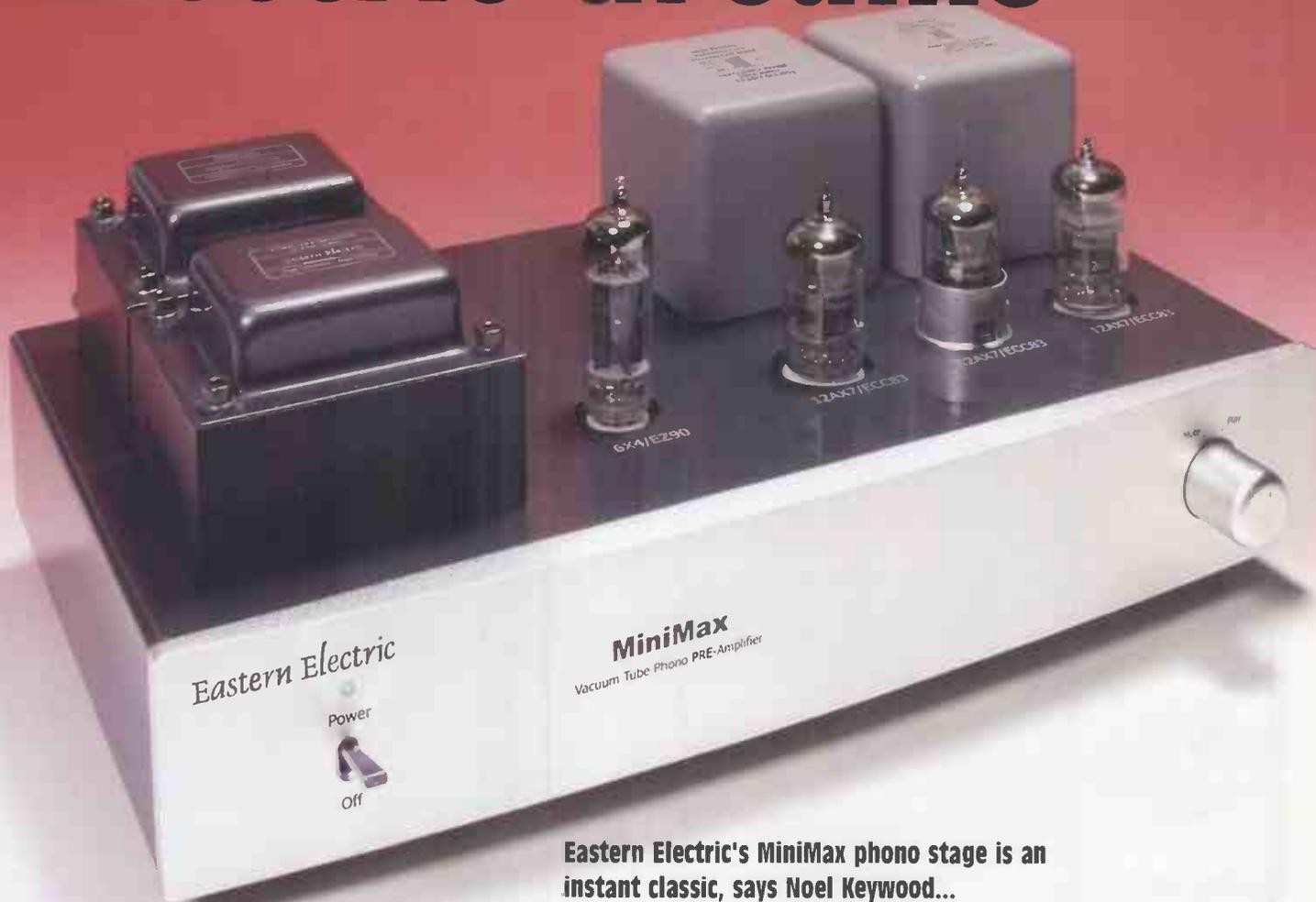
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Electric dreams



Eastern Electric's MiniMax phono stage is an instant classic, says Noel Keywood...

The Audio Innovations P2 all-valve phono stage designed by Guy Sargeant is one of the most impressive items of hi-fi I have ever heard.

When launched some fifteen years ago, valves in a phono stage were rare to non-existent, but times have changed. Valve phono stages are becoming increasingly popular as people hear what they do...

You can get a phono stage like a Cambridge Audio Azur 640P-S, for example, for less than £100. It's well designed, if a little unrefined sonically. Then come the low cost tuned-up types that run from £200-£500 or so; I reviewed a group in our November 06 issue. Above this lie more highly burnished audiophile stages, like the Trichord Diablo and Clearaudio Symphono. Out on a limb in a balanced world of its own lies the Aqvox 2CI, which was seductive. Above this stratum things get altogether more specialised and this is where the new wave of tube stages appear, including the Minimax phono, priced at £1,099. That's a good price for a tube stage with able

to accept moving coil cartridges as well as moving magnets - providing it delivers the sonic goods. Being a long term user of a World Audio Design MC/MM all-tube preamp, I know what to expect and what not to expect. There are also only a limited number of design approaches due to valve noise.

Eastern Electric's Alex Yeung has used the same solution we came up with in the WAD Phono II, high output MM cartridges feeding direct into the first valve, whilst low output MCs feed the primary of a step-up transformer. In the Minimax design the primary is tapped to provide a lower input impedance and higher step-up ratio for low output MCs. Quality issues then centre around the valve (tube) used and - especially - transformer quality.

Eastern Electric use two large, well screened units with Permalloy cores. They quote 47ohms input impedance for the Low (high gain) input and 100ohms for the High input. I should point out that Low and High refer to cartridge output, by the way, not preamp gain. Our tests

showed there's plenty of gain for high quality, low output MCs, unless perhaps you are using an insensitive preamp and a really low output moving coil cartridge like some of the top-end Linns. In this case volume may have to be wound right up. I used an Ortofon Kontrapunkt b and needed exactly half volume when connected to the Low input.

Because transformers are relatively quiet (although passive, they still produce Johnson noise) the Minimax is hiss-free with medium output MCs like the Kontrapunkt and has just a slight background hiss, close to the 'speaker, with volume adjusted for a Goldring 1042 Moving Magnet, which I also used. The Minimax would have been quieter on MM with an ECC88 (6922) but these do not sound as sweet as the ECC83/12AX7 that Eastern Electric use. As a £1k phono stage is most likely to be used with an MC cartridge, and as MC hiss is determined by the input trannys, not the valve, I feel they were right to put an ECC83 in this position. Of course, some say that modern ECC88s

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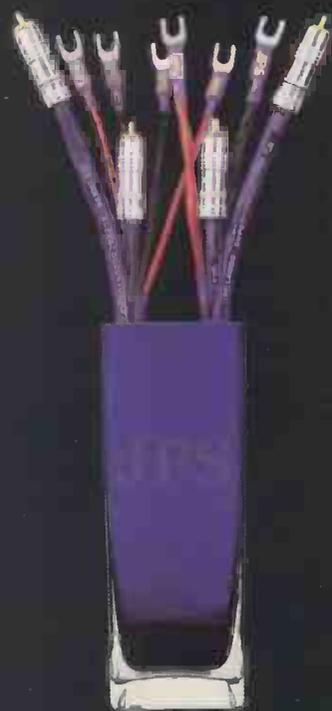
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don't suffer microphony and are sweeter sounding - but that's another argument!

The MiniMax circuit is simple and elegant, as basically a phono preamp like this is an MM stage with a tranny in front. A single rear panel switch selects direct input (MM), or tranny input (MC). Stout gold plated phono sockets are fitted for MC Low and High (output) cartridges, MM cartridges and a single line output. I was disappointed that the opportunity to provide a balanced MC input via XLR sockets had not been taken, as transformers make this an easy-to-engineer option. I feel at these quality/ price levels fully balanced connection is the way to go, but having said that, trad. unbalanced phonos are still good enough to clearly show what a high quality cartridge can achieve.



direct comparisons were made. And perhaps most surprisingly for most people, valve stages seemingly expand the dynamics of music, which is very nice whether you are listening to Led Zeppelin or the 'Moonlight Sonata'.

If you want to really hear what John Bonham could do then the Quiex SVP 200gm vinyl of Led Zeppelin 'II' that I bought just the other day is an eye opener through a phono stage like the Minimax. It supports those wonderful, divorced

I preferred it in my system.

I wasn't surprised to find, during subsequent measurement, that of the two it is the MiniMax that is inaccurate. It suited my system because it is a little bass heavy at present, due to the Tannoy Yorkminsters over exciting the room's lowest modes. Some bookshelf moving is due! In many systems I suspect the Minimax may sound a little lean, although its sheer dynamism will usually be sufficient to ensure it will not seemingly lack bass drive. Quite how this is perceived will depend upon system balance and taste, based on previous experience.

"I found the MiniMax valve phono stage beautiful to listen to, just as I'd hoped..."

The Minimax phono is compact, well built and nicely finished. It has a convenient rotary mute switch that you can turn to cut out thumps and bangs from mis-cueing. Otherwise this is a foible-free stage to use. Just connect up and off you go...

SOUND QUALITY

Using the Minimax I was immediately greeted with a superb sense of tonal balance from my Kontrapunkt b, showing that the stage's equalisation was accurate and there was no untoward influence from any of the components used, especially the transformers. As hoped, the level of detail delivery was superb, being right up to the highest standards expected today (rather than those horrid yesteryear trannies that used to smother the sound). That Eastern Electric have used quality components was obvious from the beautiful, almost glass-like clarity of this stage.

Because it is tube does not mean it is in any way soft, warm or coloured. Quite the reverse. I put this unit on alongside the solid-state group reviewed last month, whilst running it in, and it was clearly obvious how the Minimax, in best valve tradition, establishes a sound stage with a sense of depth to it and allows the tonal palette of musical instruments to be brought out into the open. It also expunged a slight coarseness, or edginess all the solid-state stages all displayed when

cymbal strikes and his frantic, cascading drum rolls from left to right across the sound stage in 'Whole Lotta Love' like no other phono stage I have heard, with the exception of the WAD Phonoll. Equally, the low noise of the Minimax, its see through clarity and wonderful sound staging gave piano solid presence in Beethoven's 'Moonlight Sonata'. The Goldring 1042 also benefitted from this preamp's presence, even though it is five times the cost of the cartridge and perhaps not the most obvious partnering choice.

In a nutshell, over weeks of use I found the MiniMax valve phono stage a wonder, easy to use and beautiful to listen to just as I had hoped, and as clearly ahead of the (solid-state) herd as the Audio Innovations P2. Then I connected up the Artemis Labs PH-1. This was another fine design, the two sounding very alike - except the Artemis clearly had deeper bass and better bass resolution. However, the MiniMax was more lithe and, on balance, after a lot of doubt I felt

CONCLUSION

This last small caveat aside, I feel Eastern Electric's new Minimax phono stage is almost beyond criticism. It is superbly engineered and offers beautiful results from LP. I wouldn't use anything less than a stage like this with a good quality moving coil cartridge, because this is the only way you will fully enjoy the excitement of a high quality, vinyl playing front end. A great phono stage at a sensible price.

VERDICT

Beautiful clarity and wonderful dynamics means near-perfection from vinyl. A fantastic audiophile performer.

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MEASURED PERFORMANCE

The MiniMax is accurate in its equalisation from 200Hz up to and past 20kHz, within 0.1dB or so. Below 100Hz gain starts to fall, as is common since so much low frequency gain (40dB) is needed to accurately meet RIAA equalisation. There's more roll off with MC than MM, the former measuring -1dB at 60Hz and -3dB at 22Hz, more roll off than expected for a high end stage and due to the input transformers, but this isn't always a bad thing, as it suppresses warps at least. You can see this in our analysis. The roll off will audibly lighten bass though.

Gain values were fine at x128 for Moving Magnet cartridges, x627 for High output Moving Coils, and x1797 for Low output ones.

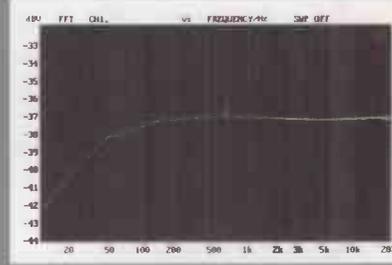
Noise was low, if not as low as solid state with MM, because the cartridge feeds the first valve direct. With modern MM cartridges hiss is unlikely be a problem though. A tapped input transformer feeds the first valve with MC, noise measuring a low 0.06uV for MC Low. In use hiss is all but inaudible.

Overload levels were very high, being set by an output limit of 27V.

The MiniMax phono stage measured well in all respects, but it will have slightly lighter bass than any stage meeting RIAA equalisation requirements down to 20Hz or lower. NK

Frequency response	60Hz-30kHz
Separation	66dB
Noise (e.i.n. MM/MC)	0.6 / 0.06uV
Distortion	0.02%
Gain (MM, MC H/L)	x128, x627, x1797
Overload	26V out

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Higher and

In the great scheme of portable audio, there are surely only two classics – Sony's Walkman and Apple's iPod. Patrick Cleasby tells the story of the latter – a device that, love it or loathe it, has revolutionised the way many people listen to music...

It was five years ago today that Apple taught the world to play - MP3. Not since the advent of the Sony Stowaway in 1979 (swiftly renamed the Walkman a year later) has a mass market music player had such a profound effect worldwide. The iPod, lest we forget, took compressed downloadable digital music to the masses.

In 2002 the first generation (what we would now call 1G) iPod – initially only available in 5GB disk-based capacities (easily trumped by today's solid state iPod Nanos) – made its debut to a somewhat muted reception. In those days, review samples were easily available, and Apple were dying to give journalists discount in order to give their new baby a head start...

My love affair with Macs was to begin about six months later, and other than a glance at a few Sunday supplement 'rip mix burn' adverts the arrival of the small white marvel escaped my attention. I had experimented with ripping to high bitrate MP3 in Real Jukebox the previous year, but I couldn't really see what to do with it, and portability was a MiniDisc experience for me at the time.

The world was different then, and although the rise of Napster had introduced us to the concept of easily distributed compressed music files, the buzz was very much on the illicit nature of peer-to-peer file sharing. The 'rip mix burn' campaign made itself notable by placing the emphasis of the convenience of

the Mac's well-designed music library software for archiving your own music – the now ubiquitous iTunes, but the ease with which this then permitted sharing was not lost on the record industry.

The iPod was almost an afterthought – a competitor to the then prevailing Creative Zen jukebox players. But as ever with Apple, particularly just after the Jonathan Ive-inspired, company-saving design coup of the iMac, the first iPod really was something special in both its physical design, its own software, and its integration with the iTunes software.

It should be remembered that in those days iTunes and the iPod were only concerned with bog-standard MP3, of the freely traded and ripped variety. Proprietary formats and DRM-protected bought tracks were to come much later, but the tidiness of Apple's design meant that the first iPods were upgradeable to AAC (Apple's chosen format from early 2004 onwards) capability.

First and foremost, from a collector's standpoint it should be made clear how sturdy and well-built the 5GB 1G iPod feels in comparison to its younger brethren. There are frequently news items bemoaning that iPods have higher failure rates than other players, but the simple fact is that there are so many of them around that the numbers seem high, but the proportion is still tiny. Abused iPods may soon fail (a visit to Eel Pie studios revealed that Mac-aholic Pete Townshend has many early examples in bits!), but a well-looked after one can last many years, as evinced by other early examples I have seen. It is true that Apple seemed to be pushing a built-in obsolescence factor with the sealed-in battery design, but the cognoscenti know that this issue can be swiftly resolved, and not just by Apple's costly service replacement. Companies like Sonnet provide twenty pound self-fit kits, giving 12 hours or more of claimed battery charge life.

Even today, a good original 1G white machine can still look impeccable, after many years of being pocketed without a case! Its heft is much like the 3G 40GB and 4G 60GB alongside it, whereas a new 5.5G 80GB (or a 5G 60GB)

is at least half as slim. The design is simplicity itself, and the fact the Mac-connectivity and charging (there was no easy PC compatibility in those early days, and much tweaking was involved to fake it – ephPod anybody!?) was via a standard 6-pin Firewire cable rather than the dock connector of the last three years must have been a joy. No struggling to find a cable away from home – any Mac-head would have a standard Firewire cable...

ON AND ON...

2003 is notable as the year I first got an iPod, the 3G 40GB mentioned above, and (not so) coincidentally



the start: 2002 Apple iPod G1.

debuted in this magazine by writing about it. At the time I also highlighted the fact that it was the debut year of iTunes 4 which was to stay around for much longer than any other version level, and brought with it the addition of the sonically superior AAC codec to the software's encoding armoury. The main reason for its introduction was to support the US launch of the iTunes Music Store, with Steve Jobs proudly trumpeting the fact that he had The Eagles for digital download ahead of everybody else,



Seamless integration with iTunes was the secret of the iPod's success...

Higher



COURTESY OF APPLE

and somewhat fatuously claiming they were in higher than CD quality! With 'Hotel California' having recently seen its 24bit debut on DVD-Audio he must have been talking about the AAC encoded from 24bit trick [see SOUND QUALITY].

Due to the exponential sales graph of the iPod, whilst evidently numerous, the pre-clickwheel, red-glowing-buttoned 3G will necessarily be much scarcer than 4G and beyond, but if you happen upon one it is still an enjoyable listen, and may just about play 16bit-originated ALAC with a following wind and the possibility of a few skips – but read on ...

The year 2004 was marked by a number of innovations, among them the brilliant Airport Express/Airtunes wireless functionality, 3G becoming the clickwheel 4G, and the beguiling and 3G-soundlike iPod Mini, available in first 4GB and then 6GB capacities. This resulted in some collectability, at least until the similarly-coloured new iPod Nanos arrived, as girls (in this country – Japan is a different kettle of fish) still wanted the pink model long after it was superseded by the iPod Nano. Many a techy boyfriend has earned brownie points by seeking defunct ones on ebay and making them work again! There was also the first (monochrome screen) version of the limited edition red and black U2 iPod – to be echoed in colour screen form in 2005 and 5G form in 2006...

First and foremost, 2004 heralded the arrival of the iTunes Music store for those of us outside America, and yet another huge Apple success story was beginning. By its end this was also the year of the 60GB iPod Photo and 512MB and 1GB 'chewing gum pack' iPod Shuffles – Apple's first delve into solid-state storage. But it was also the year that production cut over from Taiwan to China, and I recall handling my first Chinese 3G and just feeling that it seemed less well put together than the original production. Return rates were to endorse this belief...

In 2005, all 4G iPods, including the U2 version, became colour screened and photo-capable. Sexy iPod Nano aside, the second half of 2005 marks the real beginning of

the downturn for those of the audiophile persuasion. The 5G (often termed the video iPod – just don't tell Steve Jobs, who said it was the next iPod, which just happened to have video functionality) iPod tried to be all things to all men and just ended up sounding markedly less hi-fi than its antecedents, and doesn't even support Firewire interfacing any more. No longer collectable, just a commodity, it is nonetheless useful for video on the move – many a filmmaker watches his rushes on an iPod in the plane on his way home at the end of the day!

The iPod Hi-Fi arrived early in the year, but while clever it was visually unappealing and not really hi-fi. September's announcement of

24/48 resolution, a small Nano-sized screen with no photo functionality (deliberately, as a statement of intent) but with cover art and – most importantly – bespoke DAC and audio electronics. This latter part is where many insiders think the iPod is lacking (basically it's the op-amp driving the headphone that strangles an otherwise super sound). Our wish list would also include a pair of Sennheiser PX100 headphones

"the iPod took compressed downloadable digital music to the masses..."

downloadable films from the iTunes store in the US, along with fancy games and significantly beautified Nanos and Shuffles seems to have put the nails in the coffin for the audiophile. We may have been appeased by the announcement of lossless files for sale from the iTunes store, but it didn't come. While some of the superficial aspects of iTunes 7 are very appealing – Cover Flow views for your album art for one – I will reserve judgement on the 80GB 5GV2 or 5.5G iPod until I actually get round to hearing one. My expectations aren't high.

What 'Pod-loving audiophiles would all love to see is the iPod equivalent of the Sony Walkman Professional. It would have truly big storage (120GB plus) for playing large amounts of Apple Lossless files at

bundled, and a nice black full size all-aluminium case for the iPod itself, retailing for £399. Apple iPod Professional perchance? Mr Jobs, there are more audiophiles that you think, all around the world, who hope you are reading this...



iPod Hi-Fi boombox – the name is presumptuous!

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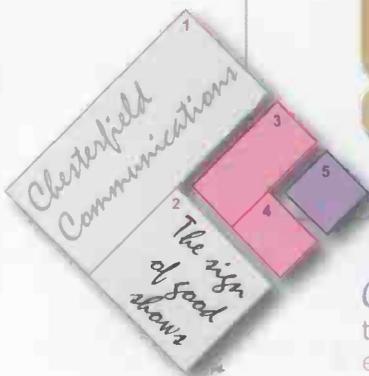


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In the seventies, cassette got people into music...

THE SECRET

A large number of hi-fi enthusiasts regard the iPod as the anti-Christ, a sign of everything that's wrong in music, hi-fi and life. It's said to be a cheap, nasty thing that sounds awful and is dragging down standards across the board, across the world. Well, yes and no. It's true that it's no Linn Sondek CD12 in the sound stakes (nor does it match the best Sony MiniDisc portables of ten years ago), but the good that it is doing is that it is getting people into music. Its genius is its convenience – it works seamlessly with Apple's iTunes (available for both PC or Mac) to give you masses of music instantly available with the twiddle of your thumb, anytime, anyplace, anywhere. This convenience is utterly unseen before – CD players have nothing on this. It's a tiny, light thing, beautifully designed, well built (with a few reservations) and capable of a decent (but no better as yet) sound. It is a lovely artefact, a true object of desire. Anything that gets people – especially young people – into music – should be applauded, nurtured, worked with and encouraged. In the old days, a seven inch single on a BSR 'record player', or a cassette in a Pioneer cassette would have got someone hooked by music (and, in some cases, have lead to a superfi system twenty years later), and now it is a download or a CD in a ROM drive, ripped into iTunes and squirted to an iPod. Whether or not the hi-fi industry wants that to lead to a superfi system in twenty years time is up to them – they choose to ignore the iPod at their peril... DP

...thirty years later, it's the iPod: ignore at your peril!



COURTESY OF APPLE

SOUND QUALITY

To assess the frequently made claims that the older iPods simply sound better, I had to call upon a favour from an industry friend. As he had made the 1G superiority argument to me a few months ago, I called him on it and took round 3G, 4G and 5G competition to test the assertion. Both he and I were predominantly interested in the highest quality audio test possible, so we concocted a cunning plan. Firstly we confirmed that as suspected, the current iTunes 7.0 would not allow any Apple Lossless files on to the venerable iPod. This is because, just as it knows the model and colour of the attached iPod – displaying the appropriate icon – iTunes knows that the slower disk and more aged circuitry of the 1G cannot handle the chunky stream and knotty decode task inherent in playing back ALAC (Apple Lossless Audio Codec). However a quick test revealed that it would permit and play a 16/48 AIFF (Apple PCM) file. It would even allow a 24/48 file on, but skipped the track on attempted playback.

So, if we wanted high quality audio, we needed a different plan. Now, in my history of ripping 24bit PCM from various DVD formats, for space-conservation reasons I have always been aiming to play it back as a lossless file in iTunes and on the current iPods. That bar remains set at 24/96 ALAC for iTunes and 24/48 ALAC for the 5G iPod.

For me to demonstrate the 24bit extraction process (the secret is Miraizon's Cinematize – see www.miraizon.com) my friend had selected a five-year old curio – an RCA Red Seal 24/96 DVD-V of a mid-seventies Carmina Burana recording. Once we had the 24/96 AIFF of 'Fortune Plango Vulnera' in iTunes we needed to get it onto the antique iPod in the best quality possible, and he suggested the next step - one which I had previously eschewed – taking the 4mbps plus PCM file straight down to AAC, using the maximum allowable VBR setting, 256kbps.

The results were astounding. It would be untrue to say that they matched playback of the original disc on the Meridian reference player, but attached to my friend's high end system via a Chord Company iChord interconnect, a hugely musical rendition was attained. There was a real sense of an airy analogue recording being faithfully reproduced by a superior-to-CD bit depth and sampling rate.

For benchmarking we next played the same file on an original 60GB 5G, and the difference was very marked indeed – the soundstage was flat and lifeless and much of the instrumentation seemed like a cardboard facsimile of what we had heard previously. This is the result I had expected, but I also expected the intervening 3G 40GB and 4G 60GB iPod Photo to compete more ably.

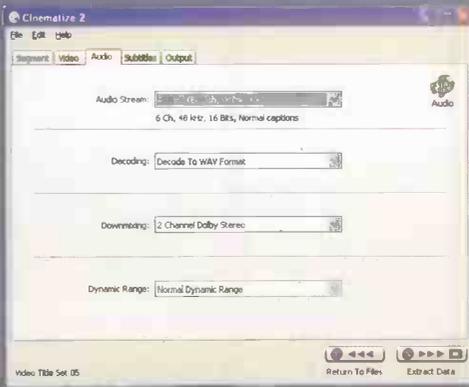
For assessing their capabilities, my friend and I returned to habitual listening mode – Sennheiser PX100s to the ready! The most amusing part was his reaction on listening to the 24/96-derived AAC file on his own player – an instantaneous, shocked-looking declaration of 'it sounds almost analogue!' - and indeed it did. And while the next-in-line 3G almost matched it, my friend said it lacked the air of the original, and made the piano seem cheesily 'honkytonk', rather than real. Once we moved up to the internally more complicated, colour-screened iPod Photo, he was complaining of a flat top end, and I had to agree.

So it would appear that if you are genuinely interested in getting the best listening experience in your pocket, the only real answer is to seek out and if necessary restore one of these originals – it may be more bulky than a modern Nano for less capacity (unless you can land a 2002-era 10GB or 20GB), but delightful auditory results can be yours – you just need to get out there and find one, I certainly plan to! PC



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Look Sharp



Naim's ARO is one of the most wilfully eccentric classic tonearms of all time. Traditionally found on Linn Sondek running Linn cartridges, David Price decided it was time to reappraise it outside an LP12 - it made for very interesting listening indeed

You can't say Naim Audio is just any old British hi-fi company. Love them or loathe them (and until recently that was the reaction their products invariably engendered), they have always made offbeat, interesting and eccentric products – of which the ARO unipivot tonearm is the supreme example. Reputedly made 'hand in glove' for the Linn Sondek LP12 turntable and Troika cartridge, the ARO is surely the ultimate in quirky, oddball, performance-focused tonearms yet made.

Think back to 1988, and the birth of the ARO. This was, arguably, the high watermark of the first incarnation of the company. Led by the charismatic, forceful Julian Vereker, Naim was producing products to his philosophy, which was totally uncompromising. The result was that most of the hi-fi world felt (and indeed was) totally excluded, but a select small slice were mad about the man, the brand and its products – and just couldn't get enough.

At this point, Naim was pulling back on its 'special relationship' with Linn Products; Linn was now making electronics (remember the LK1/LK2? Some would rather not!), and Naim was making speakers. Where the companies still concurred was that the LP12 was the most musical turntable on sale (and in truth, it

probably was). Linn were happy to sell you their Ittok tonearm for it, and were just about to launch the Ekos – but Naim wasn't convinced it was the universal panacea that many journalists claimed...

The ARO (reputedly an acronym of 'Analogue Rules Okay') arrived to a stunned silence. At the time, unipivot tonearms were a conceptual *volte face* on the wisdom of the time – things could only have got stranger if they'd launched a valve amp with it! Then, lest we forget, the world and his wife were advocating rigidity, and the notion of the turntable (thanks to Linn's Ivor Tiefenbrun) as a 'closed loop' where energy was not allowed to escape. Unipivot bearings weren't exactly an arch exponent of this...

Of course, the ARO wasn't the brainchild of Julian Vereker, but of Guy Lamotte, one of Naim's engineers at the time working on the legendary FL1 electrostatic loudspeaker – but he sadly left the company before it came to the production stage. Although the idea of a unipivot tonearm was certainly not new, the ARO brought some neat thinking to the table. The arm tube is arrow-straight aluminium alloy, the counterweight set low to lower the arm's centre of gravity to below the pivot point, and the bearing is inverted compared to normal unipivots, so the housing carries a sharp tip inside which sits on top of

the turntable mounted cup, which serves as a mechanical ground.

The headshell was a whole new bundle of fun. The ARO comes with three holes for Linn's three-point mounting cartridges (Troika, Archiv, etc.), so there are no slots for aligning cartridges, and no sled-type arrangement *a la* SME. Naim says that the extra structural rigidity given by fewer cut-outs to the headshell has a more positive influence on the sound than the deleterious effects of incorrect overhang adjustment. I am not totally convinced about this, but at least you can't say the company is compromising to please the punter!

In truth, the possibilities for misalignment aren't that pronounced – Linn cartridge mountings are about 7mm from the stylus, whereas others rarely exceed 9mm. Even with slots, it's perfectly possible to get your cartridge two mils out (and many people do), and then it also may be not parallel to the headshell either, creating extra scope for sonic problems. If you're super paranoid, you could always drill a pair of additional holes back from the normal ones, or you could simply contact the cartridge manufacturer for precise info on this particular point.

Despite its super fiddly looks, the ARO is easier to set up than you'd think, as the whole arm assembly can be lifted from the arm base

when you've disconnected the tiny signal lead plug. This makes cartridge mounting a breeze. Once you've bolted your cartridge into the holes provided(!), drop the arm onto the base, do up the cable plug, set downforce using the Ortofon stylus balance provided and set the azimuth in the headshell so it sits at 45 degrees.

For the purposes of this review, I specifically did not use a Linn Sondek LP12. I have heard LP12/AROs a million times, and very nice they sound too, but I was intrigued to see how the arm would perform 'on foreign ground'. To wit, a Michell GyroDec was used (Michell kindly made up a bespoke arm mounting plate – now commercially available – and

In the bass, the ARO is still softish on the Michell, but it's certainly tauter and deeper than on the LP12. It still has that lovely fluid quality it always did, and it's decently strong, if not as ballsy as a Linn Ekos or SMEV on the same turntable. It integrates really well with the midband, allowing my Ortofon Rondo Bronze to really get its 'mojo' working. Vocals were particularly nice – the Michell's midband is a joy and the ARO really ran with the ball, pushing out a wonderfully expansive soundstage into the room.

By comparison to my £600 Origin Live Silver tonearm I'd previously been using, the ARO was a league ahead in this respect. Most impressive was the effortlessness of it all. I'd confirmed that – by accident – the Rondo Bronze had aligned pretty accurately, simply

classic direct drive, and the ARO was even more impactful, with an obviously tighter bass (well, it is a direct drive!) and a more forward, pronounced midband. Treble was sharper, crisper and more incisive too, although there was a coldness across the mid; recordings became tonally thin, regardless of their original character. This, incidentally, is the ARO telling you what's wrong with the deck (and not the other way round). Indeed, it was interesting that the ARO signposted the subjective differences between the Kenwood and Michell remorselessly. Despite being such a musical, romantic, performer – it is not coloured or cloudy. Most impressive was the dynamic clout it had – it made a hitherto rather analytical,

a special armrest to stop the arm swaying around like a leaf in the breeze when supposed to be parked). I also tried the ARO on a Kenwood KD550 turntable – a massive late seventies direct drive with the company's famous ARCB marble-look resin base. I was actually amazed by how consistent the ARO sounded, regardless of which of the two environments it was working in, and fascinated that much of the conventional thinking about its sound comes from its association with the LP12, which for all its charms, is a very coloured device.

SOUND QUALITY

No, Sondek users, the sky didn't fall in when the Naim ARO was moved from its familiar moorings on an LP12 armboard and affixed to the weight-balanced, machined aluminium billet that is a Michell arm plate! In fact, things looked rather brighter, in more ways than one. Let's be clear – on the Linn, the ARO is smooth, sweet, beguiling, musically lucid and rather fluffy. It is limited at the frequency extremes, sounding a bit rolled off up top, and soft down below. On the Michell GyroDec, things were not quite the same...

One of my oft-voiced criticisms about the Gyro is that it can sound slightly rhythmically mechanical (even though it is very explicit and detailed). Well, the ARO really recessed this characteristic. In fact, the combination worked superbly, and certainly no less successfully than the LP12 (which is a famously productive partnership) in my opinion.

by the smoothness of the midband, the ultra low levels of inner groove distortion and the sense of connectedness between Neil Young's voice on my dog-eared first pressing of 'Harvest' and my loudspeakers. That languid, fragile voice was brilliantly conveyed; almost every pivoted arm I've ever heard seems 'digitally processed' by comparison. The grain of his voice was tangible, yet this wasn't 'grain' in the sense of distortion, but of timbre. Every phrase and minute inflection of intonation was conveyed with consummate ease.

Moving up to the treble proved a surprise. All previous contact with the ARO on an LP12 had made me ascribe to it a veiled quality, and it's true to say it's not remorselessly sharp or revealing on the Michell, but it was certainly more incisive and impactful all the same – whilst retaining a lovely silken patina which just 'takes down' the Ortofon's innate, ermm, Ortofon-ness... Hi-hats were delicious; once again the ARO cut right into the essence of the sound of the cymbal, capturing every last vibration or so it seemed. There was a real, tactile 'sheen' to the rock drum kit on David Bowie's 'Let's Dance'; it sounded gorgeous, and yet the ARO never lapsed into 'analysis paralysis', it never fell apart trying to keep all that detail together. Rather, it strung every element of the mix together brilliantly - indeed, this is its defining characteristic.

Moving to my Kenwood KD550

THE MOUNTING QUESTION

"Some time ago we carried out some listening tests of correct mounting position versus a slotted headshell. In our view a very small increase in distortion due to the cartridge being a mm or so out of correct position sounded better than having a slot in the headshell" - a Naim Audio spokesman.

constrained sounding turntable really come out of itself, and dare I say it – sing.

CONCLUSION

Despite its venerable age, the Naim ARO is still completely competitive in today's marketplace. Moreover, it does things at the price that no other arm I know does. Don't buy it expecting it to be a universal panacea, because it certainly isn't, but what it does do, it does passionately – and that's good enough for me. And the good news is that, finally, we find it isn't a one-trick pony; it will work brilliantly away from its natural stable mate. A lovely, quirky, leftfield device, if ever there was a tonearm that is 'still crazy after all these years', the ARO is it.

VITAL STATISTICS:

- overall length: 290mm
- effective length: 230mm
- pivot centre to platter centre: 212.5mm
- overhang: 18mm
- effective mass: 11g
- cartridge weight: 5.5-12g (with standard counterweight)
- cartridge mounting height: 40-56mm

VERDICT

Wonderfully musical, and ultra capable away from its traditional turntable partner too, Naim's ARO is a classic in its own lifetime.

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 Naim Audio
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 www.naim-audio.com



The Crusaders

Rarely has a loudspeaker been so aptly named, says Adam Smith of Ruark's Crusader III floorstander...

It was Heybrook's enjoyable Sextet loudspeaker that revealed to me the delights of a ribbon tweeter. Up to that point I had read how wonderful they were technically and had even heard a few, but not in any arrangement of drive units and box that added up to much enjoyment. I was to find out why later, when experimenting with them in a prototype loudspeaker. The usual small ribbon is very difficult to integrate with other drive units. In spite of its glass-like clarity, and conspicuous rendition of fine detail, such wonders are a little academic if the final loudspeaker doesn't hang together as one sonic item. This where the Sextet fell down, sounding a little warm and murky across the upper midrange. It's not a weakness that afflicts Ruark's new Crusader III loudspeaker though. This new floorstander uses a ribbon tweeter, just like the Sextet, but I couldn't accuse it of sounding soft!

Take one look at the Crusader III and you can see clearly where it differs from the majority of today's floorstanders. Right in the centre lies a large dome midrange unit. The Sextet sounded the way it did because it used a plastic cone midrange that had a narrowing dispersion pattern at high frequencies and, predictably, quacked at break up. Ruark's solution to the difficulty of getting a drive unit to reach up high enough to cross over with a ribbon, and at the same time match its broad lateral dispersion, is to use a dome. Sharp-eyed readers will recall seeing this solution used by Dali in their Ikon range, one of which was tested in our Feb 06 issue. It's got plenty in its favour. Domes have a broad dispersion pattern and are known for giving well projected stereo, with largely wrought images set firmly in front of the loudspeakers. Covering the entire mid-band effectively they are also known for delivering clear vocals, an obvious benefit that should be apparent in the showroom as well as at home.

The drawback - and there always is





one - is that they are known for sounding coarse, especially at high volume. That's why domes come in various sizes and materials; it's to minimise this weakness. All this helps to understand what Ruark were likely driving for in designing a loudspeaker like this and what you are going to get from it, to a greater or lesser extent according to the effectiveness of their 'system engineering'. Simple inspection alone tells us that although the Crusader III comes as a conventional one-metre (high) floorstander, it isn't likely to sound like one. Quite obviously Ruark have set out to get away from today's formulaic floorstanders. As always with loudspeakers, the art is to minimise weaknesses and exploit strengths, to come up with product that not only looks good technically, but

immediately became apparent that this is a loudspeaker into which a great deal of careful design work has been invested. The first thing that jumped out at me was the clear, crisp and detailed treble that is one of the joys of a well designed ribbon tweeter. Starting off with some Tori Amos, her unique vocal style was expertly presented on "Pretty good year" and her piano had a superb realism and depth to it. This was undoubtedly greatly assisted by the midrange dome driver which gave an excellent sense of space and realism to the midband. I have long been of the opinion that a dome midrange driver is an eminently sensible proposition for a three way loudspeaker, but their implementation and integration with the other drive units can prove something of a challenge

"Ruark have obviously set out to get away from today's formulaic floorstanders!"

sounds good too. I found Ruark have managed this process well, but like others around them - Monitor Audio for example - have assembled a loudspeaker preened for what they perceive as today's expectations.

The Crusader III stands 970mm high, when you take into account plinth and spikes. Measuring 250mm wide across the plinth and 320mm deep including rear socket protrusion the cabinet looks the same in proportion to most rivals. The bass unit is loaded by a ported reflex cabinet, the port being placed on the front baffle. Our review samples came in natural oak and looked a little dull visually; cherry and walnut are alternative finishes that may have greater appeal. The plinth screwed on with self-tapping screws direct into wood, not the slickest of arrangements. Spikes screw into threaded inserts in the plinths. The rear panel carries three pairs of sockets that accept 4mm plugs, spades or bare wire connection. Links can be removed to allow bi-wiring or tri-wiring.

SOUND QUALITY

Heaving the weighty Ruarks into position and firing them up, it

- Ruark are to be applauded for generally making a success of this.

Moving to more challenging material in the form of 'Down and Out' from Boozoo Bajou's 'Satta' album, the Ruarks gave an excellent sense of scale to the multi layered presentation. This (rather eclectic!) track uses a loud ticking clock to provide a metronomic back beat to the other layers of instruments and I have found in the past that less capable loudspeakers can make the whole song rather confused when it gets into its stride. Happily, the Crusaders looked right into the mix and pulled out every detail without any sense of muddle.

Moving to some large scale classical works courtesy of Wagner, this sense of composure remained and the Crusaders brought the full scale of the whole orchestra right to the front of the soundstage, no doubt helped by the rise in output from the midrange dome at 1-2kHz, but it was at this point I started to detect a certain discord in the upper registers - both midrange dome and ribbon tweeter seemed to be doing their respective jobs well, but there was a slight

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sense that they were not meeting together in the middle totally seamlessly.

The frequency response graph of the Crusaders (See MEASURED PERFORMANCE) shows a dip in the response of about 4dB, compared to the levels either side, just above 3kHz and, given that Ruark quote an upper crossover frequency of 4kHz I found myself wondering if this could be the cause. Ribbon tweeters do not generally work down to the lower frequencies that a conventional dome type will reach, and large midrange domes can tend to exhibit quite obvious break-up modes at higher frequencies, that preclude their use up into the treble spectrum - these two factors together mean that successfully mating the two is not always an easy task - Ruark have been brave and I would say have achieved 95% of their goal, the remaining 5% only coming to light on some more challenging material.



SECOND THOUGHTS:

The Crusader III offers a lot that's different from the norm today. You get highly detailed treble and razor-sharp transients from that ribbon tweeter, a strong midrange that really gets music out and into the room, plus quite tight, tuneful bass that suggests the loudspeaker has been balanced for near wall standing. The Crusader is fast and concise.

I felt the ribbon tweeter needs better integration and the port needs to be put on the rear panel to eliminate some wooden colouration from inside the cabinet, most noticeable with transients. All the same, the Crusader III is a bold performer that sounds dynamic and fast. It will appeal to those who want a vivacious presentation. NK

Changing the mood again and moving to something a little heavier, the Ruarks revealed that they have no problems when it comes to party duties! Bass is perhaps not quite as deep as might be hoped for such a considerable enclosure, but the Crusaders are certainly not lightweight in this respect and Ruark are to be praised for not being tempted to make upper bass overblown as a result. As they stand, the Crusaders have excellent punch, detail and speed at the bottom end and, personally, I would happily take this over a few extra strained hertz that some other speakers seem determined to force out, regardless of the associated downsides! Overall bass performance blends well into the hand over to the midrange dome and combines well with the midrange and treble strengths noted above.

My final CD into the player was a copy of Simply Red's 'Picture Book'. The track 'Sad Old Red' has nicely played bass guitar at its heart and the Ruarks were well able to reveal the finer nuances of this, including the hand slides up the fret board that so many speakers mask - another testament to its low end detail retrieval. However, it did also reveal another chink in the Crusaders' armoury in that, as mentioned above, treble detail from the ribbon tweeter is generally excellent, but I found that just occasionally, a subtle background effect such as a cymbal was lost in the overall presentation

rather than being as noticeable as it should. This did not affect every situation and I would personally point an accusing finger at the dip in the frequency response at around 14kHz - I have a feeling that if the effect in question happens to fall into this area, it seems to be rather lost.

CONCLUSION

The Ruark Crusader III marks an interesting, and largely successful, combination of loudspeaker technologies. It is still not common to find ribbon tweeters and midrange domes in the domestic market, let alone both on the same speaker! Ruark have clearly worked hard on making the best of these technologies and, other than the relatively minor aspects highlighted above with regards to some unevenness in the frequency response, I feel they have done a good job. The Crusader is a well balanced, competent and well built loudspeaker that proved to be quite content on the end of quite a few different amplifiers.

RECOMMENDATION
Highly engaging, visceral loudspeakers that love making music.

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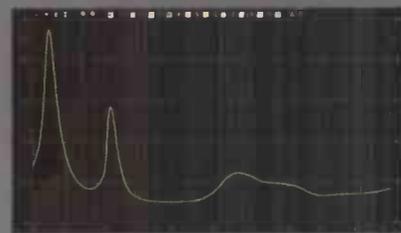
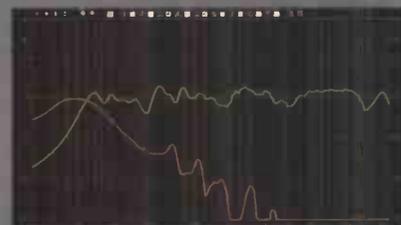
MEASURED PERFORMANCE

Ribbon tweeters don't just sound good, they usually measure well too. The ribbon used by Ruark in the Crusader III does just this, as our response analysis shows. It is unusually flat in output across the higher frequency regions, meaning it is free from local resonances and colouration. Like most small ribbons its lowest operating frequency is higher than a dome, in this loudspeaker starting at 4kHz and extending to 14kHz, where it starts to roll down slowly - at least, when measured just below axis. Below this frequency the large dome kicks in, its output extending down to 500Hz, meaning it works right across the midband. Big fabric domes are usually more camel-like than ribbon tweeters, this one being no exception. That's why they often have 'character', the upside being they project and image well.

Output from the bass unit is none too flat across the midband, but it smooths at lower frequencies and gets down to 42Hz (-6dB) without peaking, a good performance overall. The Crusader III should go deep but it will not have prominent bass by any means; this is a well damped cabinet.

The port extends output down a little, being tuned to 34Hz. Both the measured impedance and DCR work out at 7 ohms, a high value. Sensitivity is a little low at 88dB as a result. The load is non-reactive above 100Hz, a good sign.

The Crusader III measures well although there is a dip between mid dome and ribbon tweeter. It will have a balance that veers toward bright, with dry bass. NK



Ring Tone

Behringer's Reference Amplifier A500 is a pro audio amplifier that works surprisingly well as hi-fi, says David Allcock, at a giveaway price too...



Although professional studio equipment has a chequered history in the realm of domestic audio, every now and again a piece will make the crossover successfully - such as amplification from Bryston (which began life in the recording studio), PMC monitors (from a similar background) and Revox (which was slightly cut down Studer equipment). Equally, much pro gear has a justifiable reputation for being hard, edgy, forward, aggressive, and designed to go loud, rather than reproduce sound with refinement. But when I heard about a new professional power amplifier from budget studio equipment manufacturer Behringer, best known for their formidable range of digital crossovers, equalisers and recording mixers, capable of 160W yet costing under £200, I was more than a little interested...

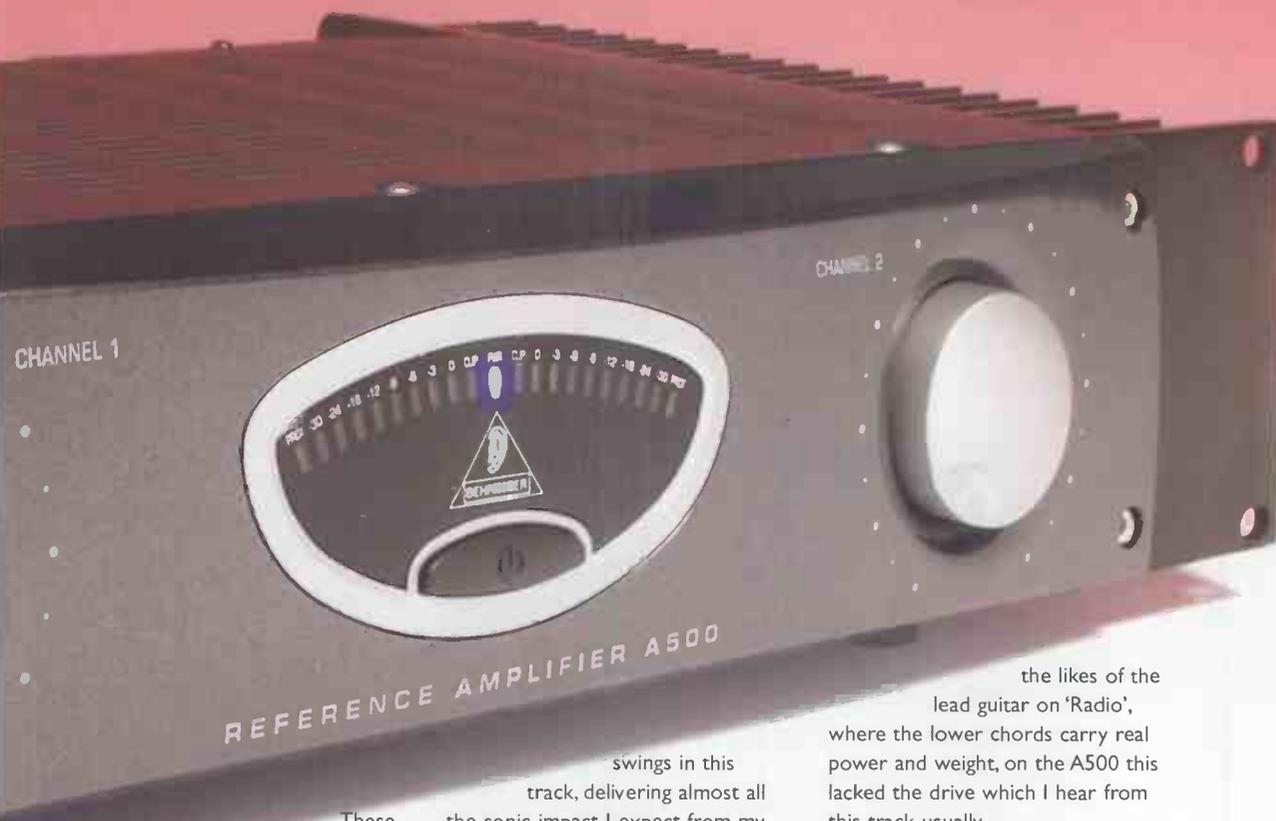
My first impression was that it was very compact for its power handling, and it was of quite

modest weight, at only 8.8kg. In terms of size it is compact at only 483x258x102mm, with the front panel featuring a pair of gain controls (unusual for a power amp), a protection LED, for when the protection circuit engages, a clip LED for when the amplifier is driven into clipping, and finally a power meter calibrated in dB from -30 to 0 in 8 steps.

Unlike equipment aimed at the high end domestic arena, this is not a product with 10mm of stainless steel on the front panel; the front panel controls are injection moulded plastic with a grey plastic front panel trim, however this is by no means an ugly amplifier and I would be more than happy to have this in my equipment rack. Around the back things are a little more complicated, at each side of the back panel is a vertical array of three inputs, a locking XLR at the bottom, TRS (Tip Ring Sleeve) 6.3mm balanced input and a single ended RCA input. In the centre are three further 6.3mm TRS connectors, this

time organised as stereo speaker outputs and a mono speaker output - it is unlikely these will be used in a domestic setting. Then there's a vertical stack of four binding posts, full five way designs, and just offset from centre is a standard 13A IEC inlet. Substantial heatsinks run down each side of the amplifier, with some rather sharp edges, so it would be best to keep these off the floor and away from children.

The connectivity options make it relatively easy to integrate into any system, with just a single caveat - the speaker terminals. Whilst they are adequate, I was fearful of cranking them down with too much pressure for fear of damaging them, and the actual posts do not have a regular 4mm hole through them, so for a true biwire cable set, like I use with the Townshend audio cables, I was forced to remove the 4mm banana plugs and run the bare wires through the post and plug the 4mm plugs for the second run into the appropriate socket in the top of the binding post.



These posts are also very close together, so for a speaker cable set with terminating blocks it will make for a very cluttered installation, and for some of the Herculean high end banana plugs, they may well be unusable.

SOUND QUALITY

I started by connecting the A500 to Leema Acoustics Xavier loudspeaker, a £2,000 floorstander from another company with its roots in pro audio. From the first bar it was clear that - if you pardon the pun - the A500 is very transparent. Whilst it is certainly not going to scare the likes of the Bryston SST series or the NuForce Reference 9 SE recently reviewed by David Price, this is far superior to what I was expecting at the lowly price point. It was clear that this amplifier had considerable power, the ratings quoted by Behringer seemed to be borne out by its performance, so I then tried my reference Martin Logan Vantage speakers, a much more challenging load but with an active bass driver.

The first track up on the Vantage's was 'Meateater' from Mark Shreeve's 'Nocturne', an album full of incredibly dense electronic music mixes. The A500 proved remarkably deft at tracking the massive dynamic

swings in this track, delivering almost all the sonic impact I expect from my Bryston and NuForce Reference amplifiers, it just failed to give that ultimate drive in the lower registers which you can feel through my far more expensive reference amplifiers. The bass response of this amplifier does lag a little behind the Brystons (acknowledged to be outstanding in the area of absolute extension and control), where the very lowest registers don't carry the weight I have heard from this track. Likewise the notes do not have the space around them with distinctive start and stop points for each note, but it was an exceptional result at the price. This was apparent on both the Xavier's and Vantage, so this is clearly a character of the bass reproduction with this amplifier.

The midrange was not bad when you take into consideration the very modest cost, but you could hear the limitations of the A500 when compared with the more expensive Bryston. Male vocals midrange richness, giving them a slightly lighter, less substantive quality, with Phil Collins voice on 'I Can't Dance' lacking a resonant quality from the chest cavity which I usually hear from my reference amplifiers, and whilst this was also apparent to a degree with some female vocals, it was less obvious. You could also hear this with

the likes of the lead guitar on 'Radio', where the lower chords carry real power and weight, on the A500 this lacked the drive which I hear from this track usually.

The biggest difference was in the area of transparency, where there is an opaque quality to the upper midrange, and this is accompanied by forwardness. The top notes of Andrea Corr's voice take on a prominence accompanied by a slight hardening, and whilst this is not serious, I would certainly stay away from cables with emphasis in this region, as that combination could become uncomfortable very quickly. How problematic this will be for you will be largely dependant on how transparent your system is in this range, with the Martin Logan Vantage and Leema Acoustics Xavier,

"I can think of nothing that does so much for so little..."

due to their exemplary transparency throughout this region, this was clearly discernible, but with the cheaper Onyx Rocket RS550 Mk II it was less noticeable.

The top end of the spectrum was far better behaved than expected. With professional equipment having a reputation for being somewhat raw in the high frequencies, I'm happy to say that Behringer have not over

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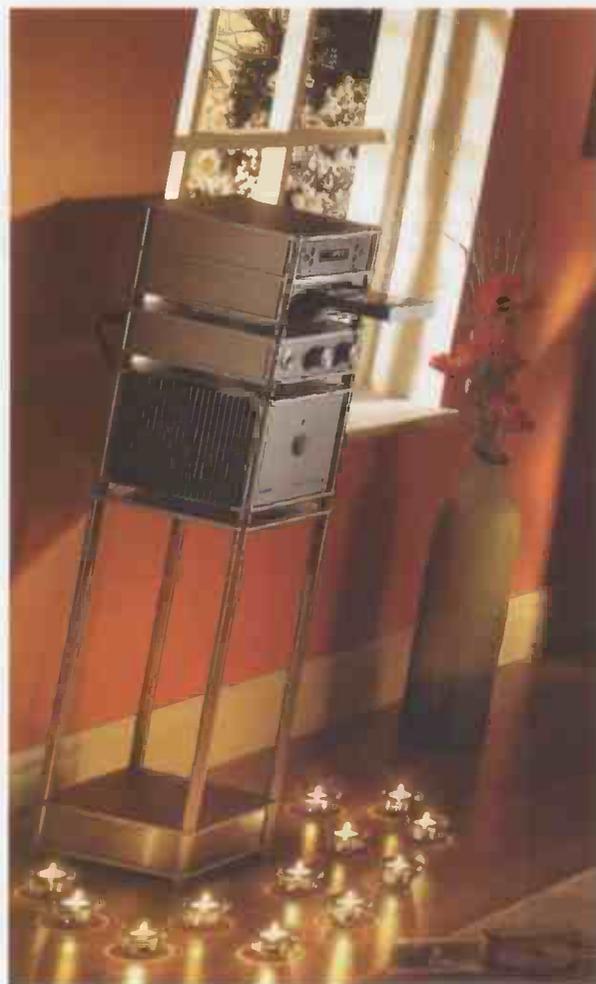
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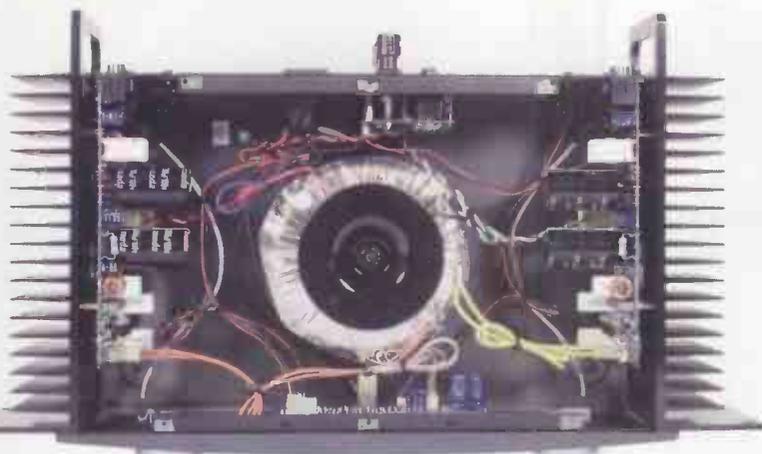
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emphasised this region in the hope of alluding to extra detail, instead this is very well integrated into the overall sonic picture, with cymbals having a metallic shimmer to them, and whilst this is again not as well controlled or as tidy as what my more expensive reference amplifiers achieve, this is still outstanding at this price point. Tambourine and cymbals in the introduction to 'Dreaming While You Sleep' were easy to separate, and whilst the individual beats on each instrument were synchronised, the tone of the tambourine and the envelope of each note being clearly discernible as a separate entity in the overall mix from the cymbals - a difference not always clear on this track when listening to lower cost amplifier designs, especially integrated.

In an effort to provoke this amplifier, I deployed Sophie Ellis-Bextor's 'Shoot From The Hip', an album which has been mixed with a rather lively high frequency range, and which can easily turn aggressive on solid-state with even a slight lift in the high frequencies. Whilst it was in no way reticent about telling the listener that this mix was lifted in the high frequencies, it kept them under control and did not turn too unruly.

Imaging is stunning when price is considered - regardless of the speaker used this amplifier presented the music on a well defined, large soundstage which fully enveloped the room from wall to wall and gave image depth which extended beyond the physical rear wall of the listening room, giving instruments a perceived location a metre beyond the actual room boundary. Lead vocals on 'In Blue' and 'Shoot From The Hip' were securely planted around half a metre in front of the plane of the speakers, with instruments arrayed around the vocalist, and whilst this amplifier is not as good at describing the space around each musician like the very best amplifiers, and

its depth perception lacks the fine grain placement of the very best, you can still appreciate the layering in the recording and the lateral relationships between the musicians.

CONCLUSION

I'd heard rumours that this amplifier was a giant killer, but it is not. Although amazingly cheap, it isn't the hi-fi equivalent of a free lunch. You do get masses of power, but with it comes forwardness in the upper midrange and thinness in the lower midrange, which is confirmed by our measurements [see MEASURED PERFORMANCE]. This means it should only be slotted in to a dull, or smooth, sounding system, or one with a very refined front end.

This said, there's no denying that it's a heck of a lot for the money - remarkable, in fact. Its versatile connectivity options will allow it to be used in virtually any system, it proved to be super as cheap front amplification in my home theatre system, and three of these (at £390) would represent a phenomenal upgrade for any AV receiver with pre outs, whilst as a means of upgrading a budget integrated amplifier with pre outs, I can think of nothing that does so much for so little.

A brief period spent with this amplifier as a monobloc (I only had a single amplifier precluding much experi-

ANOTHER VIEW

Put the searing treble of Steve Earle's steel stringed guitar on Copperhead Road through this amp and you get to hear real life distortion up close and dirty. It wasn't nice but it is cheap. Peter Comeau to Hi-Fi World on a recent visit: "I've got one and it isn't hi-fi, but good with piano. It is a P.A. amp." AS & NK

mentation in this mode) suggests that this brings about a very worthwhile increase in power with only a slight sacrifice in low frequency control, making a pair of these either deployed as monoblocs or in a bi-amp configuration would deliver incredible power for a very modest price. Power, then, is the key to this product - nothing offers so much of it for £139. If this is all you crave, it's well worth a try.

MUSIC

Mark Shreeve, 'Nocturne'
The Corrs, 'In Blue'
Genesis, 'We Can't Dance'
Sophie Ellis Bextor, 'Shoot From the Hip'

MEASURED PERFORMANCE

The A500 is powerful, producing 128W into 8ohms and 203W into 4ohms - high output from a compact, liftable package weighing 8.4kgs (18.4lbs). Unfortunately, it is rated at 160/230W and it cannot manage this using conventional steady or pulsed sine wave tests, with 237V mains input. It is over rated by its manufacturers, which is a little surprising.

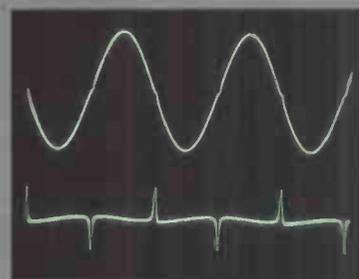
Unlike hi-fi amplifiers the A500, which is Class A/B, suffers significant crossover distortion even in the midband, with an extended harmonic structure. In true Class B fashion distortion is highest at low levels, falling as power increases. But whilst it measured 0.14% at 1W, 1kHz this figure rose to an unacceptable - for hi-fi - value of 1% at 1W, 10kHz, with an extended harmonic structure. This is classic crossover in large quantities and it will be clearly audible as a roughening of treble. You can see it in our time domain distortion analysis as spikes at the crossover transition. Around 0.3% is just acceptable here - and even this is audible, as in the Vincent SV-236, as fizzy treble. The A500 is a P.A. amp., it is not a hi-fi amp. Behringer claim less than 0.01% distortion, but this low value was only achievable at 1kHz, full output. Otherwise, distortion is considerably higher.

Bandwidth was a normal 4Hz-30kHz (-1dB), sensitivity good at 400mV, but buffered inputs overload at 9V. Surprisingly, there was no measurable d.c. output offset.

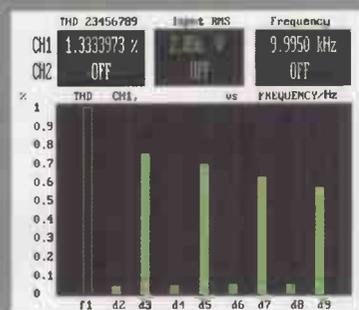
The A500 is purposed for a role

other than high fidelity. It does not meet hi-fi criteria. It also does not meet its manufacturers specs. NK

Power	128watts
CD/tuner/aux.	
Frequency response	4Hz-30kHz
Separation	82dB
Noise	-109dB
Distortion	1%
Sensitivity	400mV
d.c. offset	0/0mV



Crossover distortion, lower trace, in time domain analysis. Below is a frequency domain spectrum showing 1.3%.



VERDICT

Versatile and very powerful amplifier for next to no money, but needs careful matching to assuage distortion.

BEHRINGER A500 £139

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www.behringer.com

FOR

- value
- power

AGAINST

- forwardness, distortion

Now & Xen

Leema Acoustics' Xen is a true twenty first century mini-monitor, thinks Channa Vithana...

Leema Acoustics was formed in 1998 by Lee Taylor and Mallory Nichols, who are both past BBC engineers. Mallory Nichols was involved in the manufacturing of MAGTRAX monitors for recording studios and mastering companies from the early nineties and Lee Taylor, the recipient of BAFTA and Palme d'Or awards, is experienced in recording and mixing for television, music and film.

The company's range of loudspeakers and electronics share common characteristics of superb design and build. The Xen mini monitor we have for review here was their first product. The original research focused on new design principles and mathematical models, and as software tools available at the time were simply not good enough, Leema had to write their own, the company says. This was because they found the existing optimising software only suitable for larger loudspeakers with greater internal volumes, and therefore not as accurate for the smaller dimensions of the Xen. The R&D timeframe for Xens was two years, including the writing of their bespoke software.

The Xens measure 220 x 140 x 205mm and their front baffle is about the area of a hard-back novel. The cabinet is impressive in construction and build - it's very stiff and nicely damped, just free of ringing resonations. It is made from 1.6mm steel folded and gently rounded at the angles. The steel part of the cabinet is stiffened by a rod running through its centre which is

Internally there is a double 2mm layer of bitumastic lining with a combined thickness of 4mm which united with the

steel panel makes for a thin walled cabinet of only 5.6mm. This combination of materials and connection ensures the Xens have a stiff yet lightweight cabinet that in conjunction with their crossovers and drive units explains why they did not inhibit the speed and attack of music during the sound quality assessment, but at the same time were damped enough to avoid nasty ringing distortions. And as such this design philosophy reminded me of a more musical version of the £950 (approx.) 305x165x190mm Spendor S3/5se mini-monitors (see *HFW* October 2004, p52) because they also used thinner than usual 9mm walls with 6mm bitumen-type damping panels.

The Xens feature a 1-inch (255mm) Vifa Tymphony fabric dome tweeter that uses high-flux



says

Leema is for faster signal transfer. At the front baffle are two ports, semi-restrictively filled for better control of air flow. On the rear panel are a set of biwireable binding posts. With minor detail, I would have preferred to see black hex-head fixings on the drive unit surrounds matching those already used instead of the uglier standard-looking cross head screws - this shouldn't be a major manufacturing problem seeing as Leema already use plenty of hex-head fixings elsewhere.

SOUND QUALITY

In a word, superb, but these speakers really do take some driving! 'Maria T' by the Balanescu Quartet had spatiality, depth and presence - cello, violin and violas were reproduced with outstanding tempo. The phrasing and subsequent layering of successive notes was faultless. This led to an engaging yet musically satisfying expressiveness, coupled to surprisingly good depth and spaciousness. The timbre of the cello, violin and viola was also excellent, and the Xens also had great instrumental separation - it was easy to concentrate on each element of the mix.

"the Xen is ideal for musical connoisseurs who cannot run larger speakers..."

held in place at both ends by a hex-head fixing. Leema says the rod is also used for breaking up the main panel modes within the cabinet for superior sound as well as adding mass damping. The front baffle is made from 22mm HDF rather than the ubiquitous MDF and is machined to be rebated within the steel section for cabinet stiffening.

neodymium magnets and ferro-fluid damping. The 101.5mm (approx.) magnetically screened mid-bass driver is a SEAS P11 which utilises a polypropylene cone and magnesium chassis. The crossover uses hand-wound air-cored inductors and (Solen/Clarity Cap) capacitors and PCBs with thinner multi track copper than a typical fatter single layer - this

The glam thrash of 'The Scorpion Sleeps' from Rob Zombie's 'Educated Horses' was very enjoyable.

Again, instrumental separation was excellent. The music was very finely revealed with no discernible coloration – akin to the fresh, clean and vital characteristics of well-

designed active mini-monitors.

Tempo was outstanding, the beat, rhythm and power

definition and expressive timbre. The funk horns, drums and percussion were tight, well defined and endowed the music with infectious grooves through outstanding rhythmic cohesion. The Xens handled the stop-start structure of the intricate and very tight funk arrangements with aplomb. Their aptitude with phrasing and instrumental separation meant that there was great control over everything – giving a classic high resolution mini-monitor sound.

The £999 Xen is the ideal candidate as an upgrade to existing connoisseurs of mini monitor



loudspeakers who cannot run larger speakers.

Consequently, the Xens would be an ideal upgrade from the outstanding five-globe rated £250 Monitor Audio Radius

90 (HFW

October 2005, p19), which has a similar affinity for tempo, spatiality and rhythm. I was able to compare the two loudspeakers to hear the difference that approximately £750 extra would offer. On 'Maria T' by the Balanescu Quartet, the Monitor Audios had the same ability with the reproduction of tempo while it also had excellent spatiality and a lighter balance. Where the Xens improve it is with the bass, as they are more full ranging and less 'one note' in comparison. There was also understandably a lot less resolution with the lower cost Monitor Audios and less information

retrieval – the Xens were superb at picking out the intricacies of the Balanescu Quartet's playing as they imbued

reproduced with precision. Texturally with vocal and instrumental timbre, the Xens did not struggle, and had no discernible coloration or artificial warmth or sweetness.

The widescreen Jeff Lyne production of 'Learning To Fly' by Tom Petty And The Heartbreakers was revealed appropriately with superb spatiality, depth and clarity. Lead vocals were very convincing as the phrasing, timbre and three-dimensionality of Tom Petty's voice was excellent where breath inhalation, emotional nuances and subtle changes in tonal frequency were easily discerned. Instrumental separation was similarly excellent, the Leemas providing an expressive, high resolution sound.

On Prince And The New Power Generation's (Symbol) album, the Xens turned in a spacious yet well-rounded performance. Basslines were clear and well resolved with

the composition with very nice percussive and textural layers which added to the volume of the music being reproduced.

CONCLUSION

As with most minis, the distinctly underwhelming quoted 84dB sensitivity [see MEASURED PERFORMANCE] means you'll need a decent transistor amplifier to drive them – valves need not apply. Suitably aspirated, the Leema Xen mini monitors worked extremely well in my system, serving up surprising scale and dynamics for their size. Never flustered with dynamic crescendos, they always maintained strength in tempo, rhythm and high resolution. Nor are they especially fussy about placement.

Overall, they are the perfect upgrade for discerning mini-monitor aficionados who own something like a Monitor Audio Radius 90 and want better performance without being able to run larger loudspeakers. Designed and built in the UK, the Leema Xen is easily one of the best modern mini-monitors available, providing you match them appropriately.

REFERENCE SYSTEM

Moon Audio i-3 integrated amplifier (£1,595)

Onkyo DV-SP1000E universal player (£2,800)

Monitor Audio Radius 90 standmount loudspeakers (£250)

VERDICT

Superb affordable audiophile mini-monitor with grip, composure, detail and scale that belie their diminutive dimensions.

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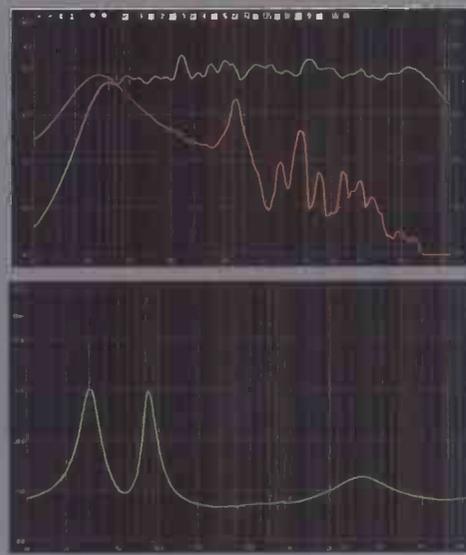
The Leema Xens utilise a four inch bass/mid driver that crosses over to the tweeter at 3kHz. Bass extends down to below 60Hz and is further augmented by the front mounted ports – a more than acceptable performance for such a diminutive unit. The loudspeaker's midrange is nicely consistent, with only a small peak around 2kHz that could help strengthen vocal clarity. Above this there is a smooth crossover to the tweeter at 3kHz.

The tweeter itself has an even response with a gentle rolloff above 15kHz, ensuring treble is smooth and free of any unpleasant harshness.

Sensitivity is on the lowish side in absolute terms at 85dB but this is quite normal for a mini-monitor loudspeaker, but it does mean around 60W or more is needed. It is balanced by the fact that the impedance curve is pleasingly flat and free of reactive components at high frequency, making the Xens an easy load to drive that should not upset many amplifiers. Measured impedance is also a relatively innocuous seven ohms, a

further aid to amplifier compatibility.

Barring a few small undulations which are of little concern, the response is commendably smooth across the bandwidth covered by both drivers and the port – I would expect the Xens to sound even and detailed throughout the frequency spectrum. Our measurements show this is a well engineered and accurate loudspeaker. AS



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Showtime

Channa Vithana reports on all the fun of last month's superb London Sound & Vision Park Inn Show 2006...

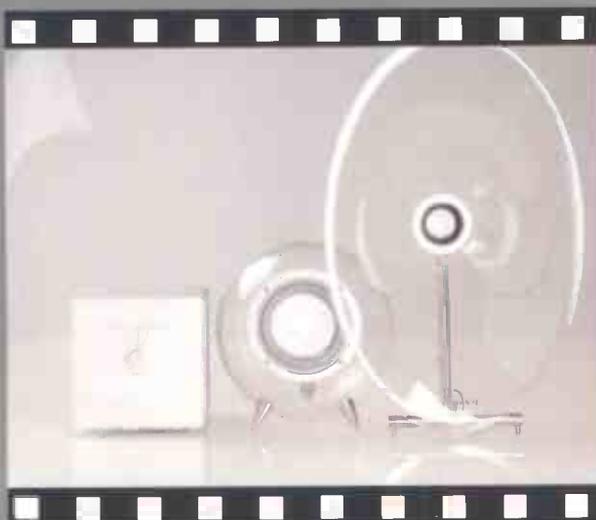
Between the 22nd to 24th September, Chesterfield Communications and *Hi-Fi World* Magazine collaborated in organising the London Sound & Vision Park Inn Show 06. It turned out to be just as ebullient as the February Bristol hi-fi event, with a lively and convivial atmosphere throughout. Despite the lovely 'stay outside' weather, the show was busy Saturday and Sunday.

Members of *Hi-Fi World* and World Designs were on hand at the reader clinics on both public days to answer questions about valves, digital amplifiers, loudspeakers, Blu-Ray & HDDVD and turntables. It was very successful, and a fine time was had by all. The show itself clearly demonstrated the strength - and return - of two-channel audio. There was a great variety and abundance of affordable audiophile equipment, and the hi-fi highlights for me were not necessarily the most expensive either...



Luxurious high end gear from Absolute Sounds included the new Krell Evolution series, Sonus Faber's beautiful Guarneri Memento loudspeakers and an affordably intriguing Copland CVA 306 multi-channel valve preamplifier.

Definitive Audio had Living Voice loudspeakers utilising separate crossover boxes and the exquisitely crafted, super high-end KSL Kondo range from Japan provided the valve powered amplification. Resolution Audio's Opus 21 CD player and a massively engineered Kuzma Stabi XL turntable were sources. Intriguingly, Definitive used what looked like a huge array of battery-powered mains supplies at the rear.



Ferguson Hill showcased a gorgeous little FH007 system; comprising two horn-loudspeakers, two bass-loudspeakers and a 4x16Watt integrated amplifier that accepts phono or mini-jack stereo inputs from a CD player or i-Pod, etc. The amplifier is Class A for the first 1.5W. The bass loudspeakers use active crossovers while the horn-loudspeakers are crossover-less.



Andy Blockley of Überphon (pictured) was on hand to demonstrate the high performance Phonosophie range of electronics, turntables and accessories. I was particularly impressed with the £1,350 ALR Jordan Note 3 standmount loudspeakers, as used by Ken Ishiwata in his development studio...

Signature Audio Systems had the luxuriantly styled and sounding Ars Aures loudspeakers from Italy powered by Art Audio valve amplifiers. The sound quality was exemplary with a clean, nuanced presentation which had excellent tempo and spatiality.



im presented their new Supernait integrated amplifier. It embodies a very strong concept with optional power supply upgrades; it can also be used as preamplifier or power amplifier, has an output for the Headline headphone preamplifier, a timed 85 watts per channel, and surprisingly an internal DAC for DVD players and computers, etc. is scheduled to be available in the early part of 07.

Creek and Epos did an outstanding demonstration of their new affordable Evo series featuring an integrated amplifier & CD player (£495 each) and Epos ELS 303 floorstand loudspeakers (£300 approx.). This system, wired with DNM cables, was entirely musically convincing - far outstripping its price, and showing that simplicity is best. Creek also had an attractive prototype equipment stand, and mentioned that a matching Evo tuner is scheduled for early next year.



Tindale Marketing had one of the best sounding rooms in the show running a Densen and Elac system consisting of the new £1,000 B-410 CD player (utilising a 6Watt, Class-A, zero-feedback output) and similarly priced B-110 integrated which was bi-amped with a B-310 power amplifier. Some previous Elacs have just sounded inhibited - but at the show the newly revised £1,300 208A, with improved port, really 'rocked'.



Auracoustic had some of the funkiest loudspeakers. They feature distinctive polyurethane textured paint in bright, modernist colours. The stands for the Aura 1 standmount models were very attractive with their zigzag legs. The smaller of the pyramidal-shaped floor-stand models, the Aura 3T (in red) has a claimed sensitivity of 94dB and an impressive power handling of 500 watts.

ASTIntrew demonstrated their superbly deigned and built AT3000 CD player (£599), AT1000 preamplifier (£495) and AT5000 power amplifier (£645) system, with valve outputs, powering a set of Thiel floorstanding loudspeakers. The sound was first rate with a clear, well-tempered and spatial quality that belied the affordable price.



Hi-Fi World's Noel Keywood, Patrick Cleasby and David Price joined Peter Comeau and John Caswell of World Designs team for live question and answer sessions...

Rowles Music had the unique-looking Vivid loudspeakers (designed by Laurence Dickie, designer of the B&W Nautilus). Accompanying the Vivids was the welcome return of the Norwegian brand Electrocompaniet, who had an extensive new range including a universal disc player.



Revolver had their new high-end Cygnis loudspeakers, costing about £6,000 and featuring a freshly superior styling regime. The Cygnis is said to use a 245mm (10inch approx.) bass driver made from a doped compressed paper diaphragm. They provide exhilaratingly fast low frequency response, and a cracking overall sound.



Pinsh had their unfinished prototype model 6.0 ribbon loudspeakers at the show which - produced one of, if not the best, loudspeaker sounds at the show. The music was so clear and uncompressed, and startlingly consistent in any part of the room. The 6.0 and full-range ribbon 9.0 will be available early 2007.



Listen Carefully demonstrated a new range of "flat horn" loudspeakers called Podium 1, whose manufacturers say it does not use ribbons, subwoofers or electrostatics. The Podium 1 look vanishingly thin in profile. Approximate retail price is in the £3,000 to £4,000 range and their sound was outstanding - they had deep and wide presentation to worry Quads a twice the price...

"despite Apple's recent success, this Christmas will truly test the brand's integrity..."



dominic todd

Christmas is a coming, and with it comes the now traditional battle of MP3 player versus the ubiquitous iPod. Unless you've been living in a cave for the past five years, you can't fail to have noticed Apple's dominance of the portable market. Despite the appearance of some excellent rival machines from the likes of Sony, iRiver and Creative Audio, it's still the iPod that remains the default choice with around 60% of the market choosing Apple.

Yet, despite Apple's recent success, this Christmas looks like being the first that will truly test the brand's integrity. Apple face a trio of challenges that, if they all go against the computer giant, could drastically reduce the company's market share. The first thorn in their side comes from the increasing threat of mobile phones with MP3 players built-in.

The first signs of their impact aren't too promising for Apple. Findings by Entertainment Media Research have shown that whilst sales of the MP3 equipped phones have increased, the sales of iPods are now in decline. Worryingly for Apple, that same research also showed that only 21% of those interviewed would use a phone equipped iPod whilst 46% would use a phone that happened to have an MP3 player built-in. Quite what the difference is exactly, I'm not really sure and no doubt the two will eventually merge to become a homogenous product. In the meantime however, Apple is still faced with about a third of those being surveyed not wanting a combination of the two functions at all. If Apple maintains a good range of music-only devices this last statistic shouldn't prove to be a problem, but if they rely too much upon the 'iPhone', then they

may find their market share shrink further.

Apple's second threat this Christmas comes from the soon to be launched 'iPod killer' from Microsoft. Whilst this device doesn't so far appear to offer much over the next generation iPod, the marketing clout of Microsoft cannot be ignored. Remember that even Sony's once invincible PlayStation took a mighty knock in terms of market share when Microsoft entered the fray with the Xbox. In this instance, Microsoft also doesn't have the added sales bind of having to provide a comprehensive range of software (games in the case of the Xbox). So, provided the new unit looks right, works well and is as aggressively marketed as the iPod, then Microsoft have every chance of taking a large bite out of Apple...

Finally, Apple is faced with its own domestic problems. As you may have already heard, Apple supplies look as though they may be patchy this season for a number of reasons. First, supplier problems with the components for the next generation player put back production and then industrial action in the company's Far Eastern factory further disrupted supply.

The tough trading that faces Apple is tricky enough for the American computer giant, but the trickle-down effect could affect others within the hi-fi industry too. Whilst the hi-fi separates industry may have been slow to respond to iPod/MP3 formats, there are now many companies that have a firm interest in the technology. To be more specific, they have a firm industry in the iPod. Only last month KEF has joined the iPod frenzy with a docking device that's designed to work with their KIT home cinema series. KEF isn't

alone, of course. If anything they're rather late to the party, with Naim, Onkyo, Yamaha, Harmon Kardon, Monitor Audio and many others already offering iPod interface options for their hi-fi separates.

Whilst I've always thought that iPod/MP3 integration should be encouraged in the hi-fi separates world, I do now wonder if the hi-fi world has become a little too dependant upon the iPod. Not only have manufacturers made docks and speaker systems with iPod specific control and power interfaces, but also the physical dock is often iPod sized and shaped. Should the iPod's market share continue to decline as it looks set to, then manufacturers will be left with a product with equally shrinking appeal. If Microsoft's MP3 is really successful, they could even be left supporting a minority product or faced with the expensive option of having to re-engineer products to support both players. In short, whilst interfacing portable players with separate components is a good idea, separates manufacturers mustn't become reliant upon one or two brands.

In the past it's been formats and not specific products that have driven the hi-fi separates market, and that's the way it should be now. Instead of jumping into bed with Apple, manufacturers should look at multi-interface options such as Bluetooth – a connection that, as it happens, is likely to be standard in the next generation iPod in any case. If they can get this to work and, crucially, sound half decent, then we've a much better chance of convincing the MP3/iPod generation that hi-fi separates really are a worthwhile purchase over a simple all-in-one doc and play system. Here's hoping! ●

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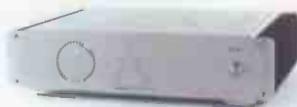


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"My name is Adam, and I am a turntable addict..."



adam smith

For those eagle-eyed readers amongst you all, you may have noticed the 'AS' moniker cropping up in the reviews this month and idly wondered who this was.

Well, ponder no further because it is me and I'd like to say a cheery "hello" as the new boy and Assistant Editor here at Hi-Fi World.

As I stumble blinking into the journalistic spotlight, I can't help reflecting on how this is something of a change after the last five years at a different end of the market, which I spent designing loudspeakers - initially OEM car items and then hi-fi speakers and active subwoofers. In fact, Noel assures me that I have taken the opposite career path to most previous Hi-Fi World staffers who went from the magazine to the design/retail side, so I'm pleased to be bucking the trend! Quite a few friends and relatives have commented that this sort of job is right up my street, particularly those who have known me since I was a wee lad in short trousers, clambering up on a kitchen stool to inspect my father's turntable...

Oh dear. Now I promised myself I would try and get past my first column before mentioning the 't' word, but I've gone and let myself down already! Consequently, this is probably as good a time as any to hold my hands up and say "My name's Adam and I'm a turntable addict".

Now, before the digital fans amongst you turn the page in disgust, may I just qualify this by reassuring you that I do not intend to proceed with a full page rant on the evils of the silver disc, as I believe it can happily coexist with vinyl, has undeniable strengths in some areas and my treasured Marantz CD94 will have to be prised from my cold, dead hands before I willingly part with it (unless of course the laser dies first, which I am reliably informed it will do before long!). No,

I have tended to approach my vinyl obsession from a different angle...

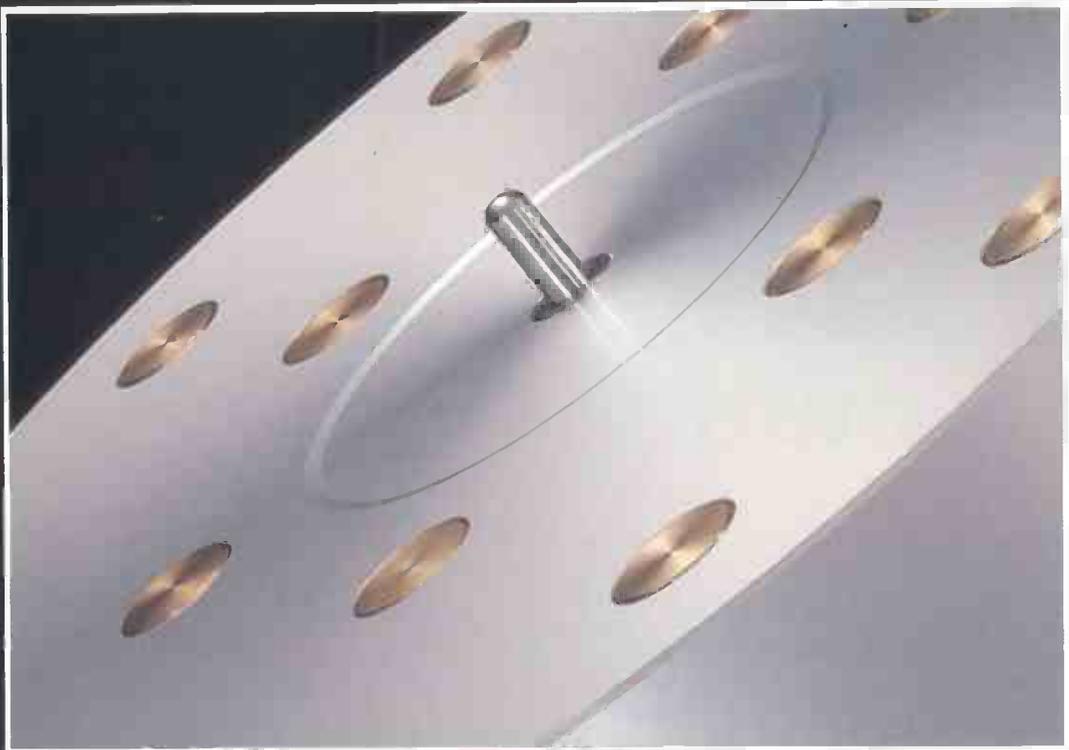
You see, some vinyl diehards will talk about nothing but the sound and some about the almost religious ceremony of unsheathing a treasured album followed by their preferred rituals involved in setting it playing, but my fascination with vinyl has developed itself in a different area. Basically, this involves the intriguing things turntable manufacturers have attempted over the years in order to revolutionise the LP, not only by attempting to maximise sound quality (and usually failing!), but by minimising the whole rigmarole of vinyl replay. Lest we enthusiasts forget, before CD some poor souls didn't approach turntables with the same enthusiasm that many of us do. Consequently, whilst I am the proud owner of (at the moment!) nineteen turntables, only my treasured Garrard 301 is ever used for proper listening and most of the others are curiosities that came and went, some of which have now been long forgotten. For me this is something CD player manufacturers can never hope to match, even with the occasional top loader that resembles a space station, or a sleek wall-hanging multi-player.

A brief rummage around what I optimistically refer to as my 'listening room' but could more accurately be described as a 'piled-high storage room', reveals all sorts of strange machinery, from good old Garrard autochangers and early linear trackers like the B&O Beogram 4000, to an unusual professional twin deck made by the long forgotten London Acoustical Developments. Quite a few readers will undoubtedly remember the ADC Accutrac 4000 from 1976 with its infra-red track sensor that was programmable to play up to 24 songs in any order, but I bet not many know its younger brother, the Accutrac +6. This swapped direct

for belt drive but added remote volume control and a motorised autochange spindle that lowered up to six records one by one for playing and then lifted them all back up at the end [wow, this is hardcore stuff alright - Ed.]. Admittedly, this was only sold in America, despite being built in the Midlands by BSR, which may well account for its scarcity this side of the 'pond', but there is now at least one in this country and I am presently halfway through the process of coaxing it back to life!

Then there is Rational Audio's spectacularly simple linear tracking deck from the early 1990s which has a basic, unmotorised arm sled mounted onto runners in the lid. I also have a mystery belt drive deck that I bought because it 'looked interesting' and no-one has so far been able to identify it. Then there is Aiwa's D50 direct drive which has a motorised plate around the two-part platter, capable of lifting the record and upper platter up and sliding it out of the front of the unit for record changing, rather like one of those CD player thingies. Clearly this did not etch itself on the general public's imagination, but I find it hugely entertaining to watch in action, even if my viewing is generally disturbed by my wife reminding me that I really should get out more.

So there you have it - a brief dip into the strange world and even stranger listening room of the new face at Hi-Fi World. As I continue to rummage under stalls at car boot sales and through the pile of discarded 'treasures' at my local dump just remember - next time you spot a peculiar turntable attracting absolutely no interest on everyone's favourite auction website and think to yourself, "I remember that weird thing, but who on earth would want one of them now?" - the winning bidder will probably be me. ●



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"CD's harsh sound doesn't have to be that way - it can be as warm as vinyl..."



paul rigby

Vinyl has a warm cuddly sound. Friendly, approachable and one that you wouldn't be afraid of taking home and introducing to your mother. CD, on the other hand, can be harsh, metallic even, nasty and will be appearing soon as the baddie in the next 'Superman' film. That is the perception and, along with the fact the you can cram more musical information onto a piece of wax than you can onto a piece of tin, that is the conclusion that many people, including, perhaps, your very self, have come to. However, is that perception a reflection of reality? Is the resulting conclusion just an urban myth?

Pete Reynolds, who was responsible for sound restoration and digital remastering for the Alexis Korner CDs reviewed in this issue might surprise many by his admission that, "I tend to go for a more analogue sound, a vinyl sound." And how does he do that? "I use my ears," he said. According to Reynolds, a piece of music recorded as analogue and a piece of music recorded digitally should have the same sort of musical qualities, "For the top frequencies, I tend to tame them down and sometimes I'll do that with a form of compression rather than just EQ. This is exactly what analogue tape does. You bash a load of high frequency signals at it, it squashes the top a little bit which some people call 'analogue warmth'. However, the degree of warmth hasn't really changed, it's your perception that's changed."

Engineers have been tweaking original sounds for many years. For example, if you listen to a range of vinyl from the '50s and '60s you may hear – wait for it – 'harsh' and

rather screechy sounds from vinyl, implemented to artificially increase the volume of vinyl for the benefit of both the transistor radio and Dansette record players. Why - because the labels thought that the louder the music was, the more certain they would be of getting a 'hit'. As you will see, if you read the Korner review, that was the legendary effect called 'presence' making itself known. That is, increasing the upper-mid frequencies. The treble frequencies were not touched at all, "With albums, they boosted the upper-mid to around 2-4kHz, if you boost the frequencies to that range the music would appear, to the ear, to be louder."

There are various pundits who will boast that they're fully aware of this process but the same people will presume that it is the treble that has been boosted and not the upper mids, "If you boost the treble, however, you could make the music ear-splitting, or there could be problems with the vinyl stampers or you could burn out the vinyl cutter. 'Presence' was the next best thing," said Reynolds.

That vinyl harshness was also down to primitive analogue equalisers. Bizarrely, modern digital versions of the same kit can sound a lot warmer. Reynolds, even today, sees many mastering engineers using new, analogue EQ systems or even those very same old analogue EQ units that they believe is helping the final music but, frustratingly, is either used incorrectly or is the very same kit used to introduce analogue 'presence' fifty years ago – trouble is, it's now placing the same boosted upper-mid noises on CD. "They say that 'we use these analogue systems because digital EQ doesn't sound any good'.

Well, that's actually rubbish," asserts Reynolds. "You're the guy whose working the EQ, it's up to you what you do with it."

So a lot of the harsh CD sound that we hear is the result of engineering inexperience or less talented engineers. I personally don't like the sound of an awful lot of modern CDs - many are excessively hard. Some engineers still try to make CD sound as loud as possible which is ridiculous, there's no need for it.

Reynolds reigns in excessively harsh frequencies. He also uses gentle topping compression which means that you can keep a lot of detail without it becoming ear-splitting. A lot of the CD harshness occurs when these same frequencies become unruly and uncontrollable.

"Also, there are a few gadgets on the market, which have found their way into everywhere. They are 5-band compressors, so where I'm talking about individual frequencies these things will split the whole lot into five bands and compress the lot. You then hear a big, buoyant, bassy, bright, hard sound. This is what a lot of the pop stuff is being squeezed through. It has become a sort of industry standard, which is a shame."

The classic 'harsh' criticism of CD – doesn't have to be that way. It can be as warm as vinyl. What you put into CD is what you'll get out. Similarly, a badly engineered vinyl album or one with 'presence' added to it can sound just as harsh. Many music fans read liner notes but most of us check out band line-ups, supporting musicians and the like. Does this mean we've now got to look out for our favourite mastering engineer? If we want a warm sounding CD, the answer is, apparently, yes. ●

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"the best solution is for the BBC to provide its radio stations at high quality on digital satellite..."



steven green

Just when I (and many others, I dare say) suspected that the British broadcasting world really was going mad, I have some very good news for Radio 3 listeners who suffer poor FM reception and are forced to use DAB. Following a lot of complaints, the BBC has climbed down over its ridiculous decision to reduce the bit rate of Radio 3 to 160kbps on DAB in order to use the freed-up capacity to run a looping trail for Radio 5 Sports Extra! Normal service has been resumed and R3 is back to 192kbps, thank heavens. However, this means once again that Radio 4 has to be reduced to mono in the evenings or Radio 3 has to be reduced to 160kbps in the daytime whenever Radio 5 Sports Extra is carrying commentary...

Now I think it's time to address the issue of 'Optimod compression' on BBC Radio 3 FM, a station which I think is the highest quality source of broadcast radio in the UK. For those of you that don't know about Optimod, it's a form of 'audio processing' used by the broadcasters to compress the dynamic range of the audio prior to transmission (the dynamic range is the ratio between the highest and lowest amplitudes of a signal).

The most famous, or infamous, device that does this is called the Orban Optimod processor, hence the name 'Optimod compression'. Such processors compress the dynamic range by amplifying the audio frequencies that are at low amplitude, while limiting the amplitudes of

frequencies that are at high amplitude. The overall effect of dynamic range compression is to make the audio sound louder, in particular the quieter sections.

The main negative effect on classical music is that the difference in volume between the beginning of a crescendo and its ensuing climax is much reduced, which reduces the dramatic effect – some would describe the result as being an anticlimax. Some people even say that R3 sounds better on DAB than on FM because R3 FM's dynamic range is compressed whereas R3 DAB's is not. My opinion of this is that neither R3 FM nor R3 DAB are perfect, so it is simply a case of which is the least imperfect, and I find that R3 FM is so much better than R3 DAB in terms of definition, detail and precision that this outweighs the dynamic range compression issue, and R3 FM sounds significantly better.

The broadcasters' argument for using dynamic range compression is that because it increases the overall volume of the audio it is useful for people that are listening in noisy environments, such as when driving or doing the housework, and it masks the hiss that accompanies poor FM reception.

This may or may not hold water for daytime broadcasts, but the arguments in favour of compressing Radio 3's dynamic range in the evening don't stand up: far more people listening to Radio 3 in the evening will be sat at home than driving, let alone doing housework. And the use of dynamic range

compression to mask hiss for those unlucky enough to have poor FM reception isn't really an issue any more, because such people can nowadays turn to listening to R3 via DAB or digital TV. So, I completely agree that the Optimod compression on Radio 3 FM should either be switched off altogether in the evening or at the very least backed off significantly to allow a much greater dynamic range than at present.

However, as both Radio 3 on FM and DAB each have their respective imperfections, I still think that the best solution by far would be for the BBC to provide all of its radio stations at high quality on digital satellite. I've mentioned before that the German broadcaster ARD transmits its stereo stations at a bit rate of 320kbps on satellite, and the BBC has an enormous amount of bandwidth at its disposal on satellite – it has 231,000 kbps of capacity on satellite compared to only 1,184 kbps on DAB. So it would be trivially easy for the BBC to provide its stations at high quality on satellite, and it would cost them next to nothing to do this.

Why don't they do this already? Whenever I question the BBC's motives with respect to audio quality on the radio, I always start from the following comment made by Simon Nelson, the BBC controller in charge of digital radio, on Radio 4 Feedback: "Of course we'd prefer it if everybody listened via DAB." So no need to guess why they've not done it then. And perhaps that's also why they're so keen on using dynamic range compression on R3 FM as well... ●

Walrus



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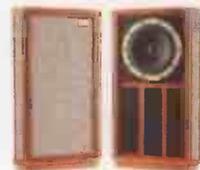
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Oak finish - £1250

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Mystery hi-fi face of the month



"Anyone know who he is? Answers on a postcard, please..."

Solid Tech

Isoclear isolation feet (left) Set of 4 (20kg) - £51
(extra springs can be purchased for up to 45kg)
Radius stand (right) - contact us for prices
Rack of Silence stand (far right) - contact us for prices

"Swedish made Solid Tech is the line of isolation products we've been seeking for a long time. Superbly made, stylish looking, and modular. Even the humble Isoclear feet can be adjusted by simply adding or subtracting springs to cater for uneven loads.

The domestically acceptable Radius can be configured with almost any combination of shelf spacing, and some shelves suspended for isolation. The Rack of Silence is a state-of-the-art stand using cross members instead of shelves to reduce resonance. Shelf isolation springing is freely configurable for different loading"



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"LP is a relic from the past that has been continuously upgraded, instead of being abandoned..."



noel keywood

When I first stepped aboard one of Hong Kong's old trams I was intrigued; it was a relic from the past. Up front was a huge brass handle that controlled speed - if you can call it that - a real Victorian affair that I recall had a British name on it and a date close to the beginning of the last century. A small Chinese man was manfully controlling this relic, as it trundled slowly along thronging streets, carrying a huge cargo of passengers. I marvelled at the age of this vehicle, its bone shaking ride, creaking body, wonderful wood and brass ornamentation, Chinese adverts but, most of all, its sheer utility. Quite obviously it was doing a great job, as people swarmed on and off, and it had been doing this for eighty or so years.

Because something is old doesn't mean it is worthless. Sometimes we need to look a little harder at the past and, instead of rejecting it out of hand, adapt a good idea to the modern world. As a passenger I found this tram perfect: easy to board, cheap, fast enough and acceptably comfortable. It intruded little into the teeming streets as well. All of this is unlike the buses on London's streets today, that are oversized, overweight, difficult to use, shatteringly noisy and visually overwhelming. They belch out huge volumes of diesel fumes too.

So much for one hundred years of progress in public transport. But this lack of progress is also affecting some areas of hi-fi that, for some reason that has escaped me, seem to be going nowhere. This included CD, but the re-emergence of the LP is altering everything and the valve amplifier is surely following it.

To go back to a transport analogy, London's Routemaster bus was replaced by something more

modern, but not something that was necessarily better. The Routemaster could have been progressively updated, instead it was thrown out. In audio we may be better off updating old technologies than totally replacing them with new ones.

The market for audio is not only a free one, unlike public transport, but it is strongly fought over - worldwide. It should be able to respond to people's requirements and deliver attractive products. I believe free markets have the potential to do so - in the end. There are some glitches in the feedback mechanism that should exist between customer and supplier though that even free, competitive markets have difficulty with. The biggest is knowing what people want and then meeting their wants effectively. Or, should I say, putting out a product that people find attractive, for whatever reason.

It isn't easy to sort out. Over the years I have watched numerous technologies go up the swanny, like Betamax, Elcaset, Quadraphonics and more recently DVD-Audio - with SACD in the departure lounge...

The issue becomes more confusing when you look at successes, especially the vinyl record and the iPod. These two are almost diametrically opposed, but perhaps that's why both are finding a market that has eluded more obvious contenders, like high resolution digital discs. In my own small way I have paddled these waters, with the kit valve amplifiers and loudspeakers from World Audio Design. I had always seen the valve amplifier as effective in itself, any view of it as archaic being simply one of perception, founded not unreasonably on an outdated peer group view.

You could say the same of the tram. One view of it could be of an archaic, bone shaking vehicle, such as I encountered in Hong Kong, before

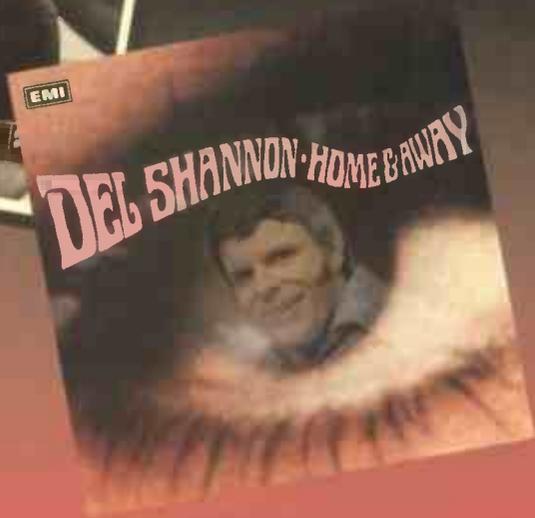
the fleet was updated I should add. The idea is still a good one though, popular with people worldwide and capable of update, using modern lightweight materials, improved traction systems and automated signalling and control.

So it is with the LP and the valve amplifier. Both have their drawbacks, that's for sure, but they also have strengths that cannot be ignored in the name of cheap manufacturing. Both appear to be out of sympathy with the modern world. The LP is dreadfully inconsistent in quality; some come out of the stampers damaged and unplayable. It is heavy and consumes a lot of space, adding to transport and storage costs, and it suffers wear. The CD effectively addressed all these weaknesses.

I'm not sure the LP is so good in itself, it's just that CD got everything right except its primary function, that of providing good sound quality. It is held back by an inadequate 1970s coding scheme, one that cannot easily be changed. The LP, being analogue, can be continuously improved. We are now seeing super quiet 200gm vinyl and 45rpm being used to take quality further than ever before. Heavens, this is like putting a jet engine into a tram!

Digital cannot be upgraded like this; we have to abandon an entire system, CD players and discs, before accepting a new one. DVD-A and SACD have shown the difficulties that lie behind this. Whilst digital has stagnated, LP playing equipment has improved considerably over the years and, in conjunction with good vinyl, retains its primary advantage: great sound quality.

This is a relic from the past that has been continuously upgraded, instead of being abandoned like the tram once was. As a result it's doing an even better job in a modern world. What a wonderful classic. ●



ELEANOR MCEVOY
Out There
Moscodisc

McEvoy is distinctly Irish in her tonal palette and in her diction - an important point because, for the majority of vocalists, the accent disappears when the singing voice kicks in. However, McEvoy, a Celtic Folk/Pop artist, retains her Irish articulation during her songs which helps establish her own unique styling, giving the vocals a sense of constant movement and vibrancy. This effect is immediately heard on the first track, 'Non Smoking Single Female', where McEvoy surprises you unexpectedly by twisting or bending a syllable in a distinctly Irish but still startling way that also affirms her confidence in her own identity. You can also hear the effects in a more subtle, yet successful, manner via the beautifully tweaked cover of Marvin Gaye's 'Mercy Mercy Me'. Sung as a sparse ballad with only an acoustic guitar as an accompaniment, McEvoy's voice flows in an almost despairingly sad lament.

Dave Williams, the engineer on the project, did stamp his own philosophy onto the album as he has firm views on how best to record to SACD, "If you use great mics in a great room with a great artist and record on 2-inch analogue tape and mix to 1/2 inch analogue tape it results in an ultimately better reproduction when you go to SACD."

This was supported by Mick O'Gorman, Eleanor's producer who revealed that, "this stereo hybrid SACD/CD release was recorded on

2-inch analogue tape using various microphone preamps built by Rupert Neve - a veteran pioneer of analogue mixing console design. This analogue master will be later utilised to create a vinyl version of the album. The analogue master was then transferred to DSD via Sadie (a PC-based digital audio workstation). The 16bit CD layer was then derived from the DSD master." The resultant release is a joy to listen to: the CD layer is clear, spacious with instruments spread evenly around the stage. The SACD stereo layer enhances the CD soundstage and adds warmth. If you enjoy the musings of the singer/songwriter, check out this gentle album.

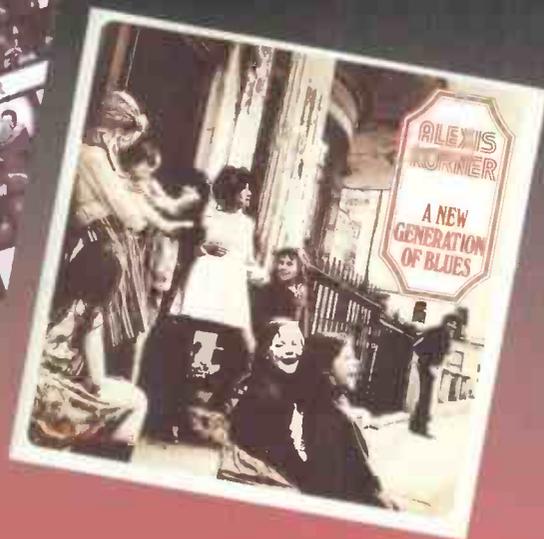
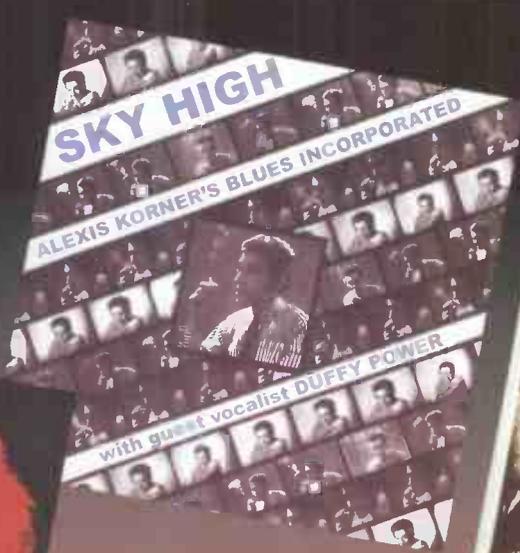
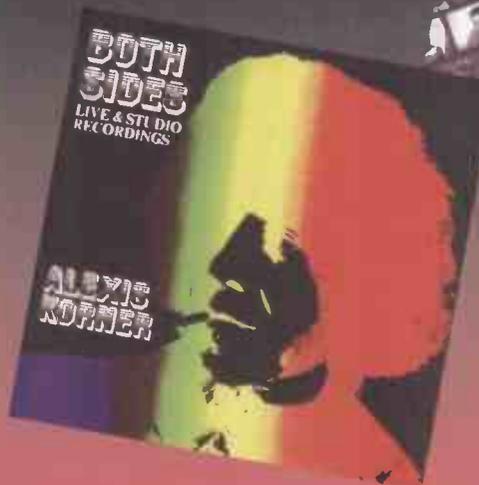
JOE PASS
The Complete Pacific Jazz Joe Pass Quartet Sessions
Mosaic

Joe Pass is one of the all-time great jazz guitarists. Moving from a selection of swing bands to the likes of Charlie Barnet, Pass was renowned for his successful collaborative associations with other legends of jazz such as Count Basie, Duke Ellington, Oscar Peterson, Milt Jackson and Dizzy Gillespie. His technique was incredible, to such an extent that he could get his fingers around an energetic bop tune with ease and do it solo. It was from 1961-1967 that Pass worked with Pacific Jazz - For Django was one classic recording from this era. His quartet was quite a fluid one that included, at one time or another: Clare Fischer, Ralph Pena and Larry Bunker or Albert Stinson and Colin

Bailey. To celebrate this period, Mosaic has released a beautiful 5CD box set of the jazz sessions Pass recorded during 1963-1964 (Pass' later Pacific recordings were decidedly non-jazz). It is arguable that Pass' Pacific era saw him on the up but not yet hitting the heights of his later Pablo years. However, there are plenty of special moments to treasure on this set including the Django sessions and some excellent longer pieces on the final disk.

As Mosaic President Michael Cuscuna explained however, this particular project was not the easiest the label has ever tackled, "The tapes came from the original label. Some libraries are very well organised and have everything intact and identified but the Pacific Jazz tapes are a mess. Not everything has survived and a lot of the tapes containing unissued material have almost no information on them. So there was a lot of listening, identifying and educated guessing involved."

Even so, Mosaic were still determined to source the best quality sound for the set, "Some of the material still exists in three-track so that we could go back to those original tapes and remix them for far superior sound to the stereo LP masters," explained Cuscuna. "This way you bypass any added EQ or echo and the extra tape hiss from the transfer from three-track to two-track." The resultant suite is a magnificent achievement, more so because Mosaic has also included many previously unissued tracks. Highly recommended.



DEL SHANNON *Home And Away* EMI

Del Shannon was a rock'n'roll giant in the early '60s, with hits such as 'Runaway'. Despite addressing mature, adult themes within his work - which extended his shelf life beyond other, contemporary, bubble-gum artistes - Shannon faded from view during the mid-sixties. Shannon did work briefly with producer Andrew Loog Oldham (who also managed and produced the Rolling Stones), in 1967 producing a 'lost' album of orchestrated pop/rock tunes. His label, Liberty, decided not to release the album. However, some of the songs appeared on singles with other session material leaking out on reissues. 'Home And Away', that 'lost' album now 'found' again, is the result of determined detective work as Mark Stratford, co-producer, explained, "Identifying correct tape sources at EMI Records Archives was the first step and of course there is no such thing as a master tape box saying 'Home And Away' on the front. After original recording was completed in 1967 a few random singles were released over the next 12 months in the UK, US and the Philippines which used just some of the tracks, so for us their catalogue and tape numbers was a start. Then there was a compilation release in 1978 on an EMI budget imprint to source for the remaining tracks. These searches yielded the main album tracks, all in stereo, plus mono mixes, including the single version of 'He Cheated' which has an extra spoken voice overdub."

Remastering took place at Abbey Road Studios with Ian Jones, a specialist engineer. Using a Studer A80, the 1/4" analogue stereo master tapes were played through an EMI TG console (as used by the Beatles and Pink Floyd at Abbey Road), with the analogue signal converted to digital through an A-D prism converter. "To complete the package," added Stratford, "we'd learned that the famous rock photographer, Gered Mankowitz, was present at the first of the two 1967 recording sessions and could supply original photographs." It's taken almost forty years to release but this wonderful album, including five bonus tracks and featuring plenty of baroque instrumentation, should be sought for anyone who has an interest in mid-to-late '60s pop-psyche.

ALEXIS KORNER *Both Sides/Sky High (with Blues Incorporated)/ A New Generation Of Blues/ Castle Music*

Alexis Korner created the foundations of the British blues scene which allowed people like the Rolling Stones, Eric Clapton and John Mayall to exist. His own back catalogue is being systematically released via Castle. This is the latest three albums in the series. Pete Reynolds whose work includes labels such as Universal, EMI, the Sinatra family and more was the chap in charge of remastering the Korner albums - which proved a tad more difficult than first imagined because, "for all of these CDs, we had to

remaster from the original vinyl... because no one knows where the master tapes are."

So how do you retain sound quality when you're using a vinyl record as your master? "It is difficult. However, in this case, we cleaned the vinyl with a Keith Monks machine. The deck I used to transfer the Korner vinyl signal was a direct driven EMT 950, a high-end broadcast turntable which I picked up from the BBC. You can still find them on ebay for a couple of grand. We also tweaked the electronics on it. We used a broadcast Ortofon cartridge too. The idea is to utilise a neutral point of reference. Once you start going down the audiophile road you can create more problems than you cure because each turntable introduces its own colouration. We know what we're getting with this deck."

Reynolds then digitised the Korner music immediately with a Lexicon converter, then ProTools. Because Pete had no EQ and compression references to work from, for example he relied on his ears to see him through, "Everything you do to a signal to improve it will always have a side effect," warned Reynolds. However, the Korner vinyl needed tweaking because boosted upper-mid frequencies had been added, used to artificially increase vinyl volume levels. The final CD albums include extra live and BBC session tracks. These albums give you an ideal taste of Korner's style and his wish to take blues across rock, soul and funk boundaries. **PR**

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IsoTek Sigmas
Hi-Fi Choice, October 2006



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Chris Thomas
Hi-Fi+ Issue 42



speed



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Designing speakers

Part 2 - Which Enclosure

This month Peter Comeau discusses the closed box or 'infinite baffle' speaker as part of his series on loudspeaker design

As we have seen Open Baffle speakers tend to be rather large. This wasn't too much of a problem in the days of mono where Gilbert Briggs of Wharfedale launched a commercial design, the SFB3, which used a 15" and 8" bass units and a 3" treble unit mounted on a twin wall baffle with sand filling to eliminate panel resonance.

But room real estate has always been at a premium and large loudspeakers were confined to the domain of the audiophile. To achieve good bass performance the baffle was first of all extended into an open back box, then closed into a full box. At this point unusual things started to happen to the performance.

First of all, in a closed, airtight box, the system resonance goes up. This, in itself, has a deleterious effect on bass performance. Not only is the bass extension curtailed, as SPL drops at 12dB/octave below system resonance, but also the resonance becomes more audible.

What do we mean by system resonance? For any moving mechanical system there is a moving part, which has mass, and a suspension part, which has springiness or compliance. In a speaker drive unit the cone or panel has mass and the surround or suspension has compliance. You can think of this as a weight suspended on a spring. Pull the weight down and release it and it starts to oscillate up and down at a single frequency. This is called the system resonance. Increase the weight and the system resonance goes down in frequency. Similarly, increase the spring compliance and the resonant



AR-3 prototype - an 'acoustic suspension' speaker that redefined loudspeaker design in the '50s.

frequency is lowered. In a speaker in a box the mass and compliance of the air in the box have to be added to that of the drive unit. The mass of air is small but the air in a closed box is under compression and so reduces the springiness (or increases the stiffness) forcing the resonance upwards in frequency.

For example, if we take a bass drive unit with a 30Hz fundamental free air resonance and put it in a small closed box the system resonance will be raised to around 60Hz. Without any damping, a system resonance this high will be audible as a reinforcement of some notes on bass guitar and as an overhang on drums (at 30Hz it would be out of harm's way musically). We need to add damping either via an amplifier with a low output impedance (high damping factor), or via a large amount of cabinet absorbent stuffing - or both. Thankfully, most modern amplifiers have a high damping factor and will control the excess motion of the drive unit quite well. Valve (tube) amps with limited feedback and restricted damping factor may not work as well at controlling the

resonance, however, so we have to check the audibility of the system resonance with the amplifier the speaker is going to be driven by.

How does speaker damping, either via the amplifier or absorbent stuffing, work? Let's go back to our weight on a spring concept. Let's say we put a cloth sleeve round the spring. Then every time the coils of the spring start to move they will encounter a resistance. Now if you pull the weight down, the oscillation still occurs but it dies out in a few seconds instead of going on for minutes. The cloth has added a resistance to the system and damped the system resonance.

The temptation is always to put a speaker drive unit in too small a box with the minimum of internal damping. This is prevalent in today's commercial speaker designs where the focus is always on the customer requirement for minimalistic speakers with impressive bass. Don't go this way. The point of DIY is that you can build something better, for less cost, than the commercial products. Choosing too small a box may give you an initially impressive bass

output (anything with a peak in its response tends to sound impressive on immediate listening) as the output peaks up before it starts to tail off. But accurate it is not and it is very often tiring to listen to in the long run.

If you want an accurate, hear through and musically enjoyable (and informative) bass performance then you are better off choosing an enclosure where the bass smoothly rolls off below resonance. Why? Well remember from the OB exercise that the typical room plays a large part in the SPL below 100Hz and starts to dominate the speaker output below 40Hz. If you design a speaker that has a maximally flat response to a system resonant frequency around 40Hz it will sound unbearably bass heavy in most rooms, will be difficult to position in any room as it will be exciting room modes quite strongly, and will need to be kept well away from the walls in order to sound anywhere near as good as the theoretical graph displays.

There may well be a case, however, for designing a speaker system where the system resonance is higher than that of the first room standing wave mode. If you can design that accurately then a speaker system with a Q around 0.8 – 0.9 will maintain a maximally flat bass response that will be augmented by room gain below the system resonance. A relatively small, closed box, speaker designed for wall loading can work very well in larger rooms as a result.

There's another problem too. If we consider the bass performance at and below resonance to be a high pass filter, and we should do, then we can see that the speaker system obeys all the characteristics of a filter, including its phase shifts and ringing. A sharp 'knee' to the response, coupled to a rapid initial rate of roll-off below resonance, will have a tendency to sound lumpy, ill-defined and blur the definition of transients from percussion instruments.

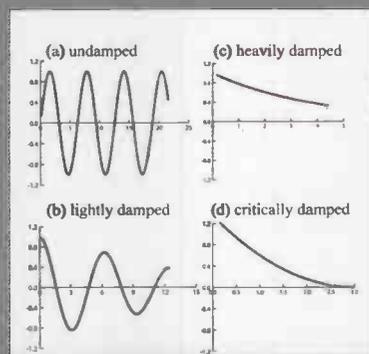
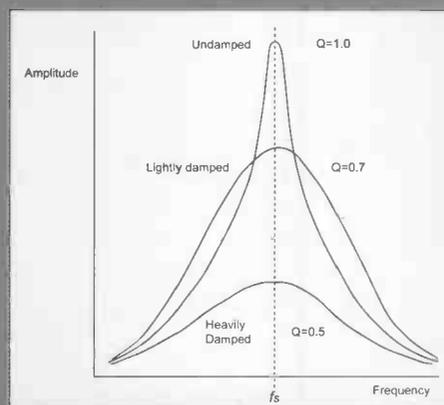
If we are really clever we can complement the probable level of room gain by providing an equal and opposite characteristic in our high pass filter response. I'm not going to go into the technicalities of that here but will cover it as part of designing for room interaction later in the series.

Suffice it to say that putting our drive unit in a larger closed box and aiming for a gentle roll-off and gradual initial slope, taking into account a fair amount of damping in the box from absorbent stuffing, will yield results which are easy to achieve by the first time DIYer.

THE IMPORTANCE OF Q

Q (in radio tuner circuits the narrower the resonance of the tuning circuit the higher the Quality factor or Q) is an indicator of the strength and sharpness of resonance. Look at this graph which shows how the sharpness of tuning is indicated by the Q value.

Q is varied by the damping applied to the resonance, the higher the level of damping the lower the Q. If there is little damping the Q is high, the peak of resonance very sharp and the effects of the resonance can be heard very clearly but over a narrow range of frequencies. If damping is high, Q is low, the peak of resonance is very shallow and the effects of the resonance are not very noticeable but the energy of the resonance is spread over a wide range of frequencies.



These graphs show the effects of damping. In a) there is no damping and the oscillation of resonance continues for a considerable time after the initial pulse of energy has passed. Add a little damping and the oscillation dies out more quickly as in b). The resonance is critically damped when there is no oscillation and the moving part settles quickest to the rest position d). Overdamp and the moving part takes too long to settle back to the rest position.

How does Q affect us in speaker design?

First of all we can use the value of Q to

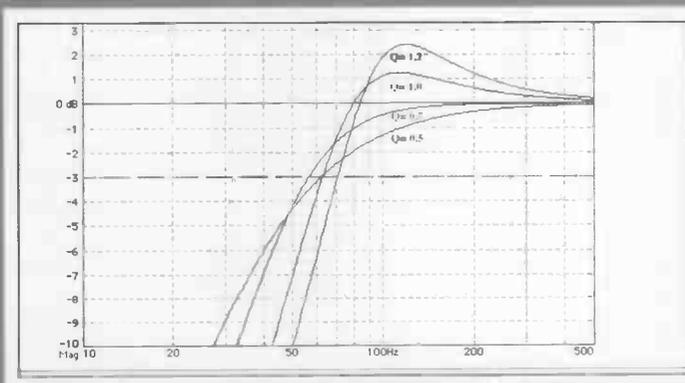
show us how big a box and how much damping to use for a given drive unit. The following graph shows the difference in bass extension for different values of Q.

In an undamped box Q may well reach the 1.2 value. As you can see this response has a big peak before roll-off and results in the 'one note bass' that we hear from poorly designed/very cheap speakers. If you want an 'impressive' bass then Q of 1.0 lifts the output before roll-off but you won't be able to hear much bass

definition – small, commercial speakers are often aligned this way. Note that the rate of roll-off at these alignments quickly reaches 12dB per octave.

A Q of 0.7 (0.707 is a Butterworth alignment) is often considered optimal for commercial speakers as it gives the best extension and power compromise and still manages to sound impressive whilst providing good bass clarity. Note that the rate of roll-off is initially slower, and it is this that achieves better bass extension.

At first sight a Q of 0.5 does not look particularly promising. The output starts falling at quite a high frequency and is -2dB at a higher frequency than any other alignment. However this is an anechoic response graph and does not show the effect of room gain. When room gain of +3dB is dialed in at 80Hz, rising to +9dB below 30Hz, it not only makes up for the early 'droop' in output but offers the greatest bass extension. In addition a system Q of 0.577 is a Bessel alignment with the most linear phase response.



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– Ken Kessler, *Hi-Fi News*

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– Sam Tellig, *Stereophile magazine*

"By the highest standards, the 2905s get
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shaking my head in awe"

– Noel Keywood, *Hi-Fi World*

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QUAD

...the closest approach to the original sound

World Design KT88 kit Sound Quality

Adam Smith and Noel Keywood listen to World Design's new WD88VA kit amplifier.



In nearly always start a testing session with some female vocals, and this is a particular area in which a good valve amplifier shows its worth. The WD88VA served up Norah Jones with real emotion, in a rock solid layout between the speakers, her backing band being superbly laid out around her. No instrument details were missing and the amplifier picked out the finest of nuances with no problem at all, offering them up with a delicacy and intimacy that was a pleasure to behold.

At the top end of the frequency range, the treble proved itself well matched to the midrange, and cymbals and came across as clear and sharp with no sense of blurring or distortion - it was found in the measurement of the unit last month that distortion was very low across the complete frequency band, and it is at the extremes that valve amplifiers can often be found wanting, but this is not the case with the WD88VA. A spin of Wagner's Overture from Reinzi showed that the amplifier acquitted itself equally well with classical material, and presented the transition from quiet to crescendo with aplomb.

The other property that struck me was the inky black silence that greeted me during gaps - all too often valve amplifiers have a slight hum or a soft hiss that some view (or tolerate!) as part of their 'charm', but the WD88VA was silent. Even with an ear pressed up against the speaker, no strange noises were apparent.

The relative lack of bass control

compared to a good transistor design is the reason that I have never personally succumbed to a valve amplifier in my own system, but it was here that the WD88VA really played the ace up its sleeve. I had been aware during the audition that my attention had not been unduly drawn to the low frequency end of things. Now concentrating my listening "low down" I found that the WD88VA is a more than capable bass machine! With the thumping beat of Celine Dion's "I'm alive" the WD88VA hung on to the rhythm superbly, never losing control or making a muddle of anything. I next spun a Jazzanova dub track featuring a complex electronic bass line and, believe me, this amplifier can boogie! All too often this particular track can suffer from a blurring of transients and a complete loss of timing on a 'slow' sounding amplifier, but the WD88VA pumped it out with great gusto.

I swapped speakers to a pair of Spendor S8es, a favourite here at World Towers, but prone to rather enthusiastic bass. They were more than happy on the end of the WD88VA, not sounding wallowy. In absolute terms low frequencies were not held in a grip of iron like they would be on the end of a Naim amplifier, for example, and a very slight overhang could be detected, but this is only something that would be noticeable during a careful audition and, to my ears, the

WD88VA acquitted itself superbly.

As you may have gathered, I thoroughly enjoyed my afternoon auditioning the World Designs WD88VA - it proved itself to be an engaging valve amplifier that measured well and sounded superb to boot. Quite simply, it plays music, and plays it extremely well.

Noel says: We've done KT88s before, but I make no apologies for doing them again. This time there is 16dB of feedback and a measured performance that is almost transistor like in those areas where the little blighters work well. Lower output impedance due to higher feedback gives better bass control, useful with loudspeakers that are, in themselves, not so well damped, such as Spendor's S8es. The S8es can sound loose and plummy with valve amps, but far less so with this one. If you have loudspeakers that are well damped, then this does not matter so much, but big bass jobbies are usually loose and designed for solid-state control (meaning a low output impedance). The WD88VA bridges the gap here. You get a generally tighter, cleaner and more controlled sound, as you might expect, and this Adam heard as less of the bass looseness that characterises so many valve amps.

world standards

These are the best products we've heard that are currently on sale in the UK, complete with the date they were originally launched and their current retail prices.

TURNTABLES

PRO-JECT DEBUT II PHONO SB 2002 £170

Fuss-free all in one starter turntable, complete with built in phono stage. Not a star performer, but a fine midi system upgrade all the same.

GOLDRING GR-2 2006 £265

Rebaged Rega P3 built on the cheap and sold with an excellent Goldring MM, this is cracking value for money.

REGA P3 2000 £298

Great entry level audiophile deck with fine bundled tonearm. Tweakable, and responds well to careful siting on a Base platform.

TECHNICS SL1200/III 1973 £395

Slick build makes it a respectable performer, although the cheapo arm limits it - fit a Rega RB250 and it's suddenly a serious mid-price machine.

MICHELL TECNODEC 2003 £575

Superb introduction to Michell turntables on a budget. Top quality build and elegant design make it the class of the mid-price field.

REGA P25 2001 £619

Until the TecnoDec, the best mid-price turntable package. Fine build and elegant styling. Clean, open sound but limited at frequency extremes in absolute terms.

PRO-JECT X PACK 2005 £650

Decently musical sound, fine build and blistering value for money turntable, arm and MC cartridge package.



ROKSAN RADIUS 5 2003 £750

Fantastic value allied to intelligent, interesting and 'out of the box' design makes for a wonderful entry-level superdeck. Open and musical sound is more inviting than Michell TecnoDec rival, and the bundled Nima Unipivot arm is a superstar.



FUNK FIRM VECTOR 2006 £760

Innovative attempt to produce the best sounding turntable at the price; highly musically enjoyable.



MICHELL GYRODEC SE 2005 £970

Design classic with superlative build and finish. Sound is beautifully smooth, expansive and effortless but lacks bass grip compared to some rivals now.

MARANTZ TT-1551 2005 £999

This, the most musical sub-£1,000 turntable package, includes a fine tonearm and MM cartridge; plug and play vinyl at its best.

ACOUSTIC SIGNATURE CHALLENGER 2006 £1,269

Heavyweight turntable in more ways than one; massive sharply focused soundstage allied to vast dynamic range makes it outstanding at the price.

VPI SCOUT/9" JMW ARM 2006 £1,295

With a massive, solid and focused soundstage, superb transients and excellent musicality, this turntable is exemplary at the price.

ORIGIN LIVE AURORA GOLD 2004 £1,470

Seminal 'entry level high end' deck showing obsessive attention to detail. The result is an extremely wide open and natural sounding machine.



PROJECT RPM 10 2006 £1,500

Brilliant 'fit and forget' deck that gives everything it plays a clean, warm, enjoyable sound - but not quite as effective in absolute terms as some price rivals.

CLEARAUDIO SOLUTION/SATISFY 2006 £1,650

Wonderfully big, powerful and enthusiastic sound is tempered by a little over-exuberance on occasions. Super value, with a great upgrade path.

MICHELL ORBE SE 2002 £1,916

Ultimate evolution of the Gyro adds massy acrylic platter and two-stage isolation. Fantastically capable all rounder with commanding, powerful, detailed sound that gets the best from almost any arm and cartridge



LINN LP12/ LINGO 1973 £2,100

The quintessential belt drive superdeck offers a beguilingly musical midband at the expense of lumpy bass and nebulous imaging. Latest Lingo brings a new lease of life, with even more punch and polish.

SME MODEL 10A 1995 £3,333

Exquisitely engineered deck and SMEV tonearm combo that's an extremely accomplished performer with classical music.

CLEARAUDIO REFERENCE 2003 £4,000

The company's best value vinyl spinner; good enough to get the best from almost any tonearm and cartridge combination. Brilliantly open and neutral sound; superlative pitch stability; stunning build and styling - Michell Orbe does most of this at half the price, however.

TONEARMS

REGA RB250 1984 £112

Sold through Moth Marketing, this is capable far beyond its price point, with a tight, lean and detailed sound. Responds brilliantly to Origin Live counterweight modification, and well to rewiring.

MICHELL TECNOARM A2003 £399

John Michell's brilliant reworking of the Rega RB250 theme, using blasting and drilling techniques usually seen in motorsport! The result is the best sounding arm at £400, and as good as some at four times the price.



ORIGIN LIVE SILVER 2006 £599

This expertly fettled Rega boasts a superbly even, transparent and tuneful sound. Gives away only a small degree of finesse and dimensionality to top arms.

HADCOCK 242 SE 2000 £649

Latest of a long line of unipivots, with added mass, revised geometry and better finish. Musical like no others at the price.

SME 309 1989 £767

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

SME SERIES IV 1988 £1,127

Offers nine tenths of the SME V's magic at just over half price. Exquisitely built and finished, and a design classic. Faces stiff competition these days, but lovely nevertheless.

NAIM ARO 1987 £1,425

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

ORIGIN LIVE ILLUSTRIOUS 2002 £1,570

A modern superarm with battleship build. Extremely strong, even and open sound in the mould of the late, lamented Zeta, plus fine tonal colouring. Exquisite.

**SME SERIES V 1987 £1,614**

The so-called Best Pickup Arm in the World isn't, but comes close. Vice-like bass with incredible weight, ultra clear midband and treble. Does everything except beguile the listener.

LINN EKOS 1987 £1,700

Subtle mods over the years, including revised bearings and the recent new wiring has kept it a serious contender in the superarm stakes. Lacks the SME's slam, the OL's clarity or the ARO's emotion, but has a feisty musicality all of its own.

TRI-PLANAR PRECISION 2006 £3,600

Stunning build, exquisite design and surely the most naturally musical and lucid sound around makes this a remarkable pickup arm.

CARTRIDGES

AUDIO TECHNICA AT-110E 1984 £29
Great starter cartridge that's refined, detailed and musical beyond its price.

GOLDRING G1042 1994 £135

One of the best MMs going, with sweet and extended treble and punchy, muscular bass.

DENON DLI03R 2006 £200

Awkward to get working properly with poor a mounting arrangement, yet it rewards with a musical performance that makes similar priced cartridges sound cold.

DYNAVECTOR DV10X5 2003 £250

A distant descendent of the classic Ultimo 10X, this has warmth and sweetness in spades, allied to a punchy bass. Beats G1042 comfortably.

DYNAVECTOR DV20X-H2003 £395

The best modern budget MC combines deliciously sweet sound with fantastic get-up-and-go. High output version works a treat with valve phono stages too.

**MUSIC MAKER 1999 £575**

This hand finished high-output pick-up gives an ear-boggling account of itself. Very high compliance ensures maximum information retrieval. A gem of an MM.

ORTOFON KONTRA' B 1999 £720

Surprisingly articulate performer by Ortofon standards. All the brand's usual polish and detail allied to real vim. Loves making music!

**ORTOFON RONDO BRONZE 2005 £500**

Excellent mid-price moving coil with real rhythmic alacrity and a decent deal of finesse.

ZYX R-100H 2005 £625

Exceptionally tight sounding and detailed cartridge with the musical skills to match, this is up with the very best at the price, with a presentation all of its own.

ORTOFON KONTRA' C 2004 £1,000

The most secure tracking MC we've heard; its super clean, fast, detailed and neutral sonics make it a brilliant partner to warmer sounding turntables.

KOETSU RED 2004 £1,600

Although the new Koetsus have lost some of their 'romance', you'll not hear a more lyrical and emotive performer. Startlingly 'analogue' nature makes rival Ortofons and Clearaudios sound frigid.

DIGITAL DISC PLAYERS**CAMBRIDGE AUDIO****640C V2 2006 £250**

Superb entry level CD player; crisp, composed, musical sound plus fine build and ergonomics.

REGA APOLLO 2006 £498

Highly rhythmic and beguiling performer, although lacks some warmth of tone. Superb ergonomics and design.

CAMBRIDGE AUDIO**640H 2005 £599.95**

Fine sonics and decent build make this our favourite affordable HD music server.

MARANTZ SA7001KI SIG2006 £600

Brilliant CD/2ch SACD spinner with a big, sweet, analogue-like sound - CD is totally competitive at the price with the best dedicated machines.

AUDIOLAB 8000CD 2006 £650

Ultra clean and transparent sound with amazing detail retrieval; just a tad bright and analytical for some, though.

SHANLING CDT-80 2005 £650

Very impressive mid-price machine with a big, sumptuous, expansive sound - better still when tubes are changed.

**PIONEER DV-868AVI 2003 £799**

Pioneer's most accomplished mid-price machine to date, this boasts decent DVD-A/SACD playback, a welter of facilities and HDMI video and I-Link audio digital outputs.

NAIM CDS1 2005 £825

Still the most musical sub-£1,000 CD spinner we know, the charismatic Naim majors on bass grip and dynamics.

EASTERN ELECTRIC MINIMAX CD 2005 £925

Highly accomplished tube-equipped all rounder with a clean, open and musically lucid sound; superb value.

**CYRUS CD81 2005 £1,000**

Highly incisive, engaging, grippy and dynamic sound, but needs careful matching to smooth ancillaries. Optional PSX-R adds bass and dimensionality.

EXPOSURE 3010 2003 £1,200

One of the most 'analogue' CD players, second only to the Shanling. Wonderfully beguiling balance leaves you looking for the tube output stage.

STELLO DP-200 2004 £1,495

Brilliant do-it-all upsampling DAC preamp with headphone output and phono in. One of the best digital to analogue converters around, allied to mind-boggling flexibility.

CHORD DAC64 2005 £1,995

Bespoke architecture gives a truly uniquely musical sound that's beguilingly musical in nature, if a tad tonally dry. Superb build and aesthetics too!

SHANLING SCD-T200C 2004 £2,150

Superb SACD player with tube output stage; arresting looks and truly special sound; be sure to go for 3DAcoustics version for best sound and UK aftersales support.

TUBETECHNOLOGY**FUSION 64 2006 £2,200**

Unique digital and analogue audio engineering makes for an exceptional CD player that, on some programme material, is peerless.

**NORTH STAR MODEL 192 TRANSPORT/ EXTREMO DAC 2006 £2,918**

Superbly finessed and loquacious sound allied to excellent build and finish make for a brilliant value high end buy.

NAIM CDX2-XPS2 2003 £4,950

A fine high end machine, but add an XPS2 and it becomes one of the most charismatically engaging 16bit machines we've ever heard. Plays music with such passion!

LINN UNIDISK I.1 2004 £6,500

Surely the ultimate universal DVD player; superb in every department, but its CD playback shines brightest considering it's not a bespoke Red Book machine.

NAIM CDS3 2003 £7,050

The most polished Naim CD to date; tremendously capable and musical, but lacks the Rotweil quality of the cheaper CDX2-XPS2.

ESOTERIC X-01 2005 £8,995

Breathtaking feat of digital audio engineering, and surely the best sounding combination CD/SACD spinner money can buy.

NAIM CD555/555PS 2006 £14,000

Very probably the best CD player yet made - certainly the most expensive; a digital tour de force.

**DIGITAL RECORDERS****APPLE IPOD** 2006 £220

Genre-defining best of breed, thanks to supreme ergonomics and build allied to fine sound.

SONY RCD-W3 2002 £250

Usual superb Sony ergonomics make for no-nonsense budget buy. Fine direct digital copies, but analogue input poor. Middling sonics, but there's a digital output!

YAMAHA CDR-HD1300E2002 £600

HD means MD-style ease of editing, but compromises recording quality ever-so slightly. Add decent CD replay and it's a fine-all rounder nonetheless - top value.

**PHONOSTAGES****QED DISCSAVER** 1995 £35

Rhythmic, bouncy sound via battery, although it's bright and forward. Great value.

PROJECT PHONOBOX LE2004 £99

Great little box that improves on most bundled phono stages found in budget integrated amplifiers, adding detail and definition and a measure of smoothness too.

TRICHORD DINO 2002 £299

Great all rounder with switchable MM/MC. Fast, fluid and smooth like no others at the price.

EAR 834P 1993 £400

Classic tube design with a fulsome, warm and expansive sound - shame about the loose bass and veiled treble!

GRAHAM SLEE ERA GOLD V 2004 £460

Wonderfully warm, open and musical nature makes this an essential audition for those wanting a top value mid-price phono stage.

LEHMANN BLACK CUBE SE2006£495

Clean, smooth and even right across the frequency range, this phono stage represents super value for money.

AQVOX PHONO 2 CI 2006 £598

Brilliantly versatile yet affordable phono stage with a beguiling sound, but careful matching essential. Balanced operation of real benefit.

CLEARAUDIO**SYMPHONO+** 2006 £809

Superb high resolution phono stage with a tight, grippy and engagingly musical sound.

LINN LINTO 2000 £900

A musical and incisive performer, with more speed than the Delphini at the expense of detail and tonal colour.

WHEST AUDIO**PS.20/MSU.20** 2004 £1,000

Disarmingly clean, smooth, open sound makes this the very best phono stage we've auditioned to date, but some will still prefer the gusier feel of the Trichord Delphini.

TRICHORD DIABLO+ NCPSU 2006 £1,198

Highly musical performer, this is one of the best phono stages at or near the price, but lacks the polish of the rival Whest.

AMPLIFIERS**NAD C352BEE** 2006 £250

Smooth, powerful, muscular sound with real speaker driving prowess makes this the most musical entry level integrated.

CYRUS 6X 2003 £600

Cracking do-it-all mid price design, bringing svelte sound, good connectivity and upgradability and stunning style and build.

MARANTZ PM7001IKI SIG2006 £650

Lucid sounding, warm and fulsome mid-price transistor integrated that's hard to beat at the price.

ONKYO A-9755 2006 £700

Beautifully built, usefully versatile and truly enjoyable sonics make this another great affordable audiophile product from Onkyo.

CYRUS 8X 2006 £800

Unusually warm and lyrical for a solid-stater, with decent power and punch. PSX-R adds dynamics, detail and dimensionality.

**NAIM NAIT 51** 2004 £825

The most musically engaging integrated at or near the price; real sophistication in sound allied to grip and power aplenty. Iconic styling and great build complete a very pretty picture.

JUNGSON JA-88D 2006 £899

Stunning value for money Class A monster integrated; extreme power and clarity at a puzzlingly low price.

**SUGDEN A2IA** 2006 £1,020

The most musical amplifier at the price, bar none. Delicious Class A sound is smooth, sweet and wonderfully transparent with true tonal colour. Low power, so match carefully.

AUDIO NOTE OTO SE 2000 £1,199

This baby tuber is beautifully sweet and creamy, but lacks solid-state's clarity, detail and inclusion. Low, low power means speaker choice critical.

CREEK DESTINY**AMPLIFIER** 2006 £1,200

Superb build, useful power plus a deep full bodied sound make this an excellent mid-price buy.

**AUDIO NOTE SORO SE 2000** £1,699

Wonderfully out-of-the-box sounding tube middleweight is all about sweetness and fluidity. Limited power and loose bass, but little the worse for it.

UNISON RESEARCH S6 2002 £1,625

Tremendously musical and lithe sound with real finesse and subtlety too. Very slightly upper mid forward encourages careful partnering with ancillaries (Revolver R45s are ideal), but overall fantastic value for money.

**SUGDEN A2ISE** 2005 £1,995

Brilliantly musical hear-through sound makes this one of the best transistor amplifiers ever made, but be prepared to match carefully.

COPLAND CSA29 2006 £1,998

Unfailingly svelte, sophisticated and smooth - both to listen to and look at - this is a truly desirable high end integrated.

AUDIO RESEARCH VSI552003 £2,895

The Naim NAP250's tubular alter ego; oodles of power allied to a strong bass and smooth open midband makes this a brilliant all round amplifier. Lacks the subtlety and finesse of the low powered single-ended brigade but makes up for it with sheer brio.

NAIM NAC282/NAP200 2004 £4,000

Wonderfully taut bass, lightening midband and incisive treble makes for an enthralling listen; this cracking combination looks great and is superb value too.

AV AMPLIFIERS**PIONEER VSA-AX51** 2004 £1,000

Excellent do-it-all big Japanese receiver with all the inputs and outputs you could wish for. Decent sound, but not exactly beguiling.

**ARCAM AVR350** 2006 £1,500

Superbly accomplished do-it-all AV receiver package, with an uncommonly, warm, natural and musical sound. A winner goes from strength to strength.

NAIM AV2/NAP 150/NAPV**175** 2002 £4,190

Brilliant audiophile multichannel pre-power amplifier combo; not as good with music as a two-channel Naim set-up at the same price, obviously, but surprisingly close. Elegant control layout plus a strong, clean and brilliantly engaging sound make this a serious crossover product. Ultimately lacks power compared to similarly priced Arcam gear, but is more musically involving.

HEADPHONE AMPLIFIERS

CHANNEL ISLANDS VHP-1/VAC-1 £390

A truly exceptional headphone output stage; the best at the price and an essential audition.

MUSICAL FIDELITY X-CANS V3 2003 £249

Mr Michaelson's best headphone amplifier to date, with an extremely open and explicitly detailed sound plus serious bass wallop and the ability to drive any phones to very high levels. Errs towards brightness with some headphones, so match carefully and use smooth cables.

SUGDEN HEADMASTER 2003 £600

Unusual combined preamplifier and headphone amplifier, this boasts a surprisingly smooth and open sound.

PREAMPLIFIERS

CREEK OBH-12 2000 £220

Brilliant value budget passive, giving little away in sonics to far more expensive designs. Connectivity and build aren't great, but what do you expect at this price?



NAIM NAC112 2002 £660

Affordable admission ticket to the Salisbury high end experience. Detailed and dynamic, if tonally rather lacklustre.

CROFT VITA 2005 £990

Truly delightful valve preamplifier with superb tube phonostage; not the most transparent but very musical and cracking value for money.

MF AUDIO PASSIVE PRE 2003 £1,500

Novel and effective pre with switchable gain via a transformer, and balanced operation. Open and incisive sound, yet makes most active rivals sound edgy by comparison. Silver version at the twice the price adds eerie transparency, and is superlative.



MODWRIGHT SWL9.0SE £2,000

Captivating sound quality that will transform your system. Build quality is equally impressive and value top-notch. Highly recommended

POWER AMPLIFIERS

QUAD 909 2001 £900

The latest current-dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but super value all the same. Lovely build, finish and Quad's legendary service are nice.

NAIM NAP150 2002 £795

Driven by a decent source and a NAC112, this gives highly enjoyable results - providing you like the Naim sound! Taut, fast and feisty despite its relative lack of power.

SUGDEN MUSICMASTER 2003 £1,300

Quintessential Class A Sugden sound is not warm as many expect, but extremely neutral and open with real tonal colour. By comparison, tubes sound bloated and standard solid-state hazy and brittle. Superb when partnered with efficient loudspeakers like Revolver R45s, but many will find it underpowered.



NUFORCE REFERENCE 9SE £1,550

Brilliant value for money monobloc with massive power and super-clean, three dimensional sound.



CROFT TWIN STAR 2003 £1,750

With a taste of the best of both tube and transistor, this latest update of the Croft classic is a truly endearing experience.



QUAD II-40 2005 £3,230PR

Brilliant modern tube monobloc power amplifiers with plenty of power, wonderfully liquid and open midband and spacious, airy treble. One of the best tube power amp combos ever.

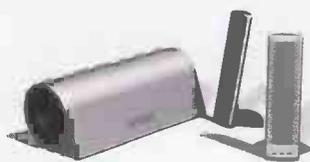
GRAAF GM20 OTL 2003 £3,300

Awesome output transformer-less valve power amp gives dazzling speed and incision, with an ethereal soundstaging and delicious filigree detail. Tremendous punch belies its humble 20W power rating. Factor in one of the most exquisite finishes this side of an Aston Martin and it's very hard to say no...

LOUDSPEAKERS

TDK S-80 2002 £90

Ingenious NXT multimedia sub/sat system has a wonderfully even and open sound - like baby electrostatics.



Q ACOUSTICS 1020 2006 £130

The best entry-level standmounter around right now; clarity, neutrality and poise for peanuts.

ALR JORDAN ENTRY S £200

Small in size but not in stature, this loudspeaker's imaging and dynamics make it a true 'super mini' monitor.

KEF IQ1 2005 £250

Highly polished and articulate standmounters at the price, but demand good ancillaries for best results.

MORDAUNT SHORT 9142002 £300

Warm, detailed and articulate performer, but a touch loose in the bass and veiled up top. Fine partner for budget valve amps.

REVOLVER RW16 2004 £400

Outstanding standmounter with tonal accuracy and speed that totally belies its price; good sensitivity for a small box makes it great with valve amps too. A budget audiophile classic.

AAD C-550 2006 £500

These highly polished and controlled floorstanders have a powerful studio monitor sound.

CASTLE COMPACT COLUMN 2006 £550

Well designed and built compact floorstanders with a surprisingly sophisticated and expansive sound.

ACOUSTIC ENERGY AE1 CLASSIC £845

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Letter of the Month

TURNING OF THE TABLES

For the last twenty five years I've been happy with my LP12/ttok record deck, and over the years I've Lingo'd and Cirkus'd it. It plays through an Linn LK1/ILK100 pre/power combo. I have a CD player - an old Micromega, but can't get involved in CDs. I suspect that it's because I have an amp that predates CD.

Nothing much new that appeals to me comes out on vinyl now, and all I buy for the turntable are new pressings of old jazz recordings. I have a growing collection of little silver discs, jazz, blues and rock. As a result I've started thinking the unthinkable. Should I sell my amps, my LP12 and my vinyl, and upgrade? But at what point on the price scale would I need to start auditioning to find a CD player/amp combination that would draw me into the music the way the LP12 does? Indeed, is it possible for a CD player to be involving? The simple solution would be simply to upgrade the CD player and get a new amp, but if I sell the turntable it will give me more money to play with. I don't know which way to go, as a result of which I'm going round in ever decreasing circles. Some advice would be much appreciated.

Alan Thorn

CD isn't totally unenjoyable Alan, no matter how much we sneer at it (!) at Hi-Fi World. I feel you have an unfortunate combination of old solid-state amps that are soulless, plus a CD player that I recall was never my fave rave (euphemism). I suggest you upgrade them one at a time, as funds become available. Unfortunately, you don't identify your loudspeakers, nor a budget!

Fast and very precise is Shanling's CD-T80 CD player, a vivacious performer that will bring real sparkle to any system, especially if it has a pair of pensionable old 'speakers hanging off the end. Should these 'speakers be unfortunately equipped with a bright metal dome

tweeter, as some Linns were, then you might be better off listening to my personal fave, an Eastern Electric Minimax CD player.

After this, consider getting a modern amplifier. I have to say, as a long, hardcore valve aficionado, that solid-state designers have had to rethink hard many presumptions as valve amps move onto their turf and, as a result, recent solid-state designs are getting quite good. This issue of Hi-Fi World identifies quite a few new ones that you might like to consider, especially the not too expensive Audiolab. I thought it was great value, and did it ever suit our in-house Sendor S8es!

And, finally, Hi-Fi World says, "man who discards vinyl discards life itself!" **NK**

It's an interesting philosophical point. Several years ago, we ran a Linn day in London with a top £96,000 Linn system and all their latest kit. Readers were asked to vote on whether they thought the top £6,500 Linn LP12 sounded better than the (then) brand new (and superb) CD12 at £12,000. Nearly 70%, as I recall, plumped for the vinyl. So the answer is - I'm afraid - nothing digital will approach your Sondek's musicality. Given that your Sondek is a tad off the pace already,

there's going to be an even bigger chasm between the latest state-of-the-art vinyl and a CD player. I have just reviewed the new £14,000 Naim CD555/555PS, and brilliant as it was, my (admittedly well set up) £3,000 Michell GyroDec/Origin Live Silver/Van den Hul Frog pasted it on all-analogue recordings (specifically vinyl first pressings of classic seventies albums, ones that had not been anywhere near a modern Neumann cutter with its digital delay loop - which goes for all new vinyl reissues, incidentally). My point is then, any move to CD is a downgrade, and I find it hard to advise you to downgrade your system. Worse still, you don't specify a budget, or your speakers. If you intend to keep your speakers, you should always choose your source accordingly. In our ignorance of these factors, I'd agree with Noel completely, but would add that being an analogue addict you might prefer the warmer sounding Marantz SA7001 KI Signature and PM7001 KI Signature (CD and amp respectively). These are both more musical than their Audiolab equivalents - more fluid and vinyl sounding, although not as precise - and the Marantz offers the benefit of SACD which is worth having. If you were thinking about spending £12,000 instead of £1,200



Linn CD12 – one of the very best CD spinners ever, but no match for the LP12!

then come back to us and we'll advise accordingly. Meanwhile ladies and gentlemen, please give us all the facts when penning your questions to us! **DP**

KEEP ON TRACKING!

Your magazine is one of that thoroughly supported playing vinyl for many years and for that singles sale are on the up. It's still nice to be able to go into HMV to see vinyl albums still around. Also, you're the mag that got me to spend quite a lot of hard earned cash on vinyl equipment! My own generation now seem interested in iPods only, though SME do have a distributor in Vietnam, so keep on tracking!

Still, the quality of some vinyl albums now does seem quite awful - not the open, fast quality that sixties, seventies and eighties ones possess. Why? Is it digital dynamic range to blame, or poor home studio equipment? I want sounds that paint a picture, not an awful loud and squashed sound. Even with an old technique like mono there is still presence there. What ever happened to letting the music float and flow though? Smoothness sir!

I don't have a reference CD player to be able to compare the two, but generally playing CD with a 24bit sound card is quite a good deal on my computer. I do feel I've been cheated on some albums because it's a 'vinyl novelty' marketing. My system consists of Michell TecnoDec with a Rega 250 with Michell counterweight and VTA, Goldring 1024, self-designed and made phono preamp and Class A headphone amp driving Sennheiser HD600s.

Minh

Thanks for that Minh. Funnily, I know that many artists are intrigued by vinyl sound quality and I suspect pressure from them has helped persuade record companies to reinvent the LP as a cool carrier. And of course record sleeves have always been a canvas for interesting design, as Roger Dean covers once so powerfully demonstrated. As you will see from my answer to another letter this month, I feel that LP quality is variable, but improving. You need to search out the hot stuff. **NK**

Hi-Fi World was certainly the first UK magazine to pick up on the vinyl revival - and I can still remember writing my 'Black Art' feature back in 1994, based on statistics from the BPI that I couldn't quite believe back then - vinyl sales were on the increase again. At the time, it was down to the 12" dance music boom here in the UK, but I'd just got back from Japan and been amazed to see new Led Zep and Beatles

vinyl reissues, in a country that had embraced CD some five years before us! Something was going on... Of course, 1994 was just the start - and the rest is history. Vinyl's now a thriving audiophile niche format - and this magazine has reflected it. My original feature caused a few raised eyebrows in the Letters section back then, if I remember rightly, and there were a lot of people incredulous that we dared to suggest vinyl was actually better sounding. At that time, the hi-fi magazine orthodoxy was that vinyl was just a nasty old dead format and CD was perfect - or thereabouts. Our publisher Noel Keywood was the only senior industry figure still running a vinyl system - and wow, what a system it was! (I can still remember hearing his Garrard for the first time). Still, it wasn't just Hi-Fi World that spotted the sales and sonic appeal of vinyl - one Mr. Laurence Armstrong at Henley Designs began importing cheap Project turntables, when Linn, Thorens, Dual, et al., had just stopped - and he never looked back. Turntable manufacturers' order books are now strong, and it seems vinyl might just outlast CD. I wouldn't quite go as far as suggesting the whole vinyl revival scene is down to us, though Minh, kind as it is for you to say! **DP**



Reader Minh's heavily tweaked Rega tonearm

ONE FOR THE RECORD

I have a system that comprises an old Linn LP12 with a rewired SME 3009 arm and recently installed Goldring 1042 cartridge along with a Graham Slee Gram Amp 2. The amplifier is a Cambridge Audio Azur 640 with matching CD player and all connected with Van den Hul The Name Interconnects. On the whole, I'm very pleased with the system but, needing to sometimes listen through headphones, I purchased a pair of Grado SR80 headphones. The thing is, when using them they sound very disappointing. I

know from the reviews I've read that they're a fine pair of headphones but they just don't do it for me. Would it be worth investing in a dedicated headphone amplifier? I realise the Cambridge is an accomplished but budget amp and would spending say £150 on a head amp be worth it?

Finally, one last thing. Although I have a budget system, it has shocked me how different vinyl sounds. Not in that it all sounds so much better than CD but how much difference there is between vinyl records. Some sound absolutely fantastic and others, like the recently released Morrissey album (okay, not to everyone's taste!) is so difficult to listen to that I can barely play it. I started collecting vinyl from the mid eighties on and it amazes me how great a lot of the records from this period sounds compared to recent releases. Okay, this isn't a hard and fast rule and I have some old duffers along with some good new ones but is just a general observation which I'd welcome your views on.

Jason Walker

To be honest, you'd do better to spend your money on a pair of Sennheiser HD650s (about £200 discounted). The Grados are decent enough, but they're nothing special (despite what all the reviews say).

They're very musically engaging alright, but they are a bit coarse, and this is likely your problem. Later, when funds permit, you can really stretch the HD650s with a Creek OBH-21 headphone stage (£188), as the Sennheisers really are the best you can get short of a Stax electrostatic, in my humble opinion. If I were you, I'd upgrade your integrated amplifier before you do this, though.

As for vinyl - you're right. The problem is that it's such a high resolution format that it tells you the difference between pressings

like night and day. The golden rule is this: get a vinyl pressing as close as possible in time and space to the release of the album. So, if it's Pink Floyd's 'Dark Side of the Moon', a 1975 UK pressing will mean it was cut straight from the first generation (i.e. non-duplicated) master tapes, and not from a second or third generation library copy of the master. Eighties pressings (up to about 1986) sound great, generally, because they were the last AAA-A discs ever. For example, The Smiths eponymous debut was recorded in analogue, mixed in analogue and mastered in analogue - and here's the clincher: the cutting lathes that the pressing plants then used were all-analogue. But as Bob Bailey of EMI told me some years ago, by around 1988 the new Neumann lathes used in pretty much every cutting room worldwide had 16bit, 48kHz digital delay loops to drive the cutting heads, so even if it was AAA, it would still get digitised momentarily right before the master lacquer was cut! To the best of my knowledge, every single new album cut goes through this digital delay loop at the cutting stage (now 24/96, I hope!), so all new analogue albums aren't completely analogue.

The upside is that the physical pressing quality is loads better than anything from about 1973 onward - virgin vinyl is exclusively used now, and there's a lot of attention to detail over the physical pressing of the album. The result is that some modern vinyl sounds very good - but only compared to modern digital - try putting an original 1972 Stax pressing of the 'Theme From Shaft' by Isaac Hayes and watch the room dissolve in a massive, sumptuous wall of acoustic, all-analogue sound! **DP**

Hi Jason. The state of modern vinyl has me intrigued too. Just like you, I am finding enormous variability and, as you say, some 1980s cuts are hard to beat. Modern albums from bands like Darkness, One Way Ticket to Hell, etc., seem dull in balance when compared to the CD and this, I suspect is due to the cutting master being unequalised to compensate for tracing losses and vinyl springback, which was always a somewhat arbitrary phenomenon. I remember when the cutting master for Heaven Seventeen's 'Luxury Gap' was used as a CD master, leading to the opposite effect: vicious brightness! These things happen; mastering engineers don't always know what they are doing it would seem, and mistakes are made that no-one seems to notice except the poor punter.

The Scissor Sisters first album

was peculiarly nasal in the midband compared to the CD, but likely to counter this problem their new album, 'Ta Dah', runs at 45rpm and is a cracker to listen to. Likewise, Bob Dylan's Modern Times is on 180gm vinyl and has a great sound, even if the music is lackadaisical. The bands themselves often want top quality from LP, I know, and when they demand this, things happen further down the production chain. Otherwise, sloppy or poor practices can mar LP sound quality, as production always was difficult and

all the music I have enjoyed over the years in new, even better 2006 LP form. The Jimi Hendrix box set is a must and I have just discovered that most of Creedence Clearwater Revival is available on 45rpm LP. I have to find my cheque book which, I suspect, has just run out the door.

So there's plenty of good, modern vinyl available, some of which is better than ever before. Don't give up because of a dud Morrissey album, Jason. Check out Diverse Vinyl or Stamford Audio then get onto your push bike and after that cheque book **NK**



No matter how good your turntable, it only sounds as good as your vinyl...

is nowadays an art that needs re-learning I suspect.

So I am finding great variability and sometimes the CD arguably offers a better sound - oh horror! As always though, CD sounds dry and sterile and also consistently lacks sonorous treble with real detail. It can be hard to know which is best, when both are not right. As a generalisation, 12in 45s offer the best sound, as they always did, and 1980s albums like Heaven Seventeen's 'How Men Are' or 'The Luxury Gap', as well as most Phil Collins LPs, offer a great sound, to mention a few notables I often spin.

Happily, LP today is seen as a quality product, a showcase for a band, and a lot of effort seems to be going into sound quality. Ironically, one of the first all digital CDs (i.e. DDD), Dire Straits 'Brothers In Arms', is to be released as a 45rpm LP, so quite what seems to have gripped the music industry I am not sure. Last year it was surround sound, this year high speed LP!

Finally, I have been taken aback to hear Led Zeppelin II re-mastered onto 200gm vinyl. All of a sudden I am sold on the idea of re-purchasing

SINGAPORE SLING

Hi Dominic,

Thanks for writing that article on your reference setup on the latest Hi-Fi World issue. I need help with the reconditioning of my SL600s handed down by my dad. They are currently in a very bad state, with paintwork peeling, cone rubber sticky, internal foam padding degenerated - otherwise, working quite fine. I approached my local DIY shop and they said it costs SGD200 (£1=2.8 SGD) to repaint the box and another \$200 to change the padding and crossover to improve the sound. However, it is a risk as the cone rubber may break anytime, so they advised me against doing anything to it. According to them, the cone rubber is out of stock as Celestion do not manufacture anymore. Other makes of rubber will not produce the same kind of sound and will not sound as good.

I love the SL600 sound and have hooked it up to the new Primare 100w 130 amplifier with MIT AVT2 wires. I find the sound slow as well but dark, neutral, accurate and clean; not a big soundstage but excellent for classical and slow vocals. Meanwhile, I would like to upgrade to the Sonus Faber Concerto Domus for my long living room (3.5m

wide x 8m long). Do you have any comments? Should I still recondition the speakers, is it worth it? If yes, how should I go ahead doing it?

**Raymond
Singapore**

Hi Raymond - see the following replies. And thanks for writing.
NK

SINGAPORE SLING (SLIGHT REFRAIN)

While returning to New Zealand recently from a stint in China (six weeks on an oil rig near the Gobi Desert!), I picked up the October issue of Hi-Fi World in Hong Kong airport and very much enjoyed the in-flight read. I was particularly interested in the article, 'On the Run' by Dominic as I own two pairs of Celestion 600s. I bought a very early pair and another pair around 1984. The first pair fell victim to a Telarc CD of battle music with musket and cannon fire and I never got around to replacing the tweeters. I did use both pairs for a while together with two Janis SW-1 active subwoofers in a surround system, but I now prefer straight stereo. I use a Perreaux 'Pure Class A' 100w amp to drive the SL600s above the 100Hz crossover frequency. Originally I had an early Krell preamp and later also a Perreaux preamp, but I banned both when I fell for a Rothwell passive preamp. When I hooked this up, my father who was there at the time turned to me in astonishment and said, "you never expected it to be that good, did you? "No Dad, definitely not". . .

My CD player is a Harmon Kardon HD7600 II which has given good service, and although my system is rather dated, I still like it a whole lot, but perhaps it has finally come time for an upgrade. This is now mandatory given that recently during redecorating, one of the SL600s fell on its nose with the usual result. Dominic's article that mentioned upgrading the SL600s is thus very pertinent to my situation. So please do enlighten me as to who can do this. I will ship the SL600s from NZ to the UK if necessary.

I also wish to upgrade my CD player and a recommendation would be appreciated, I would like to have SACD/HD-DVD capability.

The Rothwell preamp has developed some noise in the first outputs, so I am using the second outputs. It has both fine and coarse volume controls, but I would prefer to eliminate the fine control for a super minimalist approach. A suggestion or two about servicing this or changing to a modern preamp with greater versatility would be much appreciated.

**Robert Eady
New Zealand**



MF Audio Passive – a brilliant passive preamplifier at a decent price.

Hi Raymond and Robert - sadly, Celestion no longer make parts for the SL600, meaning that changing the bass drivers would rely upon finding a donor. The drive units are actually the same as the Celestion SL6, and these often crop up for sale very cheaply.

Regarding the cabinet, these do mark easily and many people get them resprayed. It's simply a matter of cosmetics, though, and flaking paint won't affect the sound quality. I would, however, look at replacing the internal foam. This is multi-layered and has a large effect upon the SL600's dampened sound. It should be cheap enough to replace, but do make sure a similar density is used. Personally, I would leave the crossover well alone, but whilst replacing the foam do consider upgrading the internal speaker cable. I found this to work wonders with my SL600s. Use either a section of your existing speaker cable, for continuity, or try a good quality solid core. This should lighten up the bass response considerably. Be careful when rewiring, though. The connection to the tweeter is especially fiddly. It sounds like your local DIY shop is handy with a soldering iron, so perhaps ask them for a quote. I'd say enjoy the speakers whilst they're working but have a pair of woofers in reserve for when they do finally give up the ghost - it might surprise you just how long this takes! **DT**

Your SL600s can be rebuilt - there's a man who can! Contact Dave Smith at DK Loudspeaker Services (+44 (0)1708 447344), 10 Spring Gardens, Elm Park, Hornchurch, Essex RM12 5BQ, England. For more information on this, see my 'Speaker Hospital' feature in the September 2006 issue.

As for your preamp, Robert, I can think of none better than the MF Audio Passive Preamp - with six inputs, full balanced operation (if needed) and the best sound I've heard so far! Prices start at £1,500 for the copper version. **DP**

FOAM ALONE - PART ONE

I have an ageing pair of Boston A40 speakers. After deterioration in sound quality, a little investigation found that the woofers had disintegrated around the outer edge. Is it worth replacing just the woofers or has technology moved to make it worthwhile buying new speakers? I have an integrated Denon DRA375 RD amplifier of a similar age. If replacement is necessary, what would you recommend? My budget would be about £250 and I would prefer a pair of floorstanding units.

David Atherfold

David, your A40s have succumbed to the dreaded foam rot and to resurrect them you have two options. Firstly, whip out the woofers and send them to Recone Labs in Huddersfield, who will be able to fit new surrounds to them. Go to www.loudspeakersonline.com/reconelab.new/index.htm or telephone 01484 533038. I haven't used them myself, but have heard nothing but good reports of their service. The only downside is that, according to the price list on their website this is likely to cost around £90 plus carriage, so it depends how attached you are to the Bostons.

The second option would be to buy the surrounds and fit them yourself, depending on how steady of hand and keen of eye you are! There are several companies selling surrounds, mainly in the US (if anyone knows of anywhere in the

UK, please let me know!) and I have used Newfoam before (<http://www.new-foam.com/>). Their deluxe kits come with surrounds, glue, new dust caps and shims for centring the voice coil - although surround replacement can be done without removing the dust cap. I find it much safer to use the shim method. Cost for a kit for your A40s is \$40 including international shipping, and so is more reasonable. Finally, if you decide it's all too much hassle, a pair of floorstanding Mordaunt Short Avant 904is come in bang on budget at £250 and should work nicely with your Denon. **AS**

I refer the honourable gentleman to the answer I gave some moments ago - an easy, cheap and proven option is Dave Smith at DK Loudspeaker Services (+44 (0)1708 447344) - but as Adam says, I think the MS904is would seriously better your old A40s for only a hundred and fifty or so quid more. Generally, it's only worth re-coning classic high end speakers - ones that don't do what moderns do - and the Bostons, although good in their day, were still cheap and nothing really special. **DP**

FOAM ALONE - PART TWO

I am trying to find acoustic foam for JR Loudspeakers LPA subwoofer, serial no 2347 purchased around 1974. Do you have any contact numbers for a firm or info about specifications for the speaker? It is a 20in diameter (drum shaped) speaker with Seas 8in driver (foam is a collar 2.5in high by 1.5in depth). It is an oldie but I would like to restore it, so I would appreciate any help you can provide.

Bj Omara

I presume you mean grill foam, rather than foam surround or internal damping foam - in which case contact Wilmslow Audio on tel: 01455 286 603. **AS**

FROM CHINA WITH LOVE

In the August 2006 issue, Jonathan Heyes writes about some problems with his MeiXing MC67HA amplifier. Regarding the shop wanting a schematic before investigating the problem, try writing to MeiXing about the schematic: I've bought a Ming Da MC767-RD (phono amplifier) and wrote to mingda@mei-xing.com, which produced a schematic in less than twenty four hours.

From the schematic of my amplifier, it does indeed look like the amplifier is designed to take the two triodes in a E182CC coupled in parallel as rectifiers; but the amplifier does come with Russian (Chinese copy?) 6N6P-I which

has about the same parameters as the E182CC; but certainly not the same pin-out! With this information, it should be no problem to check from the current wiring, if the triode is wired as a 6N6P-I and no problem to rewire it for E182CC. But, as mentioned, MeiXing does answer emails, sends out schematics and very fast indeed, so do get the schematic for the MC67HA first.

As a side note: the MC767-RD phono amplifier (which should the phono stage from the MC67HA as a stand-alone amplifier) comes with 5670WA tubes for amplification; and while these tubes produce a very sweet mid-tone and treble, the bass is next to being totally absent. So I asked for the schematic so I could rewire the amplifier to use 12AX7/ECC83 tubes instead.

DP said in the August 2006 issue, "better in my opinion to drive turntables directly, or by the rim, or failing that by a single belt via the best, lowest noise motor available". In the September 2006 issue is a photo illustrating a piece about DP's system which looks like a belt-drive Michell turntable on the top shelf (I wonder how he gets an LP onto

Thanks for the contact advice John, as well as the detailed valve information. The 6N6 is a bit of a mystery to me, appearing to be a Chinese 'default' triode. I suspect some Chinese factory is turning out large quantities cheap (\$6 a pop). If anyone can provide more info, please do. Vincent use it in the SV-236, to good effect.

Er - yes, I don't want to be rude but Shure's V15-III was sleep inducing even in its time. Smooth, that's for sure. Shure later produced the superb V15-VxMR, which really brought life back to music, but they discontinued it recently. You would not be disappointed with a modern Goldring I feel, and it sounds like it is time to treat yourself to one! **NK**

Hi John - if I had a pound for everyone who's looked at my system picture in my 'On the Run' feature, and pointed out some seeming contradiction between my system and what I write, I'd have lots of pounds! So can I say for the record that I have two systems in my house,



DP's system, for a brief moment in time only!

the turntable on the bottom shelf)!

The platter on my direct-drive Dual 701 keeps going round after thirty odd years and the original V15-III still keeps making music, although some call its sound somnolent. I wonder how this antique would sound in A/B testing against a modern unit at a comparable price point (the 701 was £250 in 1974, as I recall).

The photo also reminded me how ugly hi-fi can be. Not the individual units, which can look great, but the result of stacking them all up and connecting them all together, especially when cherry picking the best bits of kit from different sources. An all-Naim or all-Linn set-up can look smart but Naim and Linn do not make a cassette deck or a CD recorder and the LP12 can't be said to match Linn electronics. Does anyone make a good hi-fi equipment rack with opaque doors?

John Flood

plus another twenty or so bits of kit (classic and new) boxed in my garage which are pulled in for reviewing as needed. The snapshot in that feature was precisely that - a snapshot in space and in time - not the last word on my definitive system! The pic shows various recently used bits of kit, some no longer in action, some now returned, some half-dismantled, plus the bare bones of my main reference system. What it doesn't show is that right now, I have a Pioneer PL-L1000 quartz lock parallel tracking direct drive turntable as my main source. The Gyro is better in some respects (sweetness, imaging), the Pioneer in others (bass grip, pace, rhythm, tempo, detail). So I stand by my pronouncements. The trouble is, I wish I had one deck that had the best of both worlds - the Garrard 401 comes close but it is coarse and curtailed across the upper mid



JungSon JA88D – forward but tameable with clever matching!

and treble, in my opinion. So to all turntable makers out there I ask you - please, please, please make a high end direct drive to keep me happy! (On this very topic, just to tantalise you, a major European brand is planning just this - which will really put the cat amongst the pigeons!) Couldn't agree more that the system's plug-ugly, though! **DP**

THE REAL ZING

I tuned my system around some of the reviews in your magazine, basically with very good results. Today I have a JungSon JA88D full Class A integrated (replacing a Pathos Logos, because of pure clarity and pace), a Bow technologies ZZ8 CD player (seven years old but musically still one of the finest) a Michell Gyro with TecnoArm and Benz Glider and a set of ProAc Response 2.5 with (oh yes) JAS supertweeters.

There are three things that would require some extra tweaking. First is the integration between ProAc and supertweeters. The overall sound is okay but I wonder if there is a one-box solution that betters my set up in (timing) integration? Have you experienced

for example the JAS Odins? Are there other speakers available that have the combination of the ProAc's bass warmth and the high detail level of the ribbon tweeter? Second, the top end 'zing' of the JungSon - are there amps with the same character, speed and most of all midband clarity sounding less 'zingy'. Third, the CD performance betters the Gyro - how can I best upgrade the turntable (Orbe platter, PSU)? My budget would be around £3,000 and I would appreciate your advice on this.

Bert Van Dijck
Belgium

I suggest you try and listen to Pinsh 2.1 loudspeakers if possible, with their unique ribbon tweeters. At £2,100, they would be an ideal match for your current set up. **NK**

The JungSon is full Class A, and you're not going to get that clarity from any other non Class A amp, except the Sugden A21a. However, the Sugden has dramatically less power, and is extremely fussy about speakers. You'd struggle to get high volumes with Pinsh 2.1s (at 88dB sensitivity,

quoted), and certainly the ProAc's would barely make a squeak with their 83dB sensitivity. So I'd stick with the JungSon and go - as Noel rightly says - for the super smooth Pinsh 2.1s, which will really fill out your sound, and suppress that zing. Match with a smooth cartridge - in this respect the Ortofon Kontrapunkt C is peerless, and things will really mellow and gel.

The Orbe platter mod is another obvious step - this makes the bass firmer and more meaty, and takes down the Gyro's tendency to sound 'mechanical'. A good intermediate step is the £79 SDS Isoplatmat - available from the Origin Live shop (www.originlive.co.uk), which smooths the Gyro, adds depth and dimensionality, and musicality too. This done, and about £3,000 poorer, you'll have a really nice system indeed! **DP**

CUTTING MATTER

Having just browsed through your October edition, I saw your reader's letter 'On The Buses' from Paul Clewlow, regarding problems with the pickup arm height adjustment on his Goldring GL75.

I am sure that there are still many of these long-lived decks giving good service and as I know a bit about them, here is the reason for his problem and a possible remedy. The arm has a steel knife-edge bearing that for some reason sits in V shaped rubber lower bearings. Over the years, the knife-edge slowly cuts down through the rubber of the bearings. This lowers the arm in relation to the armrest and platter so correct height adjustment is no longer possible and to make things worse, the rubber sandwiches the blade of the knife edge, making the arm want to stay horizontal, so that it won't allow the stylus tracking force to be set properly. This is a shame, as the GLs are rather nice sounding units, when set up well in a good solid plinth.

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Unfortunately, I am not aware of a source of replacements for the rubber lower bearings. However, some years ago I cured this problem by stripping the arm top to reveal the bearings, removing the V rubbers and filing from Tufnol block some replacements of the same size and shape and bonding these into the arm housing. This worked a treat! You need to be good with your hands and a bit on the practical side though. Being more adventurous, you can to advantage remove the existing arm and lifter altogether and with a bit of care and thought mount a better arm onto the steel chassis. This is worthwhile, as the turntable platter and motor assembly far outperform the abilities of the original arm and they can then give a surprisingly modern standard of performance. There are other points to consider. Good lubricants for the platter main bearing are worth experimenting with. I found a mixture of EP80 gear oil and a small amount of STP silicon oil treatment gave the best result, being sufficiently viscous to keep the spindle concentric within the bearing whilst it was rotating. Hence no metal to metal contact, longer bearing life and very reduced rumble (not that there's much anyway).

Remember to release the retaining screw on the side of the main bearing before trying to lift off the platter and be careful when re-installing the platter spindle into the main bearing, as hydraulic pressure from lubricants can blow off the polythene cup seal from the bottom of the bronze main bearing. Clean the underside of the platter, the tapered motor spindle and the rubber edge of the idler wheel with alcohol and this will ensure proper contact throughout the drive mechanism reducing any slipping, thereby improving speed stability. This also keeps mechanical noise down.

Many these days would dismiss the Goldrings as obsolete and just not up to it any more. I feel they still have something to offer, as do the older British turntables like Garrard and Connoisseur. I still have a Connoisseur BD1 in use, anybody remember those? So underrated.

Geoff Watkins.

Geoff, Many thanks for your thoughts and advice on the GL75 arm. As a matter of interest to you and any other owners, replacement rubber V-blocks can be purchased from Technical and General in Crowborough (01892 654534), although personally I have always also been quite keen on the idea of having some manufactured in a harder-wearing material. Sadly, a friend of mine sold his metalwork company before I had a chance to discuss the

matter with him! I completely agree with you that the Lencos have been unfairly ignored for a while now and are a more than viable prospect for tweaking - the increasing numbers of exotic Lenco conversions cropping up on the internet seems to suggest that we are not alone.

As you rightly say, there are quite a few older decks out there that respond surprisingly well to a spot of maintenance and selective updating here and there, and are well worth a few hours effort - the trick is being able to sort the good from the bad. I must say that, after servicing/rebuilding four of the things, I personally consider the Connoisseur BD1 to fall firmly into the 'bad' category, but if you like yours, that's the main thing! **AS.**

JAPANESE ZERO

I found a very useful little accessory - given to me as a birthday present - imported directly from Japan but available on the net. It is a little blob of white jelly which you can lower your stylus onto - all the fluff and dirt will stick to the stuff and leave the stylus perfectly clean. It is called ONZOW Zero dust stylus cleaner and comes in a little green box. It came with an info sheet on the company - all in Japanese unfortunately (I cannot read Japanese) and they seem to be a quite mad bunch with pictures of 45rpm vinyl and loudspeaker drivers with strange protuberances! The jelly lump worked really well and is perfect for a klutz like me who has trashed quite a few styluses over the years.

I read your article on replacing wadding in speakers (August 06). I have no idea how toxic BAF wadding is if you breathe it in, but I do know that fibre glass used by some manufacturers is classified as a potential carcinogen. I am quite paranoid about this and sent an email to Epos regarding my M12 and they say it does not use any fibre glass but I still wonder what is inside. So I want a Sealed box loudspeaker like ATC SCM 7 just to be sure. I hope you will review one soon as they seem to have a new model out.

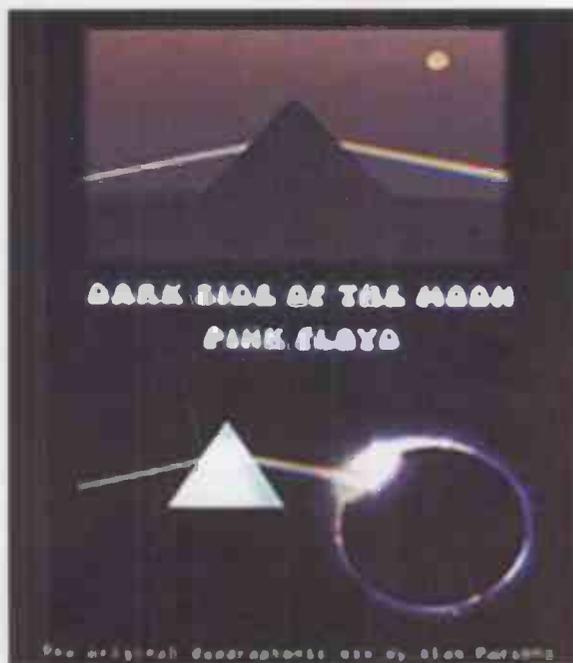
K. Fonseka

I must say the Zero dust looks interesting, although I would have constant fear of lifting the arm back up to find the stylus and cantilever still embedded in the jelly! I may well stick to my Audio Technica vibrating cleaner, as I'm a coward at heart! **AS**

I am not aware that fibreglass wadding was ever used in loudspeakers, unlike lofts - including mine. This is one of those delights from the past, like Cadmium, Lead and Asbestos, not to mention Tobacco. Happily, loudspeakers do not contain any of them, although loudspeakers have been known to start smoking. You need to prevent this. **NK**

THE DARK SIDE

It was interesting reading September's Classic Cuts about Pink Floyd's 'Dark Side Of The Moon'. I quite agree with Paul's findings, having had an original LP pressing (stolen long ago), a dodgy replacement from the 80s, the 30th anniversary LP reissue, the first CD release and finally the SACD. I can't compare the original to the 30th anniversary LP but the reissue certainly sounds as good as I remember it. The SACD is also well worth having in stereo and surround sound. However, the best version available by some way in my opinion is the quadraphonic mix by Alan Parsons on DVD Audio, which is now available to those with a broadband connection and a DVD burner. It is rather sad but apparently EMI have no intention of releasing this work. It does also make one wonder why they got the album remixed to 5.1? The quadraphonic mix is quite different to the stereo and 5.1 versions; it sounds like he



The original Dark Side of the Moon quad mix is now (illegally) downloadable on the net...

has used some different takes of some instruments in places. I can't comment on the legality of downloading this piece, but if it is not for sale then EMI is not losing money. The artists may be missing their royalties, but they have certainly got a fair bit out of me already. I would have quite happily bought the album if it were available commercially!

However, this brings to light a point often missed in the debate between DVD Audio and SACD. You can't make your own SACDs but you can make your own DVD Audios. DVD Audio makes high resolution available to musicians and analogue archivists. I feel SACD could have been promoted more by the record companies and they would have had a benefit of reduced piracy. Instead they have tried to put root kits on our computers and make CDs difficult to track - steps which punish the legitimate consumer. I couldn't feel sorry for them if your readers were to download their own copy of something that deserves preserving...

Robin

Hi Robin - yes, interesting point. I've heard this 4.1 'download DVD-A' and put it against the SACD - it's certainly interesting and in many ways cleaner. The Alan Parsons mix pans the instruments out into the room more, the official Guthrie SACD 5.1 remix sounds more 'of a whole', and a little stronger in the bass, I feel. Either way, it's a shame that EMI hasn't put it out. **DP**

MYSTERY AMPLIFIER

I have seen the letter regarding Bill Parish's "Mystery Amp" in the November issue of Hi-Fi World. The amplifier is a monoblock design by Steven Marshall and Derek Frost originally published in the May and June 1983 issues of "Radio and Electronics World". Complete kits were available from 'CIRKIT' of Broxbourne Park, Herts.

The output devices were bipolar transistors (two pairs of SM3159 and SM3160) which gave a power rating of 130W into 8 ohms with a 250VA power transformer. The "battleship grey" boxes were also used to house a matching preamplifier and tuner.

The amplifier board can be replaced with a standard Hitachi MOSFET kit, once available from Maplin and others, whilst retaining the original power supply.

Leslie Bourne.

Bill Parish's mystery amp is actually a kit design, the 'MA100 monoblock' that was published in the May 1983 issue of 'Radio & Electronics World'. I think the magazine is now no longer published, so hope they don't mind that I've scanned in the article for your interest and placed the pages here:

http://uk.pg.photos.yahoo.com/ph/tonylo@btinternet.com/my_photos

It's always difficult to appraise your own design and most DIY articles don't do

this. However, I note that doesn't seem to have stopped them here! Probably this reason, along with the use of an Op-amp at the input and the overly complex nature of the design is why I decided it wasn't worth building. Not objective, I know, but DIY'ers have to use criteria of some kind, personal prejudice and 'gut-feeling' being as good as any!

On another note, I went to the two London Hi-Fi shows last week - my first time visiting a Hi-Fi Show. It was a good fun day out. I can understand your choice of hotel compared with the 'one across the road'! Very well done.

cheers,

Tony

Many thanks to Tony and Leslie for their identification of Bill's amplifier, and their replies go to prove our long held theory here at Hi-fi World that, no matter what your audio question, there is a reader out there somewhere who knows the answer!

AS



Silver eighties biscuit tin identified!

Billy Vee

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WIN A FANTASTIC ACOUSTIC SIGNATURE TANGO PHONO STAGE AND GRIP WORTH £595 IN THIS MONTH'S GREAT COMPETITION!

Here's your chance to win the great Acoustic Signature Tango phono stage, and matching Acoustic Signature Grip mk II record clamp, together worth £595! In the November 2006 edition of *Hi-Fi World*, Noel Keywood reviewed the Tango, and here's what he said:

"The Tango rear panel carries one pair of phono inputs and one pair of outputs, plus an earth terminal and power input, so connection is easy enough. Two pairs of eight-way slide (DIP) switches alter settings on left and right channels... Tests showed that for an MM load of 47k DIP 5 must be set up to MM; otherwise you get a much higher value. Also DIP 1 must be Up for MM gain (i.e. low). DIPs 2, 3 and 4 provide extra loading capacitance for MMs, in 50pF steps up to 350pF. Nowadays MM cartridges rarely benefit from extra loading. Frequency response will change, rarely for the better. Load can be set

to 10 Ohms, 100 Ohms or 1k Ohms, a useful range.

The Tango does sound warm, but that is not say it lacks either clarity or dynamics. There was a tendency to listen into performances more and also, I found, to turn volume up and up! It has richly textured and engrossing midband that allowed vocals a full range of expression. I had no quibbles listening to either Jackie Leven or Alison Goldfrapp with the Tango, as they were nicely lifted from the mix to have a gentle yet quite forceful presence on the sound stage that was captivating. Spinning Eddie Grant's 'Electric Avenue' at 45rpm had opening synth sounding big, bold and grippingly powerful: I nearly jumped from the settee. Dubs of vocals and synth stabbed out powerfully from the Yorkminsters - this preamp has real push and comes over as exciting, yet without the obvious cutting edge of other designs. It has big, rounded bass too that underpins the sound nicely, giving performances plenty

of body and power. I did find myself smiling to insane dynamics from the 'Ride a White Horse' 12in 45 as I found myself turning volume ever upward. I felt the Tango MM stage was a good one, if characterful."

The Acoustic Signature Grip mk II record clamp is one of the most exquisite devices of its type we've yet seen. Beautifully made in aluminium alloy on high precision CNC machines to superb tolerances, it works ingeniously. Simply place the record on the pater and place the clamp on the record. Press and turn the upper knob clockwise to lock the unit. The record clamp's peripheral edge will force down the outside of the record label area thereby causing the record to completely contact the platter surface. To remove the clamp, it is only necessary to turn the knob 1/4 turn counter clockwise - the knob does not have to be unscrewed completely. Whatever turntable you use, it is bound to look, feel and sound fantastic!

If you'd like to win this fantastic phonostage and record clamp, then all you have to do is answer the following four easy questions. Send your entries on a postcard by 30th November 2006 to: **December Competition, Hi-Fi World magazine, Unit G4, Argo House, The Park Business Centre, Kilburn Park Road, London NW6 5LF.**

RULES AND CONDITIONS OF ENTRY

- ONLY ONE ENTRY PER HOUSEHOLD
- 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

QUESTIONS

[1] The Acoustic Signature Tango is what?

- [a] a dance
- [b] a soft drink
- [c] police jargon
- [d] a phono stage

[2] During the review, Noel nearly jumped from what?

- [a] his skin
- [b] his balcony
- [c] one thought to another
- [d] his settee

[3] The Grip record clamp is made from what?

- [a] spam
- [b] cheese
- [c] magnesium
- [d] aluminium alloy

[4] To remove the clamp, which way do you turn it?

- [a] clockwise
- [b] inside out
- [c] round and round
- [d] counter clockwise

December Competition
Hi-Fi World Magazine
Unit G4 Argo House
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Kilburn Park Rd.
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entries will be accepted on a postcard only

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SOMETHING DIFFERENT?

At V'audio we do try and look out for something that little bit different from the usual products available at your average Hi-Fi shop, if only because we are not a shop, and deal more directly with our customers. The AVI products we mainly sell because they sound excellent, are very good value, and within the budget of the average customer.

The Integrated Amp and CD Player at around £1500 each, plus one of their floorstanders (Duo, Trio, Brio for £1300/3250/4950 respectively), take some beating. The Brio is a particularly good bargain, if you can afford it! For something different, we have the Electrocompaniet (E/C) range of electronics, with the EMC-1UP top loading CD player, being a particular favourite at £3200. Their new Multiplayer will be available shortly. On the speaker front, the Nola range from the USA, competes with the best in the world, particularly the Viper range (see www.nolaspeakers.com), and we are looking forward to the most recent addition, namely the Viper Reference, which we should have in around November. Larger than all the others in the range, this replaces the original Signature, and similarly has an outboard cross-over, and uses bass drivers from their \$100,000 Grand Reference IV. The Signature sounds great with the E/C front end. Will report once in stock and evaluated! Do phone for a chat or demonstration.

V'audio HI-FI Consultants

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- Silver plated 4mm plugs: £3.50 each
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- Inca gold plated mains plugs: £20 each

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- Deoxit contact cleaner/enhancer: £13.95
- B9A ceramic gold plated valve sockets: £2.95 each
- UX4 ceramic valve sockets (for 2A3/300B): £5.95 each

All items are available via mail order or in person from our shop, please call or visit our website for further information.

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Listening

to your mains

Would you put paraffin in a Ferrari? No? Then don't think, "I'll improve my mains after I've bought everything else. Main boxes first."

Big mistake. It's not an afterthought because mains quality will affect your CHOICE OF EQUIPMENT!

Yes, upgrading boxes at significant cost should bring improvements but rubbish mains will still sap results. You may even choose "gentler" components to paper over problems such as:

- hard, edgy sound that's tiring,
- lack of depth, no height separation,
- lumpy bass and, worst of all,
- **NO INVOLVEMENT WITH MUSIC** – all symptoms of poor mains quality.

CD players especially suffer, as the processor converts radio interference along with the music signal. Result? – the brittle, glassy sound wrongly dubbed as "digital". It's RF.

As mains quality is so fundamental it's another mistake to look for low cost solutions, but **UPGRADING YOUR SUPPLY WILL COST LESS** than changing major components and will lay foundations for future upgrades.

Our strong favourite for mains components is Vertex AQ, their cables, filters and the **NEW POWER SUPPLY** – incredible.

Don't believe us – try before you buy, but **DON'T BUY ANYTHING ELSE** until you have tried!

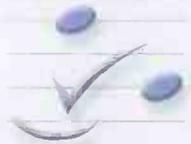
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Stands for Quad ESL63 loudspeakers. Ex condition.	£ 75	Sony CDP-M303 CD player. Boxed. Remote. Cheap	£ 25
Grace G707 tone arm in excellent condition.	£ 150	Rotel RC965BX CD player. Trichord clock 2 mod.	£ 175
Trichord Research Pulsar one Dac with book. £1399	£ 599	Trichord Research powerblock 500. Mint condition	£ 195
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Musical Fidelity T1 FM tuner. Award winner. £300	£ 95	Pioneer PD-S505 Cd + PSU & Mod by Tom Evans	£ 499
Nakamichi DR3 2 head cassette deck. Mint & boxed	£ 175	Teak sleeve for Quad 33/FM3 Excellent condition	£ 39
Audionote DAC 3 Valve output. Stunning. £1750	£ 1750	EPOA Jungson Moon. OEM version of Inca Katana Scratch	£ 375
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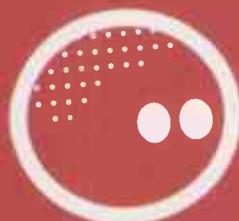
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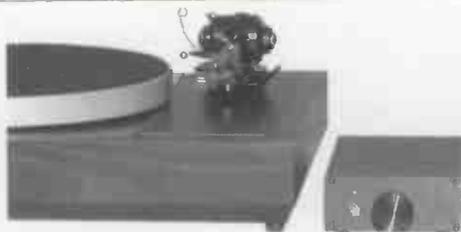
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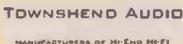
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Listen Carefully

Calm and intelligent equipment demonstrations
 for lovers of all types of music

I represent just 10 suppliers in my deliberately small specialist showroom in North London. My belief is if the retailer can't make up his or her mind, how can the visitor be reasonably expected to? Through choice I have no staff. The ultimate size of my twin businesses (I own simply-STAX) is limited by the care I can offer my customers.

I am inescapably accountable for your total satisfaction. I wouldn't have it any other way - and neither would my customers

I don't have anything to do with plasmas, home cinemas, cable bandits, dynamics-crushing mains filters or anything else I'm not passionate about.

At heart ...

I'm a systems man. This means that while I'm happy to suggest and demonstrate various individual items that should and probably will make an immediate and worthwhile improvement in your current set-up, my specialisation is getting components to work together - as a properly integrated system.

I demonstrate 5 very carefully constructed systems with sensible and demonstrably worthwhile options using equipment from Brinkmann, Dyer, Funk Firm, LAT, LFD, Lumen White, Lyra, Musical Fidelity, Podium & Stereovox. These 10 makers offer a series of alternatives that quite literally consistently extract the finest from all recorded formats, on every type of music at all volume levels in every size of room from 120 ft² to 600 ft².

This innovative approach seems to work. In the previous 18 months, literally 87% of all visitors have purchased their lifetime systems from me. Not necessarily during the first visit - but having done the rounds of the 'usual suspects' - they return here. I say 'lifetime' because having got it right the first time, to date no one has invited me or any other specialist retailer to upgrade their chosen Listen Carefully system.

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It's true that going the system route is a bigger initial investment in the short-term, but you save overall in the long-term by avoiding unnecessary upgrades.

Demonstrations

There's a relaxed atmosphere, a marked contrast to traditional demonstrations in conventional dealers.

I offer just one demonstration slot in the morning, one in the afternoon and occasionally one in the evening. No fuss, no hurry, no interruptions, no other visitors, no parking wardens - and no coercion.

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I should point out that ...

My overriding passion is music. That's my motivation. I can be like this because my primary income comes from outside the industry. My objective is to help music lovers achieve the same musical joy that I do. The majority of my customers are over 40 years old, experienced listeners and not joined at the hip to any particular brand. They find my approach refreshing - so they tell me. Prepare to be amazed.

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Analogue			Cardas Golden Cross 1.5m Balanced S/H	940 499
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PRODUCT TESTING IN HI-FI WORLD

Hi-Fi World measures all incoming products before sending them out to reviewers and is unique in having such a rigorous vetting system. It reflects our dedicated approach to assessing audio equipment. Nothing gets by before thorough scrutiny.

In-house measurement is costly and time consuming, yet it has always been central to our belief that both readers and manufacturers deserve it, because there is no alternative if complex technologies are to properly assessed.

Measurement achieves many things. It ensures a product is working properly before it is subjectively auditioned. We pick up problems like loudspeaker drive units wired out-of-phase by accident, digital filters that roll-off in a bizarre fashion due to design error, a transmission line loudspeaker with no bass (!), amplifiers with excessive d.c. offsets, excessive jitter and all manner of other funnies.

Manufacturers published data is then checked against our measurements. There is usually little problem here.

The reviewer is then given the results. This gives useful guidance on what to watch out for in listening tests. For example, if three CD players use the same chip set they may well sound much alike in their basic attributes, if not identical. This is useful information for a reviewer.



Hi-Fi World uses a range of test equipment from around the world, including a Rohde & Schwarz UPL for testing CD and DVD players. Amplifiers are tested with 8903B Audio Analysers from Hewlett Packard. Loudspeakers are measured with a Bruel & Kjaer measuring microphone and Hewlett Packard 3561A spectrum analysers. We use three of these for basic test work and to ensure our listening room and conditions are balanced. Tuners are measured with a Leader 30125 Lab generator and Marconi 2015 RF generator, plus external MPX filters and equalisation.

We continue to upgrade our testing to keep up with the latest standards, to ensure that both readers and manufacturers receive the most accurate information possible about the items we review. No one does it better than Hi-Fi World.

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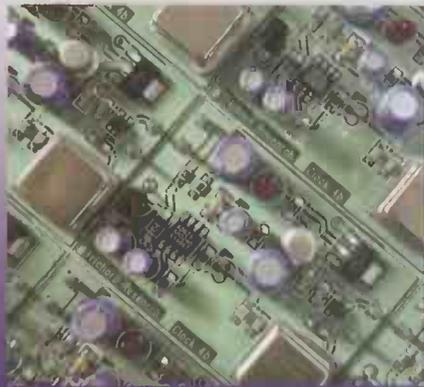
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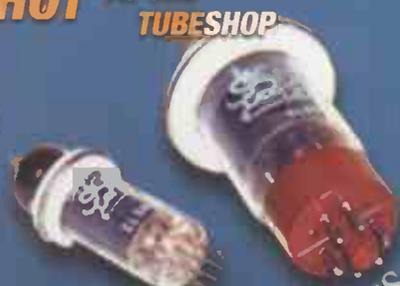
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VINYL LP's Wanted. Folk, Rock, Jazz, Blues, Reggae, Soul, Classical. Must be in excellent condition. See website for more information. Phone:- 0845 094 1997 Lists:- tantrel@bigfoot.com Website:- <http://www.tantrel.com/> (Mar07)

BRILLIANCE INTERCONNECTS and speaker cables employ Teflon insulation throughout. HFW said 'Results way beyond those expected at the price' and 'Sound/£ ratio is superb'. Demonstration cables available. Contact Mike on 07963 117 341

www.brilliancehifi.co.uk (Dec)

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AMAZING CABLES! DIY or ready made solid silver interconnects, speaker cables and powercords, with world-class connectors. True high end performance at real-world prices. Sole UK agent for Voodoo Cable of Germany - www.voodoo-cable.com Tel. 0115 982 5772 after 7pm, Email bob@skydivers.co.uk (Jan)

AUDIOPHILE OBJECTIVE for New, X-Display and Preowned Hi-Fi. Regular brands and some not so known. We're 5 miles south of Stansted airport in Sawbridgeworth. Free. Parking. Tel: 01279 724 024. Hi-Fi Purchased. (Feb)

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"AMPS" QUALITY Valve Amplifiers: Repaired, restored, upgraded. Kits assembled. Experienced Engineer. Free estimates and fair prices. Tel: 01525 756 935 Website: <http://www.valveamprepairs.co.uk> Email: amps@dhaen.co.uk (Jan)

NEAT MOTIVE loudspeakers ex demo, Motive One (oak) £1295 for £895, Motive Two (rosenut) £945 for £775, Motive Three (oak) £725 for £545, Motive Centre (maple) £475 for £275, all carriage paid within UK, contact 01463 831658 or Email: highlandaudio@tiscali.co.uk (Dec)

AUDIOPUBLIC, 78 Otley Road, Headingley, Leeds, 0113 217 7294.

Yorkshire's newest Hi-Fi retailer, stockists of Naim Audio, Rega Research, Conrad Johnson, Sugden, Dynavector, (cartridges and amplifiers) and many more. Please call for advice. (Nov)

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NORTHWEST AUDIO Jumble, Saturday 11th November, 10.00am to 4.00pm. Stanfield School, 134 Liverpool Road, Crosby, L23 5TH. M62, M6 access. Parking, Refreshments, Hi-Fi Bargains, LPs, CDs, Magazines. Trade tables available. Phone John 01704 530 928 (Dec)

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NEXT MONTH

AWARDS SPECIAL

Christmas is the season to take stock of the year that has been, and look forward to the next. What better time then to hand out the gongs in Hi-Fi World's annual awards extravaganza? In the January 2007 issue we'll be giving baubles to the best hi-fi reviewed over the past twelve months. As this has been an exceptionally fruitful time for affordable new audiophile gems, it won't be easy – but should make fascinating reading all the same.

Continuing the theme of excellence, the main magazine is devoted to all things bright and beautiful – audiophile greats we have known and will know. Here are just some of the things we hope to bring you...

NAIM NAC122x/NAP150x/FLATCAP 2x PRE-POWER

MARTIN LOGAN VANTAGE LOUDSPEAKER

ARCAM DV137 DVD UNIVERSAL PLAYER

MONITOR AUDIO RS8 LOUDSPEAKER

BASIS 2001 SIGNATURE TURNTABLE

GT AUDIO PHONOTE PHONO STAGE

REVOLVER CYGNIS LOUDSPEAKER [pictured]

EERA DL1 REFERENCE CD PLAYER

THE EMT TURNTABLE STORY

USHER 718 LOUDSPEAKERS

EBAY SURVIVORS GUIDE



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JANUARY 2007 - 6TH NOVEMBER 2006

FEBRUARY 2007 - 4TH DECEMBER 2006



BEACH BOYS

PET SOUNDS

1966

Like Pink Floyd's 'Dark Side Of The Moon' or The Beatles' 'Sgt. Peppers Lonely Hearts Club Band', 'Pet Sounds' is one of those albums that has seeped into the public consciousness. Also, like those popular albums, there have been umpteen reissues on various formats and all of varying quality.

EMI can now be forgiven because it has now done to 'Pet Sounds' what it did to 'Dark Side Of The Moon' – taken an anniversary as an excuse to spruce up the sound quality. The 'Pet Sounds: 40th Anniversary' package includes the album's mono and stereo mixes plus a bonus track. The limited edition CD/DVD digipak features the album in mono, stereo, Dolby Digital 5.1 surround sound and 24bit/96kHz PCM stereo mixes. It arrives in a suede-feel package. You also receive a DVD with plenty of rare footage. The DVD is presented in Dolby Digital 5.1 surround sound and 24/96 PCM stereo audio mixes of the album plus a 24/96 PCM mono mix of the bonus track, 'Hang On To Your Ego'.

The CD version, remastered as HDCD, is highly recommended with only slight reservations. For example, the mono mix has been recorded at a higher level than the stereo or 5.1 tracks which accentuates the original midrange harshness and an audible tape hiss but is also more dynamic. The stereo mix is excellent - it's a lot smoother. The improvement relates to the 5.1 surround mix too which is basically the same as the, earlier, recommended DVD-A version. There are no vocal or instrumental grouping gimmicks, in the surround field, it all sounds like a natural extension of the

"It was Pet Sounds that blew me out the water... I love the album so much I've just bought my kids each a copy of it for their education in life. I figure one is educated musically 'til they've heard that album." Paul McCartney

mono mix.

For vinyl fans, if you get your skates on you may still be able to pick up the new double album version of 'Pet Sounds' out now under the same '40th Anniversary' banner. Presented as a coloured vinyl package, it is limited to 10,000 numbered copies worldwide and features both the mono (which was taken from a new, first-generation, mono master) and stereo mixes (remixed from the original 3-, 4- and 8-track master tapes) in a gatefold sleeve. This release marks the first time that these thirteen stereo mixes have ever appeared in the vinyl format. The cutting of the vinyl was completed by the veteran and highly regarded vinyl man, Ron McMaster.

It was in early 1996, thirty years after he produced the original album, that Beach Boy Brian Wilson remixed 'Pet Sounds' in stereo, "The original instrumental multi-track was transferred onto a digital multi-track and then after carefully matching the tape speeds of the track and vocal tapes, the vocals were manually synchronised to the track using the (1966) dubbed track on the vocal tape as a guide," said the reissue engineer, Mark Linett, of Your Place Or Mine recording studios, whose task it was to recreate the stereo track version.

At this point, Linnet knows

more about the Beach Boys' master tapes than anyone else and he's lavished the group's catalogue with a care and attention worthy of such distinguished work, "The result was a single multi-track master tape of each song with all the discrete tracks that Brian recorded in 1966 in sync." Linett also handled the mono mixes which exhibit differences from the stereo mixes.

Linett was also eager to retain the analogue 'warmth' of the recording, "I mixed from Nuendo (a modern media production system) but mixed analogue through my API 2488 (a classic analogue studio console) and, in some cases, also fed through tube outboard modules that are the same as the ones they used in the original console at United Western," Linett said. "As on the stereo mix, I tended to feed the basic tracks and, in some cases, vocals back through the console just because of the sonic footprint it would impart. We transferred everything at 24/96 and mixed back to Nuendo and also to analogue (via a Studer reel-to-reel) at 15 ips SR (Dolby SR, which enhances the low end at 15 ips), which is where ninety percent of what we used came from."

Needless to say, for the best sound quality, both the new CD and vinyl versions of this edition are the ones to track down. **PR**

EST.



1979

The Audio Salon prides itself on products which offer superior value and performance compared to the High Street brands "the usual suspects." Incorporating recent launches at Colorado (CEDIA), Milan (TOP) and London's two Shows the cream of the crop come together under one roof, ten minutes from Glasgow International Airport.

4 Park Circus, Glasgow, G3 6AX, Scotland
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ATCC

A whole new range; from £499 to £1999. Upscale they have introduced tower versions following the acclaim of their 30th Anniversary Limited Edition. If you want to hear it as it sounded in the studio, check these out!



REVEL

The much awaited Ultima Gem, Studio (\$15,000 per pair) and Salons (\$22,000) were launched. Expect a big performance increase on previous models and a more Italian and conventional timber finish. The combination of Harman research facilities and the genius of Kevin Voecks guarantees future classics; could be the one for you!



OPERA

Opera offer cabinets with timber and leather remarkable even by Italian standards; and affordable. The value kept raising itself as the compelling reason we had to commit very seriously to this manufacturer. "These speakers sell for how little? Are you sure?" Opera is in stock and on demo as we write - from £695 up to £9,995. How to describe their sound? Detail and dynamics combined with Italian passion and organic authenticity. In other words: a high fusion of technology and music. Brilliant.



SYSTEM AUDIO

Based in Denmark and founded by music-lover Ole Witthoft. Noted for super value, the company has worked for years to design a flagship. At first glance the Explorer is a conventional slim Danish floorstander that will grace any living room. Closer inspection reveals a composite of 42 wood pieces. The drivers employ the lightest membranes ever employed: the challenge of 80mg for the tweeter is thrown out to all competitors. The result is audible. The price is the best news: £2,490 per pair.



PROAC

This aristocratic manufacturer is about to launch the Response D28. Slimmer and floor-ported than the D25 which it will replace, it will sell at £3250 - £3900 (premium finishes) per pair, UK including VAT. The D25 is already a sensation (buy our nicely run-in demo pair for only £2,350 (RRP £3,675 in Birds Eye Maple; an exquisite finish appropriate to this exquisite loudspeaker - they look as special as they sound).



THIEL

The wait for the much anticipated CS3.7 (shown at Los Angeles Show in June 2006) is almost over. The Show reports and previews give just a glimpse of this ground-breaking speaker. Pre-order yours from the Audio Salon today so you don't have to join what will be a very long queue!



ZINGALI

At the end of the alphabet and the conformity scale, Zingali is like no other loudspeaker in the world: a unique blend of coloration-free horn, compression driver, and the patented Omnidirectional dispersion. If you want to rise above loudspeaker sound, this range could be for you. Reflecting the neutrality of the design, the new signature flagship has no name. Yours is engraved on it. Employing 15-inch bass driver and 14-inch horn unit, these go on sale for £15,995 per pair. A lot of the same sound is available in a vast range of models from only £995 per pair (Prelude Ones). You won't find them in the High Street, because that marketing policy would escalate their price and dilute their no-brainer value.

To find out more - call the Audio Salon on 0845 4000 400 today!



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