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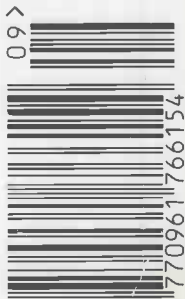
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**WHAT HI-FI?**  
SOUND AND VISION  
GROUP TEST

What Hi-Fi? Sound & Vision  
August 2006

**ROTEL**

# welcome

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The hardest thing about doing this 'ultimate speaker special' issue was not, as you may have thought, heaving huge tonnages of speakers here, there and everywhere (although that wasn't exactly fun). Rather, it was the need to come up with hard-and-fast conclusions where subjective preferences were involved. We realised there was no such thing as 'the ultimate' – just a selection of wildly different interpretations of the same!

In auditioning such greats as B&W's new 801D, Quad's new 2805/2905 and JBL's S4800, you're left wondering how such radically different presentations can each claim that mantle; they're all startlingly good yet sound so diverse. If there was ever a thing such as a perfect loudspeaker, then we didn't find it, and it sure wasn't for the want of trying...

So anyone who starts upon that long and winding road to 'hi-fi heaven' should bear this in mind. Don't go chasing rainbows in a bid to get the best sound. Rather, accept that even at the very top of the game, you're still going to have to go for the compromise that works best for you.

This issue is packed with great loudspeaker names from Bösendorfer to Tannoy and more; you can read all about our frantic loudspeaker lugging exploits from pages 10 to 49. But half the battle is getting the right ancillaries to drive them, and that's why we've got one of the very best CD players ever made for you on p52, Naim's brand new CD555/555PS. MF Audio's Silver Passive Preamp occupies a similarly exalted place in the preamplifier world – read about it on p70. Vinylphiles will love Origin Live's new Silver tonearm on p60, which comes close to the state-of-the-art for just £600. JungSon's JA-1/JA-99 on p66 offers a serious 150W Class A pre-power for under £1,000.

If ever there was a place to hear a vast array of tantalising high end (and indeed far more affordable) hardware – so you can make up your own mind about what sound you want and where you want to go with your system – it is the forthcoming **London Sound & Vision Park Inn Show**. On the 22nd, 23rd and 24th September at Heathrow's Park Inn hotel, there's a brilliant hi-fi show happening, sponsored by *Hi-Fi World* no less!

The list of companies exhibiting is a veritable 'Who's Who' of real hi-fi - at the time of writing it's over fifty five, and this includes all the brands you read about in this magazine, month in, month out. It's a brilliant day (or three) out, so I hope to see you there!

David Price, editor

## verdicts



**OUTSTANDING**

**EXCELLENT**

**GOOD**

**MEDIOCRE**

**POOR**

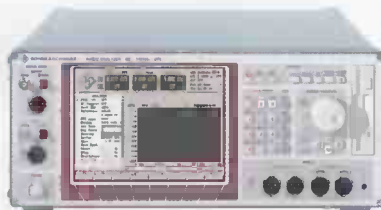
**VALUE**

simply the best  
extremely capable  
worth auditioning  
unremarkable  
seriously flawed  
keenly priced



## 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.



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**52** Naim's CD555/555PS - very probably the best CD player yet made...



**66** It's hard to imagine any better value pre-power than JungSon's JA-1/99.



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# news

## STRATOSPHERICA

Lumley's new Stratosphere was born some twelve years ago, suspension being the prime factor in its launch onto the market. The Air Pod (now manufactured by Clearaudio) was designed to "levitate the whole turntable on a bed of air". The new Mk 2 design boasts both suspension improvements along with materials and engineering changes. The new bearing uses a titanium nitride plated spindle operating in a non-metal cavity, supported via a special top plate fixed in the same material, which is "as silent in operation as can possibly be achieved using the permanent contact method", says Lumley. The main flywheel is driven using a silk thread, internally damped and balanced. Two damped acrylic platters take isolation to the extreme, allowing the final contact of a vinyl record to be as isolated as possible from all the workings beneath. The arm pod has been updated, with substantial damping and solidity taking precedence, and different versions are available to facilitate the fitting of most pick-up arms available in the market today. Finally, a new and far more substantial motor assembly complements the whole set up, a new mains powered motor allowing the best performance in the standard version. A new power supply will shortly be available to take the speed control and resultant sound even further. The Stratosphere 2 is said to be "once again, one of the very best turntables available today". It's available at a very reasonable extra cost in various different colour finishes with Gold furnishings, Black and polished Chrome being the standard for £12,000, plus £1,500 for the floor stand. For more information, call Metropolis Music on 01435 867438.



## TRANS EURO, EXPRESS

From Germany comes a range of genuinely high quality interconnects under the Oehlbach brand. We've tried them out and found them to offer excellent sound per pound and fine construction quality - more reports to follow. Starting the range is the Silver Express (£89/m), described as an "affordable high-end" stereo interconnect using silver-plated conductors and shielding. Silver Express PLUS (from £93/m) adds the unusual option of an earth wire for use with turntables and hum prone systems. The wire uses eight 0.12mm silver-plated OFC inner strands with double shielding (foil + silver plated OFC mesh) for heavyweight protection against all kinds of interference. The outer diameter is two by 5.5 mm and the cable comes with a transparent finish which shows the complex structure of the shielding. Double-shielded 24 Ct gold plated Oehlbach connectors complete the picture. For more information, click on [www.oehlbach.de](http://www.oehlbach.de) or call 020 8863 8979.

## STR-LOUDSPEAKERS

Stroud-based purveyors of professional monitor loudspeakers ATC have a new four-strong range of passive designs featuring improved cabinets, drivers and crossovers, hoping to build on the success of the SCM7, SCM12 and SCM35, and to introduce a larger two-way design. The new range comprises an updated version of the ultra-compact two-way SCM7 loudspeaker; two-way SCM11 and SCM19 stand mount speakers; and the floorstanding three-way SCM40. All the new models benefit from updated aesthetics featuring a stepped graphite grey double front baffle with curved edges for reduced diffraction and improved imaging; a new monocoque cabinet construction, which gives substantially more cabinet rigidity; a new neodymium 25mm soft-dome tweeter, which has an ATC precision-engineered solid aluminium wave-guide face-plate for better and smoother HF dispersion; and improved crossovers, featuring metallised polypropylene capacitors, large air cored inductors and ceramic wire-round resistors for superior power handling and clarity. Each new model offers a flat impedance curve, presenting an easy load for amplifiers of 50 to 300 watts, and is designed for optimum performance without the grille (although a virtually neutral grille is supplied). All four speakers are available in richly grained, light tone cherry wood veneer and according to tradition, each model number represents internal cabinet volume in litres. For more information, call the Acoustic Transducer Company on 01285 760561 or click on [www.atc.gb.net](http://www.atc.gb.net).



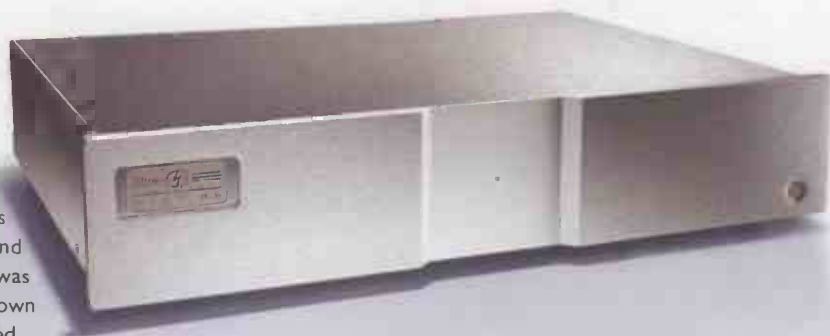


## BIG SCREENING

Denon's new AVC-A1XVA (£4,799.99) is the largest, heaviest, most powerful and most flexible AV amplifier ever made, according to its maker! Key for HDTV is that all video sources can be upscaled to a 1080p HDMI output giving the best possible picture quality and just one lead to the screen – a great feature. There's also a welter of audio options, including 20-channels of pre-output capability and 10 fully assignable discrete power amplifiers. This means it's the world's first and only AV amplifier capable of providing at full stretch (with extra power amps), two 7.1 home cinema rooms plus two stereo rooms! Even using just the amp itself two 5.1 channel cinema rooms are possible. There's also an Ethernet port for Web Radio, PC control, Home Networking, and an Improved Electro Luminescent (EL) programmable remote control. Upgrades for the AVC-A1XV to 'A' specification are available for £850. For more information, click on [www.denon.co.uk](http://www.denon.co.uk) or call 01234 741 200.

## POWER STATION

The new IsoTek Sigmas mains conditioner was developed to bridge the gap between the company's statement Titan and Nova products, and the budget MiniSub. The Titan circuit was halved as a starting point; this was known to work; resulting in a 5-stage cascaded design with additional delta filters at each end to emulate a full 9-stage design such as the Titan. IsoTek's 'Polaris X' circuitry topology is used to avoid cross contamination between components and for the medium output side of the Sigmas, is combined with a refined version of the Adaptive Gating initially developed for the Nova. For this IsoTek designed new and very unusual common mode chokes. The aim was a sonic balance between a dark, low noise background and a clean extended sound with full top-end sparkle. The Sigmas uses special MCB fuses which are superior to conventional cartridge fuses, offering "outstanding safety both physically and for the connected equipment". The protection circuit uses highly specialised VDR devices that trip the fuse in the advent of over voltage. The quality of components used is said to be of the highest order, most components in an IsoTek product can be substituted by perfectly safe cheaper alternatives providing, in theory, identical filtering. Despite these components costing only 25% of those actually used, IsoTek insist upon only the highest quality parts for performance and reliability. For example, components such as RIFA paper capacitors, silver-plated 7N purity solid core copper wiring with FEP dielectric and silver ceramic Delta capacitors, are used. Size is 444x85x310mm, weight 9.5kg and price £995. For more information, call Activ Distribution on 01635 291357 or click on [www.isoteksystems.com](http://www.isoteksystems.com).



## MICRO BUS

TEAC's new £270 CR-H255 DAB/CD micro receiver has a fascia mounted USB port. This enables playback of MP3/WMA files from a USB-type portable MP3 player, or an external HDD unit with a USB interface. It also provides the ability to record from any source, such as CD, AUX, AM, FM and Digital Audio Broadcasting. The unit plays CD, CD-R/RW and MP3 discs, has 25W per side, MP3/WMA encoding and decoding, a DAB (Band-III)/AM/FM RDS tuner, 10 DAB, 30 AM and 30 FM station presets and an optical digital audio output. Dimensions are diminutive at 215x110x359 mm, weight is 4.4kg. For details, call 0845 130 2511 or click on [www.teac.co.uk](http://www.teac.co.uk).





## NOTE PERFECT?

The PhoNote is a purist valve phono stage made in the UK, designed by Note Products and one of the UK's premier valve designers, Graham Tricker. It's available either as an MM version or as an MC version, the latter using high quality step up transformers fitted internally, which can easily be

retrofitted. Ultra high gain transformers are also available for extremely low output cartridges. The final stage is said to have a very low output impedance, so it can drive any cable or amplifier (valve or transistor), and will also get the best possible performance out of a TVC (Transformer Volume Control) preamplifier such as the MF Audio Passive Preamplifier. It's an all-valve design using 12AX7 and 12AU7 valves with passive RIAA equalisation, zero global feedback, selected high grade audio components (including custom made parts) in the signal path (which are said to be ultra short). It has a non-ferrous aluminium case, internal shielding between the power supply and audio circuit, silver plated phono connections and a ground lift switch to ensure a noise free installation. Price is £1,500 for the moving magnet version and £1,750 for the moving coil version. For more information, call Noteworthy Audio on 01296 422 224.

## DREAM WEAVING?

Marantz's new ZR6001/ZC4001 'WEAVE' home entertainment system is said to be "a major innovation, as ingenious as it is simple to use". The 'Wired Entertainment Accessible via Electricity' product means music can now be played around the home taking advantage of the one network every house already has preinstalled – the mains. PLC (Power Line Communication) is the technology behind it. Simply plug WEAVE equipment into the mains socket and

listen to music anywhere. Key to the system is the ZC4001 receptor unit. This device accesses the main home entertainment set-up via the mains as soon as it is plugged in, allowing you to listen to radio stations, CD players and any other component in the main system. Simply plug the ZC4001 into the mains and it is said to "fill the room with CD-quality sound from your main set-up via its two speakers and built-in amplifier". Up to six '4001s can be plugged in at any one time around the home. This wonderfully easy solution means you can play music in every room without the need for complex Wi-Fi networks or expensive 'multi-zone' custom installations. For the system to work, the main set-up must incorporate a WEAVE amplifier or receiver, in this case the ZR6001 A/V receiver. The ZR6001 not only acts as the centrepiece of the main home entertainment set-up, but also transmits audio signals to every room in the house just by being plugged in. The ZR6001 is the first of a number of Marantz WEAVE products that will feature PLC technology. Price is £700 as a system, and £199 for each additional ZC4001. For more information, click on [www.marantz.co.uk](http://www.marantz.co.uk).



## SPEED KING

Eclipse's new TD725sw High-Speed Time Domain Subwoofer (£2,700) is claimed to be "the fastest sub in the West, or the East for that matter"! Said to be the only subwoofer fast enough to match the lightning-quick response of Eclipse's well received TD 508/510/712z Time Domain loudspeaker series, the Square Egg twin driver array is floated and isolated internally just like Eclipse's normal eggs. The drive unit stays still, only the cone moves and no energy is lost into the cabinet, "so the cabinet contributes nothing to the sound and all you hear is the bass", says Eclipse. The 725sw is cube-shaped to give maximum internal volume (an egg would need to be three times the size) and Eclipse designed digital electronics (putting out 500W) take up minimum space and are isolated against vibration. Total weight is a back breaking 42.5kg. For more information, call 020 7328 4499 or click on [www.eclipse-td.com](http://www.eclipse-td.com).





# Studio

**B&W's 801D is surely the quintessential British studio monitor, and a statement of the art of this country's loudspeaker design prowess, says David Price...**

I love electrostatic loudspeakers, but – when all things are considered – they don't cut it in the studio. There are several reasons for this, not least the fact that (put crudely) bits of 'Clingfilm' simply can't move air like moving coil drive units. A true studio monitor has to take vast amounts of watts without withering, without the protection circuitry cutting the panels out before they short. A true studio monitor has to take the (ab)use that only pro audio types can throw at a loudspeaker, remain uniform, consistent and reliable – as well as being remorselessly revealing.

B&W's 801 is a common sight at Abbey Road, reputedly the world's best recording studio, and one which simply uses the best, cost-no-object devices. There's no excuses here, no notions of tailoring your system around your loudspeaker, no volume limitations, no dilly-dallying on the way. In one of the world's ultimate recording venues, your loudspeaker has to deliver, day in, day out, brilliant fidelity to the mastertape – period. Enter the 801.

If you speak to Abbey Road engineers (and I have, purely off the record, you understand), then they're scathing of 'domestic' hi-fi loudspeakers. I suppose it's akin to F1 drivers talking about 'road cars'; they perceive them as flawed, fussy and fragile. Studio engineers need a remorselessly revealing and reliable tool – and no domestic designs cut the mustard.

Well, as a user (and devotee) of another studio monitor (one that's ubiquitous in many Japanese and American recording studios, and one that was reputedly used in multi-stacked pairs at NHK's concert hall in Shibuya, Tokyo for live monitoring), Yamaha's NS1000M, I was intrigued to be given the opportunity to try its British equivalent; I simply couldn't say no.

The result has been (to use that old cliché) a veritable odyssey of discovery. At the risk of putting the cart before the horses, so to speak, the 801Ds tell me what the NS1000Ms are doing wrong in no uncertain terms, and conversely, the Yams are almost uniquely able to signpost the (very) few weak points the B&Ws display. Whatever which way you look at it, I have to say that no loudspeaker I've ever reviewed professionally has made such a profound impression on me as the 801Ds. They're sublime in many respects, and make almost every other domestic loudspeaker I've ever heard sound – frankly – pathetic.

# Line

## SOUND QUALITY

To my ears at least, every hi-fi loudspeaker I've heard sounds flat, lifeless, weak-kneed, puny even, compared to the 801Ds. They also seem diffuse, vague, veiled, boxy, fat, ponderous, bloated and non-committal. The difference in performance between the B&Ws and lesser (and admittedly less expensive) domestic loudspeakers (such as Quads, Martin Logans, Tannoy Dual Concentrics, etc.) is profound. Whereas my personal experiences with high end domestic loudspeakers is always positive yet equivocal, I'm in no doubt as to the brilliance of the 801Ds, a loudspeaker for which no excuses need to be made. The way they 'swat away' hi-fi designs at half the price is staggering.

At this level, don't forget, you're so often talking about your feelings about the particular presentations of loudspeakers. Quads are wonderfully expansive and three dimensional yet ultimately dynamically compressed, Tannoys are brilliantly fast and musical yet coloured and flawed by inconsistencies from top to bottom, Martin Logans have one of the most sublime midrange and treble performances I've heard, yet just don't integrate with the bass as seamlessly as they should. The 801Ds, however, do almost everything brilliantly – massive detail and depth, tremendous motive power, wonderful musicality, stunning bass, staggering dynamics, utter unflappability. You're suddenly into the territory of a loudspeaker that doesn't need to apologise for itself in any respect. You don't need to mollycoddle them, spend weeks and months positioning them, change your entire system to eke out that last amount of performance that just gets them 'on song'. Of course they respond to careful positioning, but if you've got serious ancillaries then you just plug the 801Ds in, switch on and let rip – and feel moved like you've never done before. They're that good.

Crudely put, it's their size that puts them ahead. Of course, it's not just this (otherwise a pair of £300 Eltaxes from Richer Sounds would be king), but their massive physical presence is the starting point. As I've often said, there's no substitute for 'cubic inches', and in this case it's

the massive cabs of the 801Ds (they make the already large NS1000Ms look like Linn Kans, in comparison) and the vast fifteen inch bass drivers. At the risk of boring regular readers to death, I'm totally convinced that bigger is better. You can take your arrays of multiple six inch mid/bass

"we have a massive three-way with vast bass drivers, and the result is stunning, breathtaking visceral thwack..."

drivers and stick them up your bass port, as far as I'm concerned. It's the same with car engines – 'large block' Yank V8s or Jag V12s do things with an effortless insouciance that no supercharged V6 can muster. However many clever tricks a designer can pull off, bigger is better, and if you don't believe me, one listen to the 801Ds will change your mind.

At flare flapping volumes, those 380mm Rohacell cone bass woofers are barely moving, and showing absolutely no signs of strain whatsoever. They're barely even stirring from their slumbers, and it's this total nonchalance that they display that sets them apart. You get massive bass, yet it's never boomy. My room is decently large, but even rammed right up against the back walls, if there's no bass in the recording, the 801Ds have no bass (and concomitantly no bass boom, either). But when you put a full range recording on, then suddenly you're pinned to the sofa, and the B&Ws behave like they're barely off idle – which, truth be told, they're not...

Of course, the big Tannoy Dual Concentrics that publisher Noel Keywood loves do this too – but they're hamstrung by one thing – they're two ways. Again, a good big three way delivers like no two way can. To use our classic car analogy, it's like sucking your fuel through three or four carburettors, rather than two; with 'better breathing', there's less sense of the engine being starved of oxygen. Three ways have an effortlessness that two ways simply lack then, but the trouble is that it's much harder to make three discrete drivers work perfectly together than

it is two, and the result is that three ways are often theoretically correct, practically flawed. The 801Ds don't suffer from this; B&W's engineers have got the balance exactly right.

So, we have a massive cabinet three-way with vast bass units, and the result is stunning, breath-taking visceral thwack. The 801Ds are – to my ears – exceedingly well integrated. Although they're not quite a point source like the Tannoy Dual Concentrics, the bass, mid and treble drivers cohere superbly. You get no sense of listening to three different speakers in one – imaging is superb (close to Quads and Tannoy Dual Concentrics, although not quite attaining their level of perfection in this respect).

The material chosen for the 801D's 150mm midrange driver – woven Kevlar – is ultra fast, and the result is wonderful leading edges. Naim fans will love them; strummed guitar strings in Led Zeppelin's 'The Rain Song' just sound so accurate. There's an 'electric' realism to them; it stops you in your tracks. No overhang, no dwelling on the decay, no languishing around – it makes almost any other loudspeaker sound fat, slow and bloated. The interaction between the drivers and the cabinet is also near perfect – the 'Matrix' construction of the 801 boxes is no cheap sales gimmick; I've never heard such large cabinets disappear so convincingly. The NS1000M boxes, superbly constructed as they are, and blessed with the luxury of Infinite Baffle loading, seem slower and more boxy – it's only the







MBL 1531 Integrated CD Player (£ 5,590)



MBL 1511 Digital/Analogue Converter (£ 5,090)



MBL 1521 CD Transport (£ 5,590)



MBL 1621 CD Transport (£ 12,290), MBL 1611 DA Converter (not shown, £ 12,390)

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## TIMELINE

1979 801

The original design is launched; it's tested by EMI and adopted as its standard classical monitor at Abbey Road. Decca installs the 801 in all their recording studios, as does Deutsche Grammophon.

1987 MATRIX 801

The 801 gets its first serious revamp, with superior internal cabinet work using the company's 'Matrix' bracing system.

1998 NAUTILUS 801

Launch of Nautilus 800 Series, a technical and design advancement of the Matrix 800 series using technology derived from the 1993 statement Nautilus speaker.

2005 801D

New diamond dome tweeter introduced, addressing the only weak point of the loudspeaker. Adopted as a new reference by Abbey Road Studios.

sheer speed of the drivers themselves that pulls the Yams back to the 801D's pace. Compared to the Tannoys, the B&Ws romp ahead; you can hear the boxes in the Kensingtons, for example, adding a scintilla of 'boomph' and slowing things down just a fraction, but those vast 1192x506x682mm, 118kg(!) 801D cabs are silent.

The other jewel in the 801D's crown is (quite literally) the new 25mm diamond dome tweeter, which is the best B&W have done to date. This is an extremely smooth, neutral yet incisive drive unit which has none of the splash or imprecision of previous B&W tweeters – it's beautifully sharp and crisp, yet there's little sense of colouration and no

B&Ws manage to conjure (for that is surely the word, where speakers are concerned) up a beautiful sound. From bottom to top, with massive bass synthesiser presence, incredible 'hear through' mid band revealing detail after detail that you've never heard before via any other so-called high end loudspeaker, and a silky treble, these speakers are a sight for sore ears – and yet they manage to gel it all together in an incredibly musical way. For me, this is down to two things – first, those aforementioned brilliant attack transients (this speaker captures the leading edges of every note with accuracy) and second, wonderful dynamic prowess.

The result is a box with the 'pace, rhythm and timing' that leaves absolutely nothing to be desired. I've heard a lot of so-called 'monitor' loudspeakers that have an extremely detailed sound, but never one with this much detail yet this much life. It's very much an 'up and at 'em' sound – no sense of it being cerebral, restrained and considered. Rather, it's very NSI000M-like in the sense that it romps into reproducing every rhythm, every accent, every nuance of the music – in short, it sounds like a big PA speaker, but hugely more accurate. Big Tannoys do this too, which is why Noel (understandably) loves them so, but the B&Ws add evenness, resolution, detail and power in spades. Linn Isobarik fans might be surprised to read this, but they do everything the 'Barik did (and then some), and are accurate transducers too. Don't let B&W's 'studio monitor'

Where the 801Ds score over NSI000Ms, and in a massively convincing way, is their amplifier friendliness. Yams will eviscerate any half-decent amp that's called upon to drive them, and simply start to say, 'come and have a go if you think you're hard enough' (and few amps are). But the 801Ds are a far, far more forgiving loudspeaker. This means that they'll go loud with surprisingly few watts, and not tax valve amplifier output transformers either. For me personally, this is the 'genius move' of the B&Ws. I'll make no bones about it, I'm convinced that high quality modern valve amplifiers are musically correct, and solid-state ones aren't. Trouble is, there are so few great loudspeakers that work synergistically with valves, and the good news is that the 801D is one – maybe even the only one.

With my World Audio K5881 (about 17 watts per side), the B&Ws go ferociously loud, and never ever strain the output transistors; they give the amp room to breathe, and a great valve amp working without strain is an amazing thing to behold. B&W tells me that the company uses big Naims and Krells with the 801D, but from where I'm sitting even a Sugden A21a 20W Class A transistor integrated would get along famously. For me, this is a superb facet of these loudspeakers – they afford the chance for low power, high quality power amplifiers to fly.

Of course, I tried them with the high capable, high power NuForce Reference 9SE Class D monoblocs,



"you'll struggle to hear a more emotionally engaging loudspeaker anywhere..."

sense of the 'clang' of metal types. Allied to that supremely tight, taut bass driver, you get a stunning full range sound, with no sense of either driver not pulling its weight in sonic terms. It's spry and forthright, as per the midrange driver, so it matches it tonally almost perfectly, but is never harsh or crude. It's finely etched, incisive, atmospheric, spacious and revealing – all the right things in hi-fi terms – yet never intrudes to make you worry about your system's ancillaries.

Of course, three great drive units and a big box does not a great speaker make – the reason why the 801D is a truly great device is because it's a brilliant musical instrument. Pink Floyd's 'Breathe' shows why; there's more than just 'hi-fi' here. The big

associations put you off – these aren't dispassionate, analytical tools, but rather they make music like almost no other box I've heard.

All this is bolstered by tremendous grace under pressure – as you might expect from something with massive cubic inches under the hood (literally), they won't balk at anything you can throw at them. They simply hold on, going louder and louder without getting strained, shouty or uncouth – it's all in a day's work. As Tannoys get louder, you can get a sense of being 'pinned down' by the horn loaded tweeter, but the 801Ds simply hit the 'loud pedal' without a blink of the eye. This is, for me, the mark of true class, and I've only previously ever heard it from NSI000Ms.



TX-SV919THX 1994



THX BYS-1 1995



QUEST INTEGRA SERIES 1992



IBS SERIES 1995



PCS-05 1991



MC-2200 1968



INTEGRA 725 1970



TX-DS939 1996



LIVERPOOL COLLECTION 1988



ST-55 1966



GS-88 1955



HP-10 1957



INTEGRA A-755 1972



ST-400DL 1963



NON-PRESS CONE UNIT 1950



ES-65 1957



TS-500 1974



ES-65 1957



ED-100 1950



MD-47 1958



GS-1 1984



ST-400DL 1963



DP-670 1963



MONITOR 2000 1983



CS-216 2002



M-510 1984



A-DMF CONE 2003



A-975L 2005



CS-220UK 2005



TX-NR500DE 2004



to the party. Whereas the Yamaha NS1000Ms soak up power like it's going out of fashion – and therefore need the likes of the NuForces to stir them from their slumbers – the 801Ds are far more forgiving and easy on their driving amplifiers – meaning you can settle down with a good low power valve design and bask in its particular strengths. They sound brilliant at low volumes as well as high, and give high volumes from low powered amplification. We're not quite talking horn loaded Tannoys here, but we're not far off. In a sense you can almost recoup some of the massive expense of the 801Ds by not having to buy monster power amplifiers – a £1,000 Sugden may even suffice!

I'm loathe to talk about the downsides of the 801Ds, because their overall performance is so incredibly strong, but if pressed, I'd say I was least impressed by one facet of the midband. The Kevlar cone has a certain tonal footprint, which the NS1000M is able to spotlight quite starkly. It's very good tonally – certainly better than the papery sounding Tannoys – but there's still a slight 'glassy' quack to it that stops it from claiming the mantle of being 'utterly transparent'. This isn't really a criticism (the Yams have a slight metallic clang, the Tannoys a slight papery dryness, the Quads a slight woolliness, so you're never going to

get perfection), but it's something you should be aware of. Still, it's a subtle phenomenon and better described as 'character' rather than colouration.

Once again, using slightly warm, euphonic valve amplifiers ameliorates this, which further makes the case for tubes, but you won't want to use hard, forward, transistor amplifiers if you can possibly avoid them. Additionally, the mid-forwardness of even the best 16bit digital excites this; switching to the more sumptuous sounds of vinyl pulls it right back, and makes for a brilliant synergistic combination. Given that many 801Ds sold will be driven by big transistor power amps from a digital mixing desk, it might surprise you to know that they're one of the best ways to enjoy valves and vinyl!

## CONCLUSION

How does one go about assessing a loudspeaker such as this – are value considerations relevant? Well, even compared to the various £5,000 'super speakers' from the likes of Quad, Tannoy, Martin Logan, et al., the B&W 801Ds at the twice the price justify spending the extra money. It seems to me that at the £5,000 price point, you're buying speakers that do certain things brilliantly (almost peerlessly), but in other ways they're less convincing. Spend twice that, and the 801Ds do almost everything brilliantly, with no weak points. This



considered, you can make a case for spending the extra – although this all comes down to personal preference, of course.

I still don't think the 801D is 'perfect' in every respect. I've heard both the mbl Radialstrahler 101e, Yamaha NS1000M and Martin Logan Summit deliver a more tonally accurate midband, but the B&W is still excellent in this respect, and downright startling in every other. It's tremendously high across-the-board performance is what impresses me most; it's surely the best all round loudspeaker I've yet heard, and better still it's neither bland nor emotionally unengaging as a result of its sheer efficiency and competence – indeed you'll struggle to hear a more emotionally engaging loudspeaker anywhere. It's been a long and winding road for the big B&W to get to this level of performance – twenty seven years of travelling to be precise – but it was worth the wait. These are the best 801s ever, and lay credible claim to being the best loudspeakers ever too.

## VERDICT

Massive power, uncanny transparency and superb musicality will make this many people's idea of the ultimate loudspeaker.

**B&W 801D** £10,500

**B&W Loudspeakers Ltd.**

+44 (0) 1903 221800

[www.bw-speakers.com](http://www.bw-speakers.com)

## MEASURED PERFORMANCE

It's rare to see a 15in bass unit these days, but here's another from a top Brit company that majors on its research and engineering. It was obvious from inspection of the unusual Rohacell bass cone, and also whilst listening to long sequences of test tones, that the huge 15in bass unit is going to give excellent results in use. Most 15inchers are made from paper and the soft, literally "papery" colouration they produce is fairly obvious with pulsive test tones. The giant B&W unit, by way of contrast, under test gave extraordinary results from gated low frequency pulses, such pulses not being too dissimilar to music. It pulsed my ears and the room, having an obviously dry quality free from box overhang. One reason for this is that the unit is damped by a floor vent working at 18Hz, an unusually low frequency set by the large mass of the cone and its low resonant frequency. A pink noise steady-state frequency response showed quite clearly that as a direct result the 801D was driving our 30ft square test room to below 20Hz.

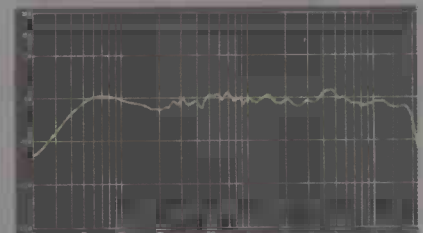
There are some implications to all of this. The 801D is designed to go very low, but it will need a large room if this is to be fully appreciated; at least one dimension should be greater than 20ft. We found this with Tannoy Yorkminsters – heart stopping power and control in large rooms, but seemingly softer and less controlled in smaller ones because the room resonates at a frequency higher than the loudspeaker, so that's what the ear hears.

Our frequency response is a merged MLS comprising bass unit near field and mid/treble far field. As such it shows what the loudspeaker is doing, ignoring the room. The 801D dips slightly around 180Hz where port output analysis suggests there is an internal cabinet reflection, but this is a minor effect. I was surprised, in view of the work that has gone into driver alignment, that the treble unit, phase plug and shelf below midrange unit all radiate high frequencies forward, leading to complex interactions at the measuring microphone from three separated sources. If the midrange unit was moved forward an inch or so to align vertically with the cabinet front this would be significantly alleviated. However, a large loudspeaker like the 801D is to be listened to from a distance and here such effects usually become undetectable. I noticed also that the drivers integrate more smoothly off-axis, where asymmetries take effect. Our measured frequency response shows a smooth and even generalised result, with no sign of treble peaking or any high frequency emphasis, so measurement suggests smooth highs from this loudspeaker.

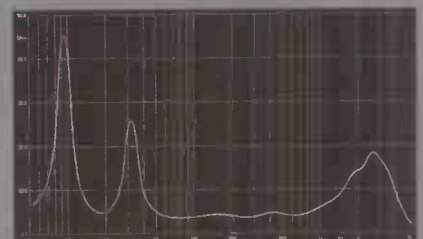
Largely due to massive low frequency output, sensitivity measured no less than 92dB from one nominal watt of input. However, measured impedance is just 5ohms overall, being 4ohms over most of the audio band, with the usual twin bass peaks either side of the port, and rising coil reactance above 1kHz.

Obviously, this is a 4ohm loudspeaker that needs current, but it doesn't need a lot of volts. Massive solid-state power houses may not be obligatory; with 92dB available from one watt, sixty of them will go louder than even Ken's London buses.

The 801D has been designed to work in big spaces. It is smooth, accurate and likely to sound silky at high frequencies, measurement suggests. It is very specifically a massive monitor loudspeaker that measures well. NK



Frequency response



Impedance



# PINSH<sup>TM</sup> 9.0

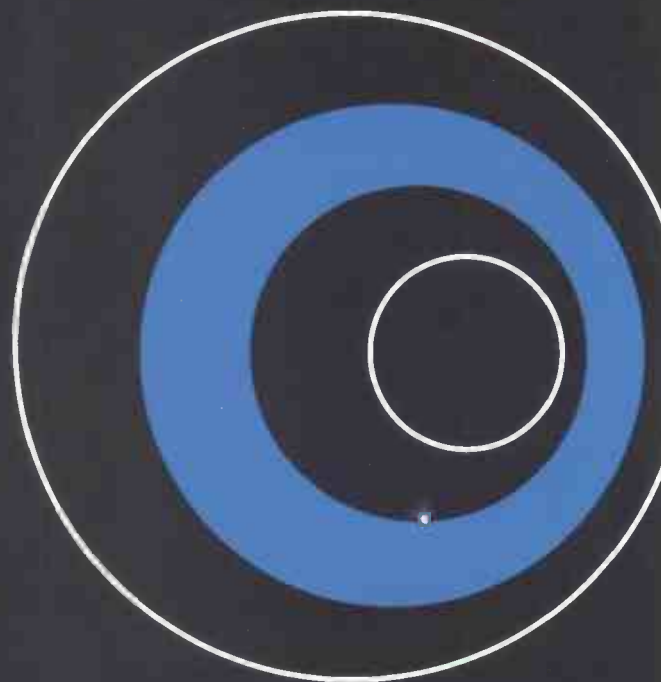
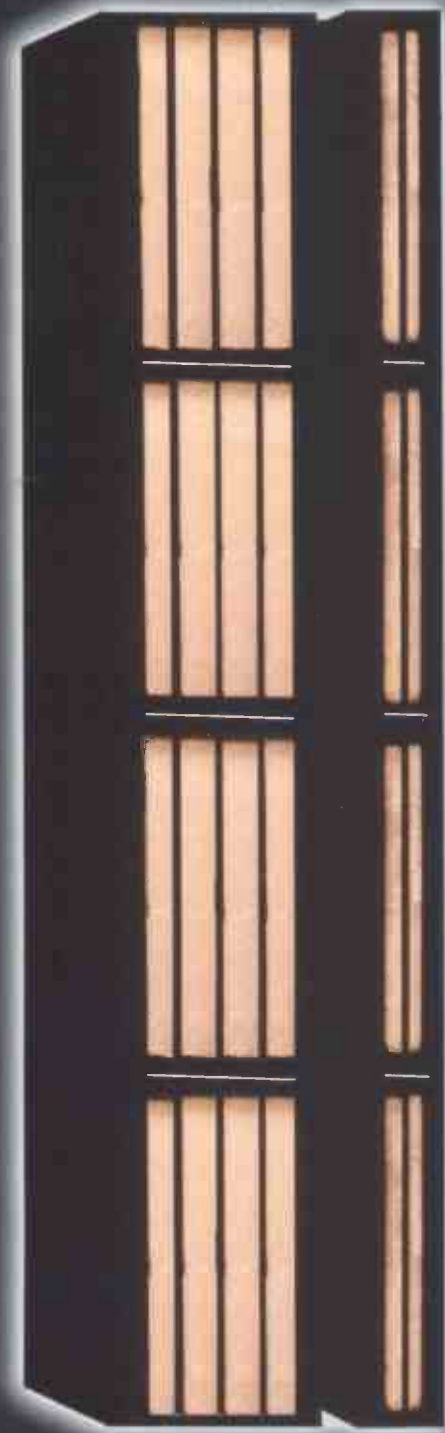
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# box sets

Whereas most loudspeakers are much of a muchness, the high end opens up a world of radically different design philosophies. In this month's group test, Noel Keywood puts highly distinct products from JBL, Usher, Tannoy and Quad against one other, with fascinating results...

People keep gliding past me in the street, sitting in funny little electric toy-town cars that are eerily silent. Couldn't get a pair of loudspeakers in one of those, I muse to myself, but if they came a little larger, I'd love one. In the meantime, I'm stuck with a formulaic car that's little different to all its 'rivals'. Any differences are small and mostly cosmetic. Much the same can be said of most modern loudspeakers. Efficiently designed by computer and built using tried and tested, low cost methods, most are a variation on a theme - and so is their sound...

There is another world, however, where some of the wilder schemes to produce sound in the home can be found. Some, like the electric car, are an old idea so good it just won't go away. Our group of loudspeakers this month looks at these alternative solutions, often ones that predate the computer yet live on by dint of sheer talent. Their idiosyncrasy shows in their price and their appearance: these are not mass market items that come at low cost. But then they don't give a formulaic sound either.

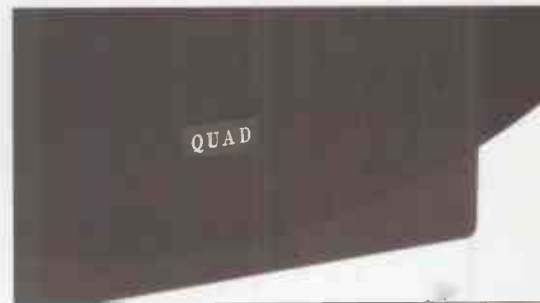
The horn is such an old idea it predates electricity. It concentrates sound in one direction, and in so doing increases volume in that direction, whilst decreasing it in all others. Which is more than a little handy, because by beaming sound like this they give a very consistent sound when you sit in front of them, less affected by their surroundings than the average box. So here we've got a great idea with distinct benefits, but it's languished over the years all the same. The main reason is that horns start out big and end up monstrous; famously they have been built into chimneys and under floors. Bass horns, if they are to work properly, are extraordinary constructions - and they are extraordinary to listen to as well, but for practical reasons not many people get to do this, nor will they as there's no antidote to size. Small bass horns don't work. In Britain at least, Tannoy make a full range horn, the Westminster Royal HE, which we reviewed recently. Within every Tannoy Dual Concentric drive unit lies a midrange horn, and you can listen to the benefits of this in a more domesticated loudspeaker like their Kensington, which we review in this group.

The Americans make horns too, and like

the Tannoys these date back somewhat or are rooted in Public Address work. Klipsch are well known for them, as are JBL. Whilst the former are not available in the UK the latter are, although visibility is low. All the same, we caught a scurrying JBL executive at a hi-fi show some time ago and eventually received a pair of S4800s for this group. These have a midrange horn, well known for its smoothness. It is augmented by a horn super tweeter. And beneath sits a humongous 15in bass unit, also of legendary JBL build. Part of the K2 range, the S4800 is a 'low cost' model aimed at Europe and Japan. I'm told that JBL's top K2 S9800 is an impressive sounding beast, so we had high hopes for the S4800 in this report.

Not everyone loves horns. Some feel they're too unrefined. True, traditionally they have been but, engineered properly this needn't be the case. All the same, for those who want something that's just about the opposite - total refinement - there is the electrostatic. It's another idea that dates back, this time to after the invention of electricity, the 1930s to be precise. Where a horn is a confection of cabinetry, the electrostatic is all but cabinet free. It generates sound from a gossamer thin panel of treated Mylar film, much like Cling film, driven by electrostatic forces. Whilst horns languish nowadays, electrostatics continue to be developed. Quad have just released an updated version of the 989, the ESL-2805 and ESL-2905, and we have reviewed them here. Why consider an electrostatic? Whereas a horn is a large, lovable hooligan, an electrostatic is a cultured aesthete. It offers refinement and - don't you know it - this compromises its delivery of Rock - the dynamics are not there. But development continues: Quad's new ESL-2805 has been physically strengthened to improve performance with Rock. How much does this close the gap? Is it enough to persuade all of us, so used to box loudspeakers with their particular sound, that this old idea brought up to date is worth considering?

If a horn is too large and an electrostatic too genteel, is the traditional box still the best compromise? Does the sheer weight of research and engineering behind it sufficient to ensure continued dominance? The Usher Dancer represents a heavily engineered modern solution, expensive against its worldly rivals but not against the exotica in this group. Is this still the best bet? Read on...





# Yank

**Rare to Europe is the very American JBL S4800, from their K2 range. Is this behemoth the pinnacle of loudspeaker design? Noel Keywood scales its heights to find out...**

**J**BLs have a strong reputation in the U.S. for high quality, bulletproof drive units built on massive cast alloy frames, using edge wound voice coils and vast magnets. We had cause to verify this with the S4800, as both 15in drive units had to be removed to make the loudspeaker work properly. In view of the monstrous size and weight of the bass unit, the cabinet behind it isn't so large. It stands 1080mm tall on its adjustable spikes, is 501mm wide and 380mm deep including rear 4mm terminals. At 65kgs apiece the S4800 isn't lightweight, but it is movable in the home - just.

Believe it or not, this is a low cost - £11,000! - Europe and Japan only model. It amalgamates various parts from other models in the K2 range, the top model of which hits a staggering £25,000. Harman say the S4800 sells like hot cakes in Japan, by the way, so their economy can't be in such bad condition after all!

What you get in this loudspeaker is a massive 15in bass unit, with pulp fibre cone, loaded by a reflex cabinet with rear port. It's not just a bass unit though, as JBL run it up to 900Hz, meaning it's also responsible for handling all the lower frequencies of the human voice, as well as musical instruments. Getting a big, pulp cone fifteen to do this is expecting a lot.

Above the bass unit sits a midrange horn, something rare to high fidelity. It uses a 3in aluminium dome compression driver feeding a moulded SonoGlass horn. Midrange horns are known for ragged frequency response and a coarse sound, largely due to difficulties in dispersing the acoustic wave without interference down the horn throat. JBL's 435A1 horn in the S4800 is a high fidelity unit that, our measurements confirmed, suffers no such problems. By working from 900Hz up it handles strings and all the upper harmonics of musical instruments. The bi-radial flare (i.e. laterally and vertically) helps disperse sound out of the horn over a useful arc. The big difference between this horn and Tannoy's is that, being independent of the bass unit, it can be optimised to have a smoother frequency response.

To extend the output of this horn upward, JBL incorporate a small super-tweeter - again a horn - into the SonoGlass moulding. You can see it as a mini-horn sitting within the top face of the surround. It comes in at 10kHz and, JBL claim, works to 40kHz.

At the considerable price, the finish of this loudspeaker can only be described as disappointing. It has a dark synthetic veneer that would fool no one and looks drab. Nowadays, better synthetic



# Tank

finishes are available - both veneers and lacquers. A large removable grill covers the drive units, which are not pretty enough to be left uncovered. In spite of its size and inevitable width, much could be done to improve both the appearance and finish of the S4800.

"It's like a Quad electrostatic with serious dynamics...!"

Our review samples were shipped in from Europe and had been elsewhere, to someone who had decided the super tweeters were best disconnected, leaving us to jury rig connection to an almost inaccessible terminal. The cabinet work and internal parts, including crossover, were pretty ordinary, making the massively engineered JBL drive units seem out of place. The crossover does not possess d.c. biasing of the S5800, but it does have bi-wiring connection being made through chunky rear terminals that accept spades, 4mm plugs or bare wire.

There's nothing like a quick burst of The Darkness's 'Is It Just Me?' to put a loudspeaker from a company like JBL, suppliers to Rock studios, through its paces. The big fifteen provides plenty of bass as expected, kick drum coming across as a large, soft "boff-boff". The box can be heard to provide its own contribution, and this made it a little difficult to pick out Dan Howkin's bass line from the wall of sound coming from Justin Hawkins's lead guitar, further up the scale. All the same, this track had the sort of bottom end presence you'd hope and plenty of punch.

'Bald' kicked off with a massive punch from kick drum, strong enough to blow windows out, you'd imagine. This is a big fifteen at work; if you turn volume up - and not much is needed - musical instruments start to have seismic presence. With volume up the massive introductory bass line of Angelique Kidjo's 'The Sound of the Drums' shook my settee in a way only a big loudspeaker is able. The S4800 doesn't challenge Tannoy's £9,000 Yorkminster here though, largely because its cabinet is very shallow and its volume limited.

All the same, the big JBL isn't one-note, nor over inflated. It plays bass tunes well and gives drums massive heft, but there's some softness and warmth from a giant pulp cone that is expected to do so much.

The horn is quite obviously a real smoothie, giving the upper ranges

of the S4800 an almost silky quality, endowing the loudspeaker with a warm, gentle nature that belies its size and commercial background. Even though I felt I could detect that slightly throaty quality any horn has, Nigel Kennedy's intense violin playing sounded as natural and cohesive as I've ever heard it, and rhythmic progression was superb too. As the orchestra interjects sharply in Mendelssohn's Violin Concerto in E minor, the S4800s showed they were better able to reveal the flow of events, free from distorting timbral and phase changes, and overhangs, than other loudspeakers. With classical music of all types, it turned out, the S4800s are delightful, contrary to what you may expect looking at them. Cellos over excite the cabinet, inducing an obvious thrum, but strings are smoothly arranged across an intensely populated sound stage that stretches widely without disturbance or perturbation to upset its character.

Why the tweeters had been disconnected I don't know, for they're as smooth and characterless as you could possibly hope, seamlessly integrated in. Measurement showed these horns are super low in distortion and I suspect their great sense of subjective purity reflects this. The longer I listened, the more I grew to like them. This is

where JBL's horns shade Tannoy's; the S4800 is quite obviously smoother with strings and purer too; it's almost like a Quad with serious dynamics. Vocals stand out nicely too, in an unforced manner that I found more natural and plausible than you get from today's overly bright alloy cone loudspeakers. By way of contrast the JBLs have a neutral tonality, yet a force of presentation that is both rare yet enjoyable and, in its own unforced manner, impressive too. Don't let the 'seventies throwback' looks deceive you, then - here's a seriously engineered yet extremely individual sounding big box with a vast, expansive sound that's smoother than you'd think. JBLs are an acquired taste, yet I found it an easy one to acquire!



## VERDICT

Wonderfully composed and smooth sound allied to physical power makes this special.

JBL K2 S4800 £11,000

Harman Consumer UK

+44 (0) 01707 278100

www.harman.com

## FOR

- smooth, easy nature
- massive visceral punch
- superb soundstaging

## AGAINST

- boxy bass
- finish unacceptable at price

## MEASURED PERFORMANCE

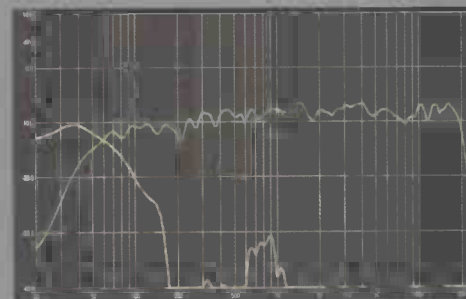
Much like the big Tannoys, this monster gave consistent and excellent results immediately under measurement. Although more mic. position sensitive than a Dual Concentric Tannoy, it's less so than conventional loudspeakers. The S4800 possesses an impressively smooth frequency response from 40Hz all the way up to 20kHz, over a wide range of forward positions. It proved very phase consistent too, largely because the midrange horn works from longish wavelengths, where inter-driver distances are not consequential to phase, up to a point (10kHz) where crossover has to be, and has been, physically arranged with the tweeter.

Whilst the 15in paper cone bass unit goes little lower than much smaller cones, likely because cabinet volume isn't so great, the port works at 30Hz and, being quite widely tuned, extends bass downwards as well as damping the bass cone effectively, as our impedance trace shows. In a large room it was obvious with wideband pink noise that the lowest room mode at 24Hz was being strongly excited, so in use there will be no

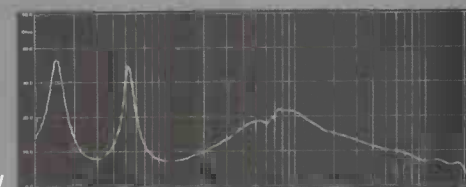
lack of bass from this monster.

Curiously for a U.S. design, measured impedance was a high 10ohms, so in spite of appearances it will not demand heavy current from an amplifier. Impedance drops to the DCR of the bass unit, 6ohms minimum. Like the big Tannoys it doesn't need a muscle amp., Sensitivity measured 91dB, from one watt.

The S4800 measures well and shows its pedigree. NK



Frequency response



Impedance



# Rhythm Divine

**Noel Keywood listens Usher's statuesque  
Dancer CP-8571 II loudspeaker...**

**B**ased in Taiwan, Usher have recently established a name for themselves on the UK hi-fi scene, particularly for high value, high quality 'affordable audiophile' fare. However, at £5,600 the new big Dancer is most certainly not in the range of most people's pocket books - and finds itself up against some serious exotica like Quad's new ESL2905 electrostatic, for example...

The Dancer CP-8571 II is a large floorstanding three-way loudspeaker. The highest point, at the rear, stands no less 1.24m off the ground, once base and spikes are attached. Luckily, the front is a little lower, so it looms a little less large visually. Weighing 80kg apiece, each loudspeaker tends to stay where it's put! This isn't an easy speaker to shift around without a small sack truck, and getting it up a flight of stairs takes some effort. As you'd hope though, the 8571 is very pleasingly styled and finished, its light veneer and slim front making it less visually intrusive than the dimensions suggest.

There are two features of the 8571 that Usher want you to know about: they have a beryllium tweeter and they are designed by Joseph D'Appolito, known worldwide as an authority on loudspeaker design. Put together this suggests the loudspeaker has a modern specification and is intelligently designed. And to quite an extent this is what I found; the 8571 has a tidy and well ordered sound that comes across as on-the-nail technically, and free from obvious colourations of most, if not all sorts - something I will come back to.

The lower bass unit is loaded by a chamber fitted with a rear port. Above it sits a mid-low driver also loaded by a rear port that crosses over to a beryllium oxide tweeter at top. The rear carries a chunky pair of bi-wire connectors able to accept 4mm plugs, bare wire or spade terminals.

The importers told us our review samples had 350 hours on them, having been run hard at a dealers before reaching us. All the same we ran them for many weeks and even at the end of it our Dancers sounded tight and restrained at low volumes, but they opened up and sounded impressive at high volumes, but I'm talking well above 95-105dB at the listening position, which is high. Early on I suspected also that my preferred Quad II-forty valve amplifiers were not an ideal match. A chunky and well run in NAD M3 amplifier was better in getting



the well damped bass units moving, so this is a beast that needs solid-state power and a firm yank on the volume control.

Looking at our impedance and frequency response plots suggests why. The amplifier will exercise more electrical damping control than usual because impedance in the 60Hz region is low compared to other loudspeakers. The Dancers will demand bass current and power though, and once they do they really thunder low down, with a strong sense of control. So bass is there, but it isn't especially forthcoming at low volumes. The upside is the Dancers will give tight and controlled bass in rooms that are, in themselves,

unit crosses over to the beryllium dome tweeter which, like the Focal beryllium domes, comes across as precise, if a little 'hard' in its nature.

Where the cleanliness of this loudspeaker's sound, together with its balance and finesse, really shone was when I moved to classical performances and - especially - violin. The English Chamber Orchestra's violins danced vivaciously in Vivaldi's 'Spring', Nigel Kennedy's violin standing out clearly, rich in timbre. This suggested to me that the Ushers were strong in revealing the character and richness of classical instruments, doing a better job here than most - and as listening went on my initial feeling was confirmed. With



"these speakers were strong in revealing the character and richness of classical instruments..."

prone to being resonant. Against the many loudspeakers I listen to on an ongoing basis however, the 8571s have a dry balance at low frequencies.

That is not to say they don't go low, as 'Lovely 2 CU' from Goldfrapp's 'Supernature' forcefully demonstrated. Lower notes from the synth had our listening room thundering alright, but this is a CD where the lows are not in short supply in the first place. Of course the other side of the coin is that the 8571s come over as tight and well ordered in their timing, more so than most. 'So Fly Me Away' broke out into a fast pulsating and metronomic beat from the off, short stabs from the synth bursting from this loudspeaker like bullets from a gun. Alison Goldfrapp's vocals were convincingly clean, if not as starkly clear as Monitor Audio's metal coned GS60 I reviewed last month. Against a loudspeaker like the GS60, to which the 8571 can be compared even though its price is higher, the Usher is more even in high frequency balance. Its beryllium dome tweeter has been tightly knitted in to give a result that is obviously 'right'. Heavens - measurement showed this loudspeaker is ruler flat in its forward response, and you can hear it. The big Usher sounds tidy in balance and general presentation as a direct result, free of the little honks and squeaks that add character to so many designs. I could detect a change in character as the fibrous midrange

Holst's 'Jupiter', horns, strings and timpani were wonderfully separated and each had its own particular character, meaning the character of the musical instrument rather than that of the drive unit reproducing it. Here Usher have done a strong job, obvious when horns and strings enter with this piece's well known main theme; it was beautifully rendered - lush, large and vibrant - a thrilling performance. I found in general I had volume up a bit, even with classical, but the 8571s so got into their stride with classical works, both large and small, that my absorption in listening took over. Not neighbour friendly then, but not all of us have 'em (mine went deaf long ago).

Think 'squeaky clean' and you'll be getting close to the sound of these big Ushers. They need to be pushed a little to give of their best, but it's a good performance, tight and well ordered. The price is high, there's no doubt, but for classical listeners in particular the 8571s are a strong contender if you like high volumes.

#### VERDICT

A clean, dry and accurate loudspeaker best at higher volume levels. Great for classical, but pricey.

#### USHER DANCER

CP-8571 II £5,600

☎ +44 (0)845 052 52 59

www.hiaudio.co.uk

#### FOR

well controlled bass  
low colouration  
tonal accuracy

#### AGAINST

power hungry  
restrained at low volume  
hard to match

## MEASURED PERFORMANCE

That this is a tightly engineered loudspeaker is obvious from its extraordinarily flat frequency response. Whilst this translates through into a certain type of dry, even presentation, I have found from experience, it does not guarantee much more than this. Add a bass response that slowly falls away and you have an in-room sound that is seemingly restrained, in spite of room gain. The beryllium tweeter has been integrated in perfectly and is, in itself, peak free, extending high frequency output smoothly up to 16kHz or so.

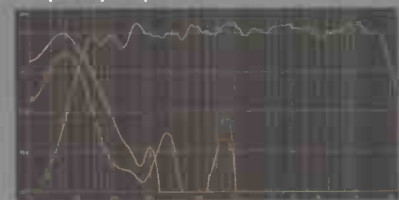
The impedance curve is unusual at low frequencies for a ported loudspeaker. Port damping at 37Hz looks to be set high relative to the bass unit's own resonance, giving the peculiar asymmetric result seen in our impedance trace where one peak - the lower one - is much larger than the other. It's normal to acoustically tune a port so both electrical peaks are roughly equal. Offset tuning may work, only listening can decide, but in this case there are other ramifications. Acoustical damping is sub-optimal, but electrical damping is increased, because of low impedance in the high energy 40-80Hz region. All that can be said is this will likely influence the loudspeaker's bass behaviour, relative to the norm.

At 88dB from one nominal

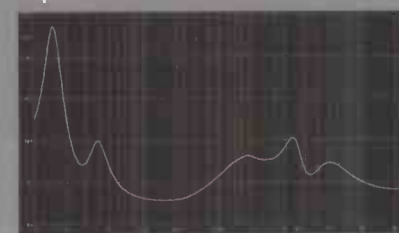
watt (2.8V) of input sensitivity was good, although loudspeakers this size commonly reach 90dB nowadays and that's what I hope for. Impedance measured 5ohms using pink noise, largely due to a dip to 3ohms from 100Hz-200Hz. Usher use a 7ohm DCR bass unit, one reason voltage sensitivity was held back; it is common to use a 4ohm unit nowadays.

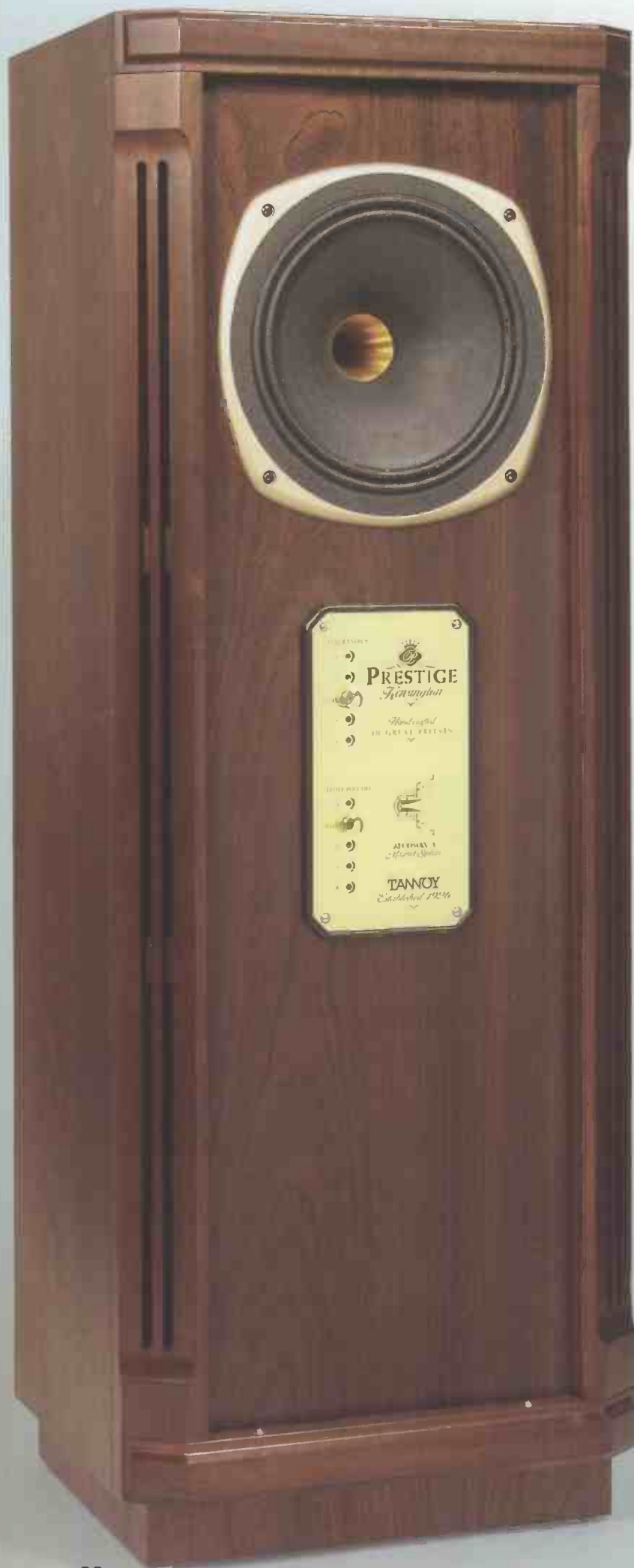
The CP-8571 is well engineered, but in certain critical areas it could usefully be tuned to make it more subjectively accessible. NK

#### Frequency response



#### Impedance





# Royal,

**At £6,500 Tannoy's Kensington loudspeaker deprives its purchasers of a not inconsiderable sum of money, but is still said to be at the 'affordable' end of the Prestige Dual Concentric range! Noel Keywood sums it up...**

"She walked into the shop and ordered a pair for her boyfriend without even listening to them", I was told by a dealer the other day! Since delivery was to an address in London's swanky

Mayfair area, I imagine finding space for Yorkminsters was no problem, but for the rest of us Tannoy's Kensingtons - that's the loudspeakers not the borough - are more 'affordable' and easier to accommodate at a trifling £6,500! If a traditional Tannoy Dual Concentric loudspeaker appeals to you this is the one to look at for sheer domesticity. It wouldn't be out of place in Kensington either, because it has a style and finish that people find elegant, in keeping with the sort of expensively furnished Victorian town house that the Royal Borough is known for...

Tannoy offer a high standard of finish, in keeping with the appearance, using real Mahogany veneers and solid Walnut edging and trims, so you don't get a faux finish that looks cheap when you get close, like JBL's S4800 reviewed this month. If you have an expensively furnished 'trad' home, the Kensington's heavily routed front trims and carefully matched veneer work will stand close inspection. Beneath the cloth grills lie polished and lacquered brass plates with treble energy and roll-off adjustment.

Weighing 37kg, a Kensington is heavy but easily moved, unlike the larger Yorkminster. Dimensions are a normal 1.1m (43in) high, 406mm (16in) wide and 338mm (13.3in) deep, although rear connectors occupy an extra inch or two. A large rear terminal plate on the big Duals allows biwiring and will accept 4mm plugs, spade connectors and heavy bare cables and there is an earth terminal so the internal loudspeaker frames can be grounded. This is a sound quality issue; it has nothing to do with safety.

The Kensington houses a 10in version of Tannoy's famous Dual-Concentric drive unit. A midrange horn - that's the shiny brass bit - sits at the centre of a 10in treated paper cone bass unit. So this is a two-way loudspeaker, the treble unit being incorporated into the bass unit, firing out through its centre. The idea is to provide a reasonably phase coherent 'point source' of sound, to give solid sounding images that remain consistent in their subjective properties when you move your head, or even move around. I know from experience that Tannoy's Duals provide highly focused and stable images, and this the Kensington does with

# Flush

ease. From my experience with Yorkminsters I'm aware also that the horn, by directing energy forward, provides an intense and dynamic sound that brings force to vocals in particular, and also to instruments.

You couldn't get a better feel for this than with Jackie Leven's voice from the 'Fairy Tales for Hard Men', the Kensington's conveying it with a strength and clarity that shades conventional loudspeakers. It's easy to understand why studios like Dual

"this is a focused, dynamic and engaging loudspeaker that few rivals can approach..."

Concentrics; in picking out Leven's vocals from what is at times quite a complex mix the Kensingtons emphasise the emotional impact of his lyrics. Instruments had an acoustic intensity that was gripping; guitars chimed whilst drums provided a lively beat to underpin the music's flow.

This loudspeaker has a well engineered balance about it that ensures you get all of the music, with nothing left out. There is a rise in treble that adds speed and a lacerative quality if you sit too close, on-axis. It can be tuned out using the Treble Roll Off adjustment, or by aiming the Kensingtons straight down a room, rather than toeing them in.

This also smooths the horn, which with strings isn't as smooth sounding as dome treble units. All the same, violins, viola and cello of the Emerson String Quartet were as composed, richly toned and finely detailed as I could possibly wish. All forms of classical music were handled deftly.

There was no shortage of bass, as you might expect. The strong walking bass line of Angelique Kidjo's 'The Sound of the Drums' thundered through my room, yet the

Kensingtons kept control. There's a consistent and tuneful bass quality; notes don't change in character and volume according to where the bassists fingers are on the fret. It goes low and has real power, so there's plenty of life in the lower octaves.

The liveliness of the Kensington at frequency extremes and its unusually high sensitivity ensure music doesn't die at low volumes. Yet it plays extremely loud - and stays clean whilst doing it. So the loudspeaker has a seemingly wide volume range, wider than most by an obvious margin.

Amplification is a make or break issue though. The midrange horn cruelly exposes solid-state harshness; I tried a few normal amplifiers with this loudspeaker then put on our Quad QC24 and II-forty valve amps and the differences were extreme. With the Quads the Kensingtons were smooth, richly detailed, open and airy - and very dynamic. With many solid-state amplifiers you



might reach entirely the opposite conclusion.

Tannoy's Kensingtons are a lovely experience for the home, even if at the price they suit those in the Royal borough better than elsewhere. All the same, this is a focused, dynamic and engaging loudspeaker, one that few rivals can approach. It's a great choice if you have the surroundings and the budget, but it must have a suitable amplifier.

## VERDICT

An excitingly focused and vivid sound, if lacking in treble finesse. Impressive in every other area.

**TANNOY KENSINGTON £6,500**

Tannoy Ltd

☎ +44 (0) 1236 420199

www.tannoy.com

## FOR

- tuneful bass
- focused and dynamic
- wonderful imaging

## AGAINST

- period styling
- lack treble smoothness
- price

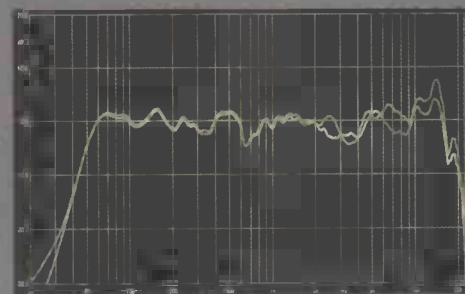
## MEASURED PERFORMANCE

The Kensington, like all Tannoy Dual Concentrics, is an easy loudspeaker to measure, as its output comes from one point and is totally consistent over a relatively wide range of mic positions, unlike most loudspeakers. Duals have obvious strengths under measurement. Tannoy ensure the 10in cone of the Kensington runs fairly smoothly down to 40Hz (-6dB), although there is a few dB lift below 200Hz and the Kensington is not short of output in the 60Hz-80Hz region where there is a lot of bass energy in most Rock recordings. The twin side ports (slots) neatly damp the bass cone, as our impedance trace shows, notching its output down at 53Hz.

The Tannoy horn works from 1kHz up to 16kHz, with some fairly obvious peaks and troughs, probably due to internal standing waves. Directly in front, output rises above 4kHz to a +8dB peak at 16kHz when the speaker is at its Level setting. Off axis this drops to +4dB or so, depending upon position, and treble smooths a little, which is why it's not uncommon to point big Tannoys straight forward and not toe them in.

Sensitivity was high at 90dB even though measured impedance was also high at 9.3 ohms overall, meaning this loudspeaker is much more efficient than most.

The Kensington measures well, being a typical big Tannoy Dual having a broad, even response over a wide forward arc, excellent phase matching, plentiful bass and needing little power to go loud. NK



Frequency response



Impedance





# Wall



*Quad 2805 - a point source electrostatic loudspeaker*

**W**hen Quad released their first electrostatic loudspeaker, Gilbert Briggs, founder of Wharfedale, wrote, "we all felt it may be time to change our clothes and head for the workhouse". The ESL-57 eclipsed its rivals...

In the end, Briggs didn't end up in the workhouse, and both Wharfedale and Quad are now owned by the International Audio Group. But new electrostatics from Quad are still a major event, for this remains one of the world's most respected loudspeakers. It's a necessary education for loudspeaker engineers, as what a Quad ESL says about music is arguably more a definitive

statement than that available anywhere else.

Yet even Quads have impediments that compromise their sound. They're never quite as good in real life as I would hope, and I spent years modifying my own ESL-63s - predecessors to the new 2805 - to get them to deliver their full potential. But they fell apart under the strain of review work and, in the end, went skyward to the loft. So I understand why Quad decided to strengthen the 989, the ESL-63's immediate successor, by transferring the annular ring structure and delay line to a composite aluminium and steel frame, fitted with a rear stabilising bar, to produce the 2805.

This loudspeaker is not small,

**Quad Electrostatics need no introduction - they're massively respected. Now, the new ESL2805 and 2905 have further improved the breed, says Noel Keywood...**

being 695mm wide, 1040 tall and 385mm deep. It weighs in at 35kgs and costs £4,500, so this is no budget buy. For those with deeper pockets there is a larger version with additional bass panels, the 2905, price £6,000. It stands 1430mm high, but is of identical width and depth. A loudspeaker this size has a looming presence in all but big rooms: think 20ft or more in the longest dimension. They need a lot of rear space too; 9ft or more is a good idea.

An electrostatic loudspeaker employs electrostatic forces to drive a sheet of extremely thin Mylar film, specially coated to discourage charge migration. The film is suspended between two perforated electrodes, in a vertical sandwich as it were. Because the film carries a fixed electrostatic charge each loudspeaker has a mains power supply, but it consumes little power and produces no heat. The audio signal is stepped up to thousands of volts by a transformer inside the loudspeaker, making safety an issue. Protective panels, beneath the cloth covers, exist and they inevitably influence the sound. Measurement showed the 2805's panels were quite obstructive, more so than those on the 2905 I found.

These loudspeakers are an open dipole - a loudspeaker that fires backward as well as forward, there is no enclosing box or cabinet, just a support frame. The rear wave is best "lost" down a long room; these loudspeakers need plenty of rear space.

## SOUND QUALITY

Quads are an experience you must grow into, and the new 2805, although different in some respects to earlier models, remains distinctly an electrostatic. Sitting at the other end of the dynamic spectrum to a horn, James Blunt's voice floated before me, precisely outlined between the loudspeakers, not in my lap. The soundstage with my review

# of Fame

pair was dynamically gentle, coming alive when they were moved 4ft away from the rear wall to lessen the rear wall return. All the same, the smoothness of the presentation I remember was still there, the 2805 sounding as silky cohesive and one-piece as ever. Whilst Blunt's voice wasn't as strongly constructed or forcefully projected as I've come to expect from listening to 'Back to Bedlam' through a wide range of box loudspeakers, the density of filigree detailing was way beyond that managed by a dome tweeter, finely embroidering the sound with tinkling bells, richly patterned strings and wealth of tiny, delicate sounds that Quads uncover unlike any other loudspeaker.

I always felt that with my ESL63s I could hear a pin drop, and it would sound like a pin dropping, not a builder's bucket hitting the floor - and the new 2805 retains this characteristic. The 2805s are restrained in their treble delivery for, like those of yore with the arguable exception of the '57, high frequencies can be heard to roll down gently. Some twiddling of the front adjustable spikes tilted the panels back, minimising this. All the same what you lose on the swings you gain on the roundabouts. Violins of the London Philharmonic were spread in a smooth arc before me, the stage at a credible distance, as if listening from the stalls rather than the first row, the whole seemingly composed of a large number of finely portrayed individual instruments, each delicate but rich in character but sounding wonderfully detailed, together forming an assembly that was convincing as a large orchestra.

As we know, Quads are as smooth as double cream with strings and natural as a highland stream with vocals. What Quad have done with the 2805s and the larger 2905s is strengthen the casework and add a rear stabilising bar to make the whole loudspeaker more rigid and give it better low end dynamics. So to all that purity comes - we hope - a bit more low end punch to make Rock music rock. Funnily, I've never quite worried too much about this side of things with Quads. For a start, ESL57s in a long room able to lose the rear wave sound punchy and

have a strange property - detailed 'bass'! I've heard the idea poo-poo'd by one loudspeaker engineer of note (conventional type), but I'm afraid to say it is true. In a nutshell what you get is low frequency information uncoloured by the enormous contribution of the cabinet of every box loudspeaker, because the Quad has no cabinet as such of course.

This is where the 2805s became intriguing, in a way only Quads can be. Spinning Goldfrapp's 'Lovely 2 CU', the swirling synthesiser through these loudspeakers was, to my surprise, richer and more complex in its layering and tonal structure than I have heard it through box loudspeakers. Sustains intended to rasp for effect, welled up powerfully from subsonic depths with a strength that surprised me. I realised far more was coming from the synth through these loudspeakers than normal box designs with 'bass'. The lack of return energy from inside the box robs the Quads of that characteristic resonant quality, but endows them with a sense of low frequency analysis achieved by few others.

Put Quads in a big room with plenty of space behind and they have bass alright. It's just that in small rooms the out-of-phase rear wave interferes with the forward wave in a complex fashion that rather blunts dynamics. The 2805 had good bass. They work beautifully with vocals and are a delight with strings of course; here there is little to match the sense of cohesion you get from Quads. With

cleanly recorded Rock the tactile presence of images, the sense of being there was superb. It was only when spinning complex Rock cleanly recorded, like The Scissor Sisters 'Take Your Mama', that the 2805s started to sound a little unhappy,



**Quad 2905. Additional bass panels increase height.**

# Walrus



11 New Quebec St, London W1



## Hyperion

HPS-938 (piano black) - £3750

"These are amongst the finest loudspeakers we have ever sold with performance comparable to models several times the price"



## Tannoy Glenair

Cherry Wood - £3999

"If you've never sampled the delights of a Tannoy 15" dual concentric driver, there's never been a better time to do it. This is the latest model in the Prestige series and has a breathtaking size of soundstage which brings utter realism to both large scale classical works and the latest rock music too.

Also on offer is relative neutrality, and great efficiency, enabling use with low power high quality valve amps"



"the most popular turntable we sell - an ideal purchase for someone starting from scratch (pardon the pun) or upgrading from a starter level deck"

## J.A. Michell Gyro SE

with Rega RB250 arm and Sumiko Blue Point Special Evo3  
£1350 (classic silver) or £1420 (black - pictured left)

### Upgrades to arm

Origin Live RB Internal/external silver wiring, add £160  
Origin Live RB rigid/lockable counterweight, add £75  
Origin Live RB slotted armtube modification, add £85

### Alternative arms

Rega RB300 to replace RB250, add £64  
Michell Tecnoarm a to replace RB250, add £305  
Origin Live Silver arm to replace RB250, add £475  
SME Series 4 arm to replace RB250, add £1119

### Alternative cartridge

Lyra Dorian to replace Sumiko BPS Evo3, add £256

### General accessories

Michell record clamp, add £25  
Michell HR power supply, add £325  
Michell Unicovert perspex platter/arm cover, add £46



## McIntosh

MCD-201 SACD Player - £3500  
MA-6900 (200W/ch) Integrated Amp - £4550  
MC-275 (75W/ch) Stereo Power Amp - £2580

"come and demo McIntosh components against some of the other best solid-state and valve designs and you'll see (hear) why Mac has so many loyal followers after 40+ years in the business!"



## Tannoy Autograph Mini

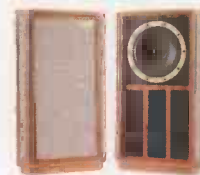
Oak finish - £1250

"This delightful new bookshelf model has been a huge success. It's a long time since we've seen a really good, affordable mini speaker (excepting, of course, the Stirling 3/5a)"

## Stirling Broadcast 3/5a

Walnut - £890  
Maple - £937  
Rosewood - £972

"Still able to impress after all those years, these remain the definitive tiny speaker, the benchmark by which others are judged"



## 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"



We deliver by Citylink 24hr service (subject to stock availability), and internationally by DHL or TNT. Major credit/debit cards accepted, even known to take cash on occasions! Please visit our website for more info (even if we don't update it often enough!).

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bocchino  
breuer dynamic  
brinkmann  
cartridge man  
cawsey  
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duevel  
dynavector  
ear yoshino  
funk firm  
goldring  
graham (tonearms)  
graham slee  
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klimo  
koetsu  
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michell engineering  
morch  
musical fidelity  
nordost  
nottingham analogue  
opus 3  
origin live  
ortofon  
pro-ject  
rega (turntables)  
revolver  
ringmat  
roksan  
shun mook  
shanling  
shelter  
sme  
solid tech  
something solid  
sonneteer  
spendor  
stax  
stirling broadcast  
sugden  
sumiko  
tannoy prestige  
tci cables  
tom evans  
townshend audio  
transfiguration  
transparency  
trichord  
van den hul

tel: 020 7724 7224 fax: 020 7724 4347 contact@walrus.co.uk www.walrus.co.uk





congestion creeping in. I suspected the front grilles may be a factor here, as they were with the ESL-63s. The 2805s are enigmatic here, with much Rock they're impressive in their particular way, only some tracks present a challenge. I ran the loudspeakers at around 6V input maximum, by the way, equivalent to 6V, a long way from the protection circuit ceiling.

I listened and measured the Quads at the excellent East Sussex-based 'Sounds of Music' dealer. The 2905s sat in a large room, which helped matters, but at the same time they have a brighter, clearer and more open sound than the 2805's, sounding

relaxed at higher powers. The extra bass panels drive the air load better, and with this loudspeaker I was aware of real bass power, as well as fantastic resolution. Drums separate out from bass guitar more convincingly than with the 2805s and the character and behaviour of each instrument becomes starkly obvious. So much so that the 2905s offer a clearer, better resolved picture than box loudspeakers. By the highest standards, the 2905s get everything right to a degree that had me shaking my head in awe. This is easily one of the most revealing and accurate loudspeakers I have ever heard; it's fast, clean and open, yet drum tight and free from colour of any kind except, I fancy, for a small, hard 'ring' coming from the protective covers. £6,000 is a lot of money, but not for one of the best loudspeakers you will ever hear. Other manufacturers won't end up in the workhouse, but as ever, I can understand the sentiment.

## MEASURED PERFORMANCE

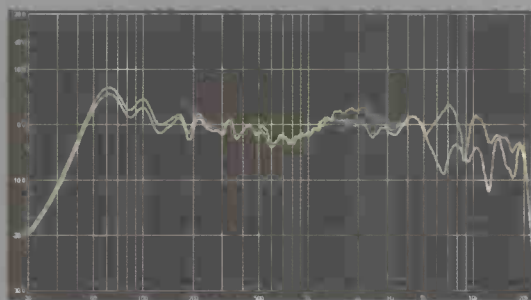
Measurement showed the smaller 2805 beams high frequencies quite strongly, meaning it has a very small "sweet spot", just below centre, where high frequencies are reasonably well maintained. Our response graph (green trace) clearly shows the best result obtainable when listening in exactly this position, which equates to tilting the speakers back quite heavily, with them toed in to face the listener. Otherwise, high frequencies from the 2805 are attenuated, giving a soft sound short of bite, as seen in the white trace. This is how they are likely to sound if not optimally positioned. The 2905 is significantly different in this respect. Our frequency response shows it has more high frequency output, in better balance over a wider listening angle, lateral and vertical. With both speakers there was variation in high frequency output caused by interference around the front protective grill that to some extent lessens at a distance, due to room reflections.

Bass output was also greatly raised by energy reflected from the rear wall unless the panels are kept at least 4ft away, demonstrating the need for space behind these speakers. Our frequency response traces shows performance at this distance. There is a bass peak of +5dB at 60Hz with the 2805, putting the -6dB frequency limit at 35Hz, low for a panel this size. Both loudspeakers behaved like this, even though the larger 2905 was in a large room, so this is the true response, unaffected by room dimensions. The 2905 peaks by +8dB at 60Hz, placing its -6dB lower limit at 32Hz - very low for a panel. The 2905 displays less variation across the audio band than the 2805.

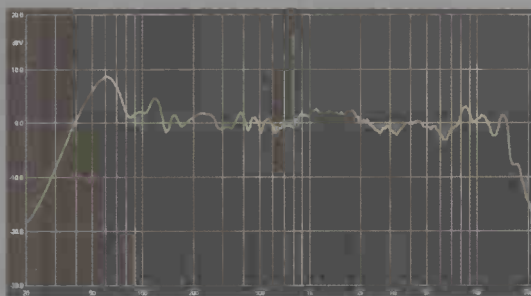
Sensitivity was very low for both loudspeakers, just 82dB SPL at 1m, so low power amps are not recommended. Traditionally ESLs are good with 40W; Peter Walker was happy with this; it gave good volume without threatening the 'speaker. Now, with better protection, 60W-100W is about right. Impedance measured 6ohms, our curve showing it runs from 3.2ohms minimum (the DCR) up to 12ohms, with little reactance except around the 20kHz peak.

Distortion from the 2905 in particular, when producing 90dB SPL at 1m, was very low, below 0.3% from 500Hz upward.

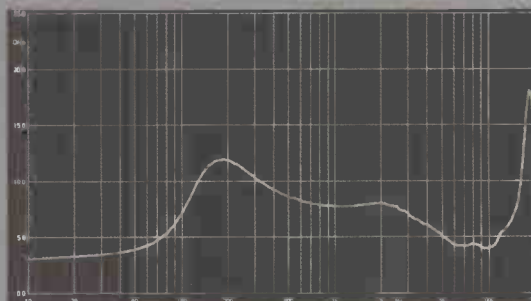
Both loudspeakers measure well, the larger 2905 possessing a more extended high frequency response and improved dispersion. NK



frequency response of 2805



frequency response of 2905



impedance of 2805 & 2905

We heard the Quad 2805 & 2905 at Sounds of Music, East Sussex. If you want to hear them, under exactly the same conditions, you can by phoning Jamie or John on 01435 865212. Sounds of Music are at Firgrove Business Park, Firgrove Road, Cross in Hand, near Heathfield, East Sussex. [www.sounds-of-music.co.uk](http://www.sounds-of-music.co.uk)

### VERDICT ●●●●●

ESL-2805 £4,500

Smooth, soft and effusive sound makes it a joy to listen to, and it's dynamic and grippy too. An excellent, unique loudspeaker.

### VERDICT ●●●●●

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# conclusion

**W**hat can you say about an electric car? It's so slow it barely reaches the 30mph urban speed limit. Nor will it keep up with the traffic outside this limit; as the battery runs down even a horse and cart are faster. And so it goes on. Yet people are buying them - or my eyes deceive me and it's time to get a pair of specs.

So it is with exotic loudspeakers. They're not very sensible and have many drawbacks, one being that they cost at least as much as an electric car. That makes any firm conclusion a little difficult to make. Is an electric car, for example, the best car in the world? "Yes" according to Ken Livingstone (don't laugh; this idea is coming your way). Most people would vote a Ferrari ahead of a G-Wizz but they pollute and when impaled on a speed bump are not very effective as a means of transport. So quite what is best is always very subjective. So it is with exotic loudspeakers: it is difficult to identify one as the best, most having unique strengths that will ensure they appeal to some listeners, but not all.

In our group I would say there are both strong and weak propositions. Least convincing in their idiosyncratic appeal are Quad's new 2805 and Usher's CP-8571 II. As an expensive piece of dedicated conventional engineering I could admire the Usher and its tight, well ordered sound. This loudspeaker is a model of balance, one that incorporates solid hi-fi principles like supreme cabinet construction, together with innovative engineering like the beryllium tweeter. But then it also has weaknesses, such as questionable integration between fabric midrange and beryllium tweeter. Here, a potential strength becomes a weakness, one our more esoteric designs don't suffer. And whilst the Usher had deep bass I wasn't convinced by its quality. So for all of today's materials and design methodologies, which have removed guesswork from loudspeaker design,

it was little things that let it down. This is still a serious effort, yet one flawed and floored by ordinariness.

Quad's new 2805 is far less compromised than the Usher and as a top electrostatic it has great appeal. The problem here is that you have to work hard to get it to perform at its best - and even then whilst it is better than all that has gone before, loudspeakers in general move on and some top boxes claiming electrostatic levels of performance are getting close. Listen to any good ribbon tweeter and you will know what I mean. Having stripped down Quads in the past I can't help feeling a better loudspeaker hides under the covers of the 2805. In other words, it needs less obstructive covers. All the same,

"quite what is best is always very subjective..."

as they stand the 2805s deliver the goods in a way few others can and, if you have the space for them, plus an interest in hearing vast swathes of the most complex and detailed music ever, this could be your loudspeaker.

If you have £4,500 for the Quads then you almost certainly don't live in a garret and may prefer to lose less floor space. Here, the lavishly finished Tannoy Kensingtons appeal. They are expensive, but they are well engineered and exciting to listen to, the unusual horn loaded Dual Concentric drive units giving a superbly focused sound that's nothing other than engagingly dynamic. At this point I feel that the idiosyncratic has been engineered into acceptable modern form - and there is a lot of modern engineering in this speaker - such that weaknesses are acceptably minimised whilst strengths have been maximised. Whatever way I look at it, the Kensington is a great proposition if you like its Edwardian finish. At the end of the day a loudspeaker should be exciting to listen to and the Kensington is that, largely because of its revealing concentric horn design.

Where the Kensington is brightly



lit and vivid, JBL's S4800 is as smooth as silk. JBL go to work on an idea as old as the hills and, like Tannoy, get it to work just fine. JBL's big loudspeaker isn't a point-source like Tannoy's Kensington and doesn't

have the extreme focus and superbly strong imaging, but by separating the horn out, JBL have the freedom to engineer it into slick modern form that sounds smoother than the Tannoy unit. Ironic then that they combine this with a giant, paper coned 15in bass unit in a relatively shallow cabinet - not the subtlest engineering I've encountered. All the same, the final result is still a great listen, if a little pricey.

At the top of the tree, if not price wise, lies Quad's new 2905. This is quite a different animal subjectively to the 2805. It has a large, open and expansive sound with real bottom end weight. The way this loudspeaker presents music, as if from a taut skin, with a sense of speed that's definitive, is quite awesome. At any price this would be a great loudspeaker, but at £6,000 it is something special. Here, a wonderful idea has been honed into something suitable for today's world and as such it is the very antithesis of formulaic in sound or as an experience. Like the electric car it's a product with built in appeal, but unlike today's electric cars the new 2905 is bang up to speed.



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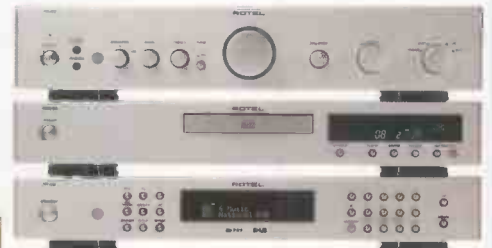


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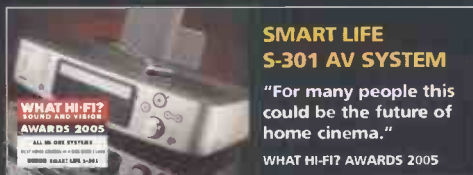
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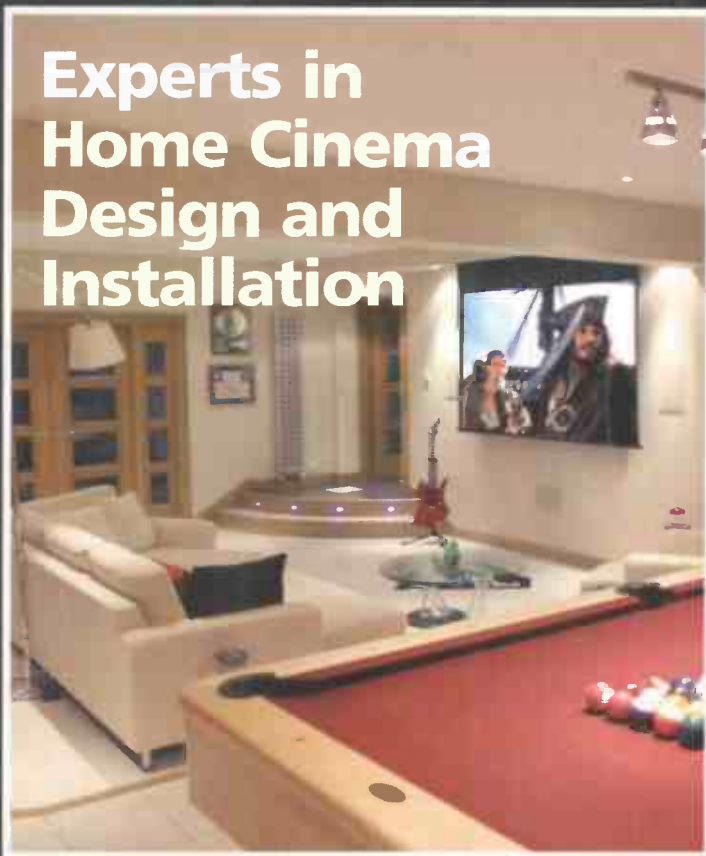
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# Figuring it Out

Ever wondered what those specification sheets supplied with loudspeaker literature mean? Noel Keywood goes behind the numbers...

**F**aced with buying an expensive loudspeaker you might want to know what its performance figures mean and how you can compare them.

Let's look at what KEF publish about the iQ3. It's a "two way bass reflex" they say. Two way means it has two active drive units, in this case KEF's coaxial Uni-Q driver where

Power data says nothing about how loud a loudspeaker will go, only how much power it will accept before going bang. KEF try to address this concern by quoting maximum acoustic output in dB sound pressure level, defined by a distortion limit, but Tannoy and most other manufacturers do not, as it's a difficult to know quite what sort of distortion level is acceptable. Modern

loudspeakers go loud enough for long enough for it not to be an issue in normal domestic circumstances. Only if you have exceptionally large rooms,

result when there's significant deviation from flatness. The lower limit of Tannoy's F2 is quoted as 48Hz, KEF's iQ3 45Hz - again they're close. These days anything from a large standmounter - like these two - and upward should get down to 50Hz or lower. For normal musical purposes 40Hz is a good target value to aim for when it comes to the bass limit, but you'll need a floorstanding iQ7 for this or, from Tannoy, a Mercury F3 that, they claim, gets down to 35Hz. You should get deeper bass from the F3, but since peaking up bass, making it sound boomy, also extends the lower limit you may not get better bass quality. So again this parameter needs to be judged with caution. Our graphs tally closely with published lower response limits, but the graphs also show a lot of variation in response

down to that limit, making bass quality another issue.

This comment applies to the high frequency limit too. Tannoy quote 20kHz for the F2 and KEF 40kHz for the iQ3. But their behaviour up to this limit is subjectively more important than the limit itself

Above 10kHz output starts to beam quite strongly. The response you see from us and others is with the microphone directly in front of the loudspeaker. Move the mic., or your ear, off axis by 15degrees or so and frequencies above 10kHz will drop like a stone. Keep all this in mind to retain a sense of perspective when judging frequency response figures.



		<b>iQ3</b>	
Design	Two-way bass reflex	Sensitivity (2.83V/1m)	99dB
Drive Units	105mm (Ø 1/2") Uni-Q 19mm (3/4") Aluminium dome HF	Maximum output	110dB
Frequency response	45Hz - 40kHz	Nominal impedance	8Ω (min 3.2Ω)
Crossover frequency	2.8kHz	Isomeric	Yes
Amplifier requirements	16 - 120W	Weight	6.7kg (14.8lbs)
		Dimensions H x W x D	365 x 220 x 327 14.4 x 8.7 x 12.9

a tweeter sits at the centre of the woofer cone. Most loudspeakers are two or three way these days. More drivers don't necessarily mean better, as it's easier to get a three way design wrong, although a good three way should be better than a good two way. Bass reflex means it has a port (put crudely, a hole in the box!) which acts to damp the bass unit, believe it or not. Again, most loudspeakers are ported nowadays, because it gives deeper bass than a sealed cabinet.

Tannoy, with their description of the Mercury F2 kick off the specs sheet with power figures. They publish no fewer than three ratings. Recommended amplifier power is a general guide only because it varies widely according to how loud you listen and how far from the loudspeakers you sit. KEF provide this data with the iQ3 too.

Beneath is Continuous power handling in the Mercury F2's spec., which is maximum applied continuous power before destruction. Music varies in level though, so peak power, Tannoy's third figure is the one that best refers to the maximum amplifier power the F2 will accept.

more than 30ft square, and expect to go loud for long periods could it be an issue.

Useful in all this is the Sensitivity figure. I have to say the "voltage sensitivity" here, meaning how loud a loudspeaker is at any particular volume setting. Tannoy claim 88dB for the F2 and KEF 89dB for the iQ3, so the latter should go louder at any particular volume setting. The difference of 1dB is small, however, just audible. High sensitivity is a pretty useful thing; as a sensitive loudspeaker needs little power to go loud. Big loudspeakers are usually the most sensitive, little ones insensitive.

Nominal Impedance is quoted in both Tannoy and KEF specifications. This is another unworked out spec., like maximum loudness. Tannoy and KEF are unanimous here: both 8ohms Mi'lud! Very few loudspeakers are truly 8ohms these days, but with solid-state amplifiers it hardly matters, so you can afford to pay little attention to this figure.

And finally both manufacturers quote the all-important Frequency Response parameter. Loudspeakers vary pretty wildly in their response so this is within wide 6dB limits, giving plenty of leeway for a good



PERFORMANCE	
Recommended amplifier power	10 - 85 Watts RMS
Continuous power handling	60 Watts RMS
Peak output power	120 Watts
Low frequency response	48Hz
Sensitivity	88dB
Nominal impedance	8ohms
Frequency response	48Hz - 20kHz





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**H**i-Fi World gives you the chance to win last month's group test winning tuner, in the svelte shape of Myryad's MXT2000. Superb sound and stunning style makes it one of the best tuners money can buy right now. Here's what Steven Green said in the August 2006 issue...

"This very heavy and solidly built analogue-only device has a tall silver aluminium front-panel with a curved taper at the top and bottom and an attractive single-line royal blue text on black background display at its centre...The silver-coloured metal strip inset at the top of the display is actually the on/off 'button', which is touch-sensitive rather than needing to be pressed, which gives the tuner an air of sophistication. The faces of the buttons on the front panel and the rotary tuning dial are all flush

with the surface of the tuner, and the tuning dial has a finger hole in it to allow quick rotation...The tuner has space for up to 75 FM preset stations, and entering the stations into the presets was simple... the user interface worked well and scrolling through the list of presets using either the remote control or the tuning knob was rapid... Reception quality on FM was good, although you would be wasting this tuner's talents if you don't feed it with a signal from a good rooftop aerial.

The Myryad displayed the best sonic performance on the classical music stations out of all the tuners in the group test. Classical music simply sounded more realistic on the Myryad than on the other tuners – all of the others sounded more 'electronic' in comparison. The soundstage was also the most open and best defined by a significant

margin, and instruments were very highly detailed, precise and well separated. The tuner's highly detailed sound and open soundstage also hugely benefited rock, pop and middle-of-the-road music stations. This was especially the case when the broadcast audio was clean – i.e. well engineered by the radio station – as the tuner was able to deliver greater precision than all of the other tuners, with an excellent top end and tight bass. Speech also sounded excellent on the Myryad, with delivery of presenters' voices being pin-sharp and natural. Overall, the Myryad provided the best sound quality out of all the tuners in the group test as a result of its highly detailed sound and open soundstage... the most important factor is sound quality, and on that basis the Myryad wins outright... A deliciously smooth, open and three dimensional sound makes this a brilliant audiophile buy."

If you'd like to win this superb prize then all you have to do is answer the following four easy questions and send your entries on a postcard to: **September 2006 Competition** by 31st August 2006, *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] What type of front panel does the MXT2000 use?

- [a] aluminium
- [b] titanium
- [c] magnesium
- [d] beryllium

[2] How many presets can it store?

- [a] 75
- [b] 7.5
- [c] 750
- [d] 7500

[3] How did Steven Green describe the reception quality?

- [a] "good"
- [b] "patchy"
- [c] "dodgy"
- [d] "dicey"

[4] He concludes by saying the Myryad is...?

- [a] "a brilliant audiophile buy"
- [b] "not bad for an afternoon's work"
- [c] "profound, life-changing stuff"
- [d] "right up my road"

September Competition  
*Hi-Fi World* Magazine  
 Unit G4 Argo House  
 The Park Business Centre  
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**entries will be accepted on a postcard only**

**JUNE 2006 ACOUSTIC ENERGY AE1 CLASSIC MINI MONITORS WINNER:  
 Keith Allan of Harrogate, Yorkshire**

# American



**Channa Vithana spends some happy days with American Acoustic Development's C-550 floorstanding loudspeaker...**

**A**AD (American Acoustic Development) may not be a household name here in the UK, but when you consider that loudspeaker designer Phil Jones is behind it, then things start to get more interesting. Phil is probably most famous for designing the legendary AEI mini monitor loudspeaker by Acoustic Energy (for an in-depth look at the AEI past and present, see our April 2006 issue, p44.) After Acoustic Energy, Phil relocated to the US in 1990 and worked on and with various projects and companies including Boston Acoustics. In 1998, he founded AAD which is based in St. Lois, Missouri. AAD design, test and manufacture all their cabinets and drive units in-house. Latterly, Phil, who is a dedicated bass player, founded PJB (Phil Jones Bass) under the parent company of AAD. PJB makes some serious pro-audio equipment including a monstrous T-500 650W bass amplifier which is rather markedly described as "probably The most powerful tube bass amplifier Of all time"! For more information, see [www.philjonesbass.com](http://www.philjonesbass.com).

The compact C-550 floorstanding model for review here is described as a 2.5 way design and comes in Cherry, Black or Maple vinyl finishes. Build is excellent as was the flawless panel-fit and material finish. Dimensions are 940x222x282mm and weight 18.5kg. They are rear ported, and I preferred them 800mm from the brick/concrete rear wall for the best balance of bass articulation and spatiality. I replaced the metal links between the bi-wirable terminals with a matching set of wires to my speaker cable for better single-wired sound quality.

## **SOUND QUALITY**

Even at their £900 price point, these loudspeakers have a distinct, and I think quite specialised, musical ability. On initial listening they sounded shut-in, but once acclimatised I found they never got flustered or overwhelmed by any of the different types of music used over the review period - this is what distinguishes the C-550s from any of their price rivals I've heard. It's this composure and couthness, allied to a powerful bass reproduction (as you might expect, considering who the designer is), and clear insight into instrumental and/or vocal quality which charac-



# Dream?

terises them. Essentially then, they're like a pair of down-scaled studio monitors – they'll appeal to listeners who are highly critical of details, yet don't want to spend vast sums of money. As such, the AAD experience is similar to listening to music in a demanding recording studio environment where every nuance is revealed with refinement.

The innate sense of control and poise of the AAD loudspeakers was clear on the Jacqueline du Pré compilation, 'A Lasting Impression'. Here, everything was tightly ordered and reproduced – from the individual

timbre likewise was very good with well-rounded textures to the guitars and an expressive reproduction of the main vocals. Ann Wilson's outstanding vocals were superbly reproduced on 'What About Love' from the 'Greatest Hits' by Heart. The AADs handled her powerhouse singing superbly and communicated it with good expression and texture. Where the AADs could have been better was that the rest of the band sounded a little restricted and due to their innate sense of control, some of the ebb and flow of this music was lost.

"you get an extremely couth and composed sound at the price"

instruments to the overall recorded acoustic. Instrumental separation was very good, and the timbre of each instrument excellent, because there was finely detailed definition to du Pré's cello playing and the surrounding layering of the violins. Dynamic crescendos were handled with consummate control.

Level 42 sounded especially refined through the AADs. The complete frequency range from highest treble to lowest bass was tight, with bass sounding very well damped. Thus there was no harshness to 'Something About You' and even the mid-eighties style percussion parts sounded excellent - reproduced with resolution rather than rasp. Mark King's vocals were well handled and revealed; you could hear how he phrased certain parts of the song differently to convey a slight but differentiated emotional vocal intonation.

There was a controlled and measured response to the melodically sophisticated music and singing style of Shawn Colvin on 'Sunny Came Home', from her 1996 release of 'A Few Small Repairs'. Instrumental separation was excellent where every element was clearly revealed. Instrument and vocal

This last point is where I feel the AADs fall down slightly; they're less involving rhythmically than some other similarly priced designs, brilliant as they are in other respects. Compared to Crystal Audio's £600 T3s, there were some defining differences. The Crystals had a more free-flowing, effortless style of music making, while the AADs were more poised and controlled with superior instrumental and vocal separation and refinement. The AADs also had deeper bass extension, with slightly more power for impact and crescendos.

## CONCLUSION

The AAD C-550s need to be carefully positioned and set up to get the best from them, plus plenty of running-in and a high-quality amplifier with decent driving ability to really sing. Properly fettled however, you get an extremely couth and composed sound at the price; this is what will win the C-550s many friends. However, they do lack a little 'animation' compared to some price rivals, and lovers of lively sounding speakers will need to look elsewhere. This is why an audition is essential – these extremely accomplished loudspeakers are well worth a listen.





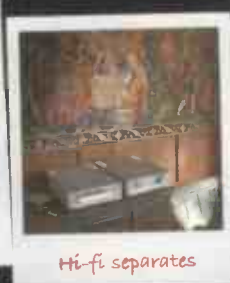
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**BOXING CLEVER** - Channa Vithana speaks to Phil Jones.

**CV: WHAT'S THE PHILOSOPHY BEHIND YOUR SPEAKERS?**

**PJ:** My main goal is to preserve the music signal in its purest form. We go for as natural sound as possible for a given price point and without any artificial effects added, for example sucked out midrange and boosted upper bass to give a novice speaker buyer a good thirty second impression that goes downhill from there. My reference sounds are real instruments, since I'm also an active musician. I believe greatly in spending the customer's money as wisely as I can - by which I mean the end user who takes his hard earned cash to buy a speaker. I am on a mission to end bad sound and help music!

**DESCRIBE THE C-550'S CABINET**

We use 25mm thick MDF on front baffle, 18mm on all other panels. Most important cabinet panel is the front baffle, which is why we make it thicker and less resonant. We put bracing strategically in position to avoid harmonic resonances, by which I mean that the braces are purposefully offset to avoid producing a harmonic on the panel resonance one octave above. The vent (port) is placed on (the) back to reduce midband bleed to an absolute minimum and can be acoustically (loaded) by wall/ corner positioning. This was calculated with computer analysis carefully controlling drive unit excursion with decreasing frequency and air vent velocity - in other words, reduced cone excursion and minimal vent noise without sacrificing bass output.

**HOW DID YOU CHOOSE THE DRIVE UNITS?**

The tweeter's diaphragm size is 25mm, fabricated from pure titanium. Titanium not only has a better Young's Modulus of Elasticity to Mass Ratio than Aluminium, it also has the advantage of high efficiency and high power handling. Woofers are 125mm diameter, the cones made from a laminated mineral fibre composite that's a trade secret. This lightweight material is able to maintain 'piston' operation up to the crossover point and beyond and has excellent self-damping. The drivers therefore have a very predictable and controlled flat frequency response that allows a crossover using the minimum of components necessary. We also use much larger magnets than our competitor speakers because this gives much

greater control of the bass and also increases translational efficiency. This makes a more dynamically accurate loudspeaker with greater power handling and reliability. We recommend two hundred and fifty hours of running in, but you'll get a major improvement in the first one hundred.

**WHAT BANDS ARE YOU CURRENTLY PLAYING IN?**

I'm working on forming two bands. One is blues/R&B where I am emulating bass lines similar to the old R&B master bass players such as James Jamerson. The other is more jazz-orientated, where I play double bass and multi string extended range bass guitars. I have good drummers and guitarists for both bands but we still need a good keyboard player. By good I mean someone who can play George Duke stuff!

**WHICH MUSICIANS WHO USE PJB EQUIPMENT?**

I have three great endorsers: (First) Chuck Rainey who played for Steely Dan, Marvin Gaye, Quincy Jones, Ricky Lee Jones and Aretha Franklin. (Second) Bob Babbitt who is a Motown Funk Brother. He played on many Motown hits (for) Stevie Wonder, Diana Ross. Third is Nathan East. He plays for Eric Clapton, Phil Collins, Fourplay and Michael McDonald. I have also many famous customers such as Geezer Butler (Black Sabbath), Victor Wooten, Pino Palladino (Simon & Garfunkel, The Who, Jeff Beck, Hank B Marvin) and Verdine (White of Earth Wind and Fire) to name a few...

**WHAT ARE YOUR FAVOURITE ALBUMS?**

Oh boy, that's hard! I do have some albums that changed my life and some singles too. I guess the first single that affected me was The Four Tops - 'Reach Out'. I think that was 1966 and it was the first time I was aware of James Jamerson's bass playing. I did not know his name back then but it was him that got me started on learning how to play the bass. In my opinion he is God on the bass and nobody I know of can play like him, and I know a lot of really good bass players. As for prolific albums that is very difficult but I can say for sure the artists would be Jimi Hendrix, Earth Wind and Fire, Yes, Jeff Beck, Stevie Wonder, Isaac Hayes, Steely Dan. I could go on and on...!

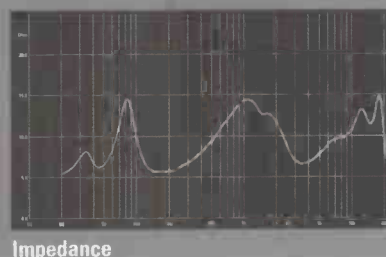
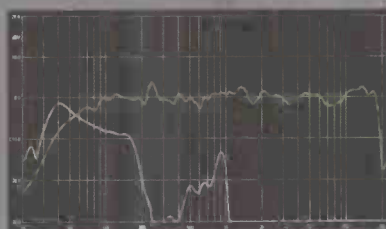
## MEASURED PERFORMANCE

For a floorstander with no great pretensions, other than affordable quality, measured frequency response of the C-550 from American Acoustic Developments is about as flat as it gets from a conventional modern loudspeaker, ensuring a final sound that comes across as tonally balanced and natural, free from subjectively characterful emphases or dips. This also means there are fewer resonances to store energy and smear the time domain, which translates into a cleaner sound. Bass rolls off smoothly below 90Hz, measuring -6dB at 45Hz, a low enough figure considering cabinet size. The port works at 40Hz, damping the loudspeaker and providing output low down in the frequency scale to add weight to bass. The slightly over damped response means bass should be tight rather than sloppy, but it should rarely sound excessive, as there's absolutely no low frequency emphasis.

The impedance curve shows a bass unit not quite matched to the port, even though run in, the measured impedance value being 6.3ohms. At 86dB,

sensitivity is normal for a loudspeaker of the size and impedance. The C-550 is an easy load for an amplifier.

The C-550 measures well, although our bass unit didn't quite match the port. It is particularly accurate and should sound smoother and more composed than most. NK



## MUSIC

Jacqueline du Pré, 'A Lasting Impression' (1996)  
Level 42, 'World Machine' (1985/2000)  
Shawn Colvin, 'A Few Small Repairs' (1996)  
Heart, 'Greatest Hits' (2000)

## REFERENCE SYSTEM:

Unison Research Unico CD player (£1,250)  
Moon Audio i-3 integrated amplifier (£1,595)

## VERDICT ●●●●£

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

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## FOR

- powerful bass
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## AGAINST

- less engaging than some
- price competition



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### Push Pull Integrated Amplifiers

There are two models in this range. The VP16 (12 watts per channel) and using 6V6 valves. Price £450. The MP60 (20 watts per channel). And using 5881 valves. Price £800. Both these models are very conservatively rated and will drive most loudspeakers.



### Single Ended Integrated Amplifiers

There are three models in this range. The MP15 (15 watts per channel) and using KT94 valves. Price £750. The MP2A3 (8 watts per channel) and using 2A3 valves. Price £850. The MP30B (ten watts per channel) and using 300B valves. Price £999.



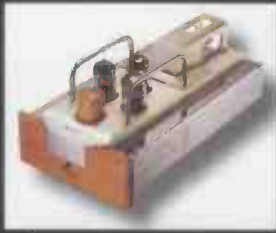
### Headphone Amplifier

The MP5 is an amazing bargain. Not only is it a headphone amp but also a 13 watt integrated with a line stage input and a USB input. So you can link it to your computer or your MP3 player. Best of all it costs just £250.



### Preamplifiers

The SL2000A is a remote control line stage. Price £450. The SL2000 is a phono preamp with a line stage and an mm phono stage. Price £425.



### Power Amplifiers

There are two mono block power amplifiers in this range. VP20 amps are 18 watt push pull designs with outboard power supply. Price £750. The VP300B amps are 10 watt SE Designs with outboard power supply. Price £950.



### Reference Power Amplifiers

There are three SE Reference mono block amplifiers in this range. The DV Ref 300 B amps are 22 watt SE designs with 300B valves. Price £3250. The DV Ref 845 are 36 watt SE designs with 845 valves. Price £2750. The DV Ref 805 amps are 60 watt SE designs with 805 valves. Price £3000.



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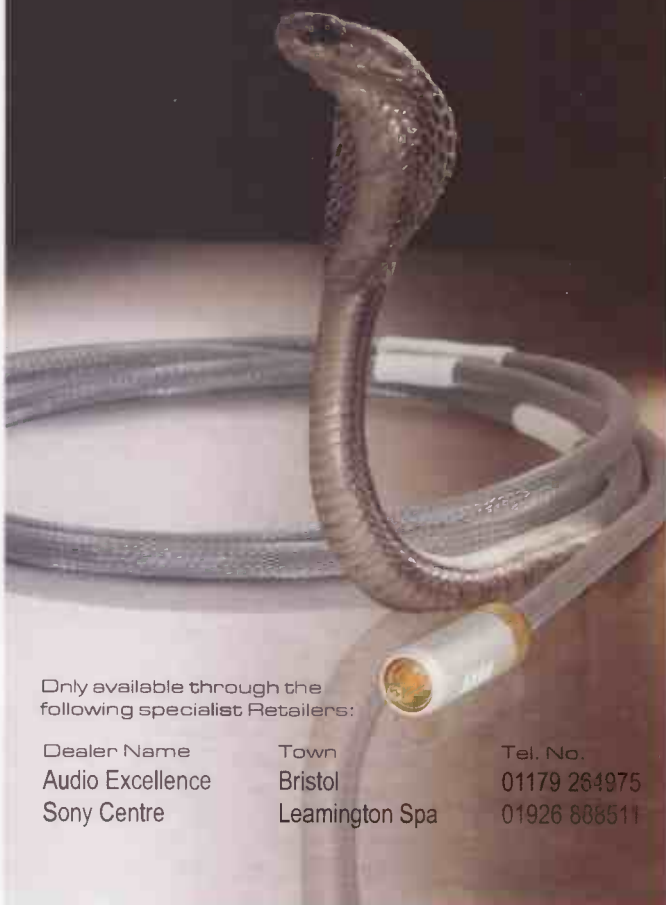
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## NAIM HI-LINE INTERCONNECT £495/M

The official line from Naim has always been that its interconnects are no-nonsense, high value and get the job done – all of which is perfectly fair, but if you talk to cable industry insiders, they'll say they're not the universal panacea that Naim have, at times, suggested. For example, in my opinion The Chord Company's range easily outperforms the cooking Naim interconnect, which sounds a tad dry, coarse and tonally monochromatic by comparison, as well as being less than able to conjure up three dimensional soundstages. It's not bad, but I couldn't help but get the feeling that it was the interconnect that was holding the company's electronics back...

Well, it's nice to be proved right – as the new Hi-Line brings a quite dramatic improvement to a Naim system's sound! The new cable is manufactured from twisted pairs of 80 Litz conductors surrounded by PTFE, Kapton and PTFE tape all then covered by a semi conductive shield to reduce static charges. This is then wrapped by two spiral wound copper shields and lapped PTFE tape. Two of these assemblies side by side are

then wrapped in layers of PTFE tape and finally a rubber outer covering. This gives a two-channel cable where the signal and RF grounds are held in a static position relative to each other, negating any difference in field between them. The cable comes as standard with a new DIN connector, called the Air-PLUG. This patent pending decoupling device is designed to stop vibrations from one product being transmitted, via the cable, to another product. If you think this isn't important, try putting FoculPods (or similar Sorbothane sheets) under the contact points between your cabling and equipment stands; you'll soon hear how cables act as sonic 'lightning conductors', sending vibrations into equipment from the outside world.

Suddenly Naim has an interconnect able to compete pound-for-pound with the best of the rest. It has a very smooth, silky nature with a lovely atmospheric top end, an even, detailed and musical midband, and extremely animated and engaging bass. The combination of that characteristic Naim 'foot tapping' sound and real svelte sophistication is a delight; ironically its naturally propulsive, pacey delivery makes it great for lazy sounding valve amplifiers, but



it works a treat with the absolute opposite (i.e. Naim systems) too! Compared to the stock stuff, Hi-Line is far cleaner, silkier, more dimensional and transparent. You could say that a tiny 'scintilla' of the stock cable's rhythmic 'zing' has been lost, but that's down to the artificial edge the stock cable displays. Overall, it's a belter – about time too! For more information call Naim Audio Ltd. on +44 (0)1722 426 600 or click on [www.naim-audio.com](http://www.naim-audio.com).

## CUSTOM DESIGN LOUDSPEAKER STANDS £POA

One of the most common questions that users of classic loudspeakers ask us is, "where can I get some decent speaker stands?" The trouble is, virtually all pre-eighties boxes were expected to sit either on the floor behind the settee or – if they were lucky – on a pair of appalling castor-based contraptions which were primarily designed to make the speakers easy to wheel behind the settee... These days, it's easier, as manufacturers now recognise the stand as part of the equation, but there will still be times when a high quality, made-to-measure stand is required - enter Custom Design.

Although the company makes a range of excellent off-the-shelf products, it can also fabricate bespoke stands to customers' specifications. In the case of the stands shown, they were made for Yamaha NS1000Ms, to take them 20cm off the floor and give a rock-solid support. The result was superb, these Custom Design frame stands getting a brilliantly firm bass from the Yamahas, and letting their midrange drivers breathe.

Their tubular design is quite reminiscent of the classic Linn Isobarik stands, being extremely rigid. 'Acoustic Steel' (two sheets of steel sandwiching a polymer layer, as seen on the SDS Isoplatmat) was used in parts, making the stands far quieter than they otherwise would have been. They can also be shot-filled too, and Custom Design can supply this at extra cost. Overall, the company displayed a superb level of craftsmanship – clean welds, excellent paint finish and perfect spike implementation made for a superb finished product.

If you've a special project in mind, or a bog-standard speaker you want a stand for, this is an excellent company to consider. Price varies



according to the work commissioned of course, but they're extremely reasonable. For more information, click on [www.customdesign.co.uk](http://www.customdesign.co.uk) or email [sales@customdesign.co.uk](mailto:sales@customdesign.co.uk) direct.

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# First Aid

**Got a dead or dying classic loudspeaker? Don't worry, because ace speaker surgeon Dave Smith can (probably) rebuild it. David Price takes up the story...**

**A**lthough this issue is brim-full of delicious, to-die-for loudspeakers, there's a wealth of classic designs on the used market which in many cases offer some of the performance of moderns at a fraction of the price. The trouble is, buying secondhand is less than ideal, because speakers are transducers with moving parts, and moving parts invariably wear, atrophy or fail with age.

The good news is – whether you're buying a classic speaker and want to bring it back to 'as new'

"I can't do everything out there, but 98% of the time I can help people out..."

sound, or you own one that's just given up the ghost – there's one man who skillfully rebuilds tweeters, midrange drivers and woofers for a living, with brilliant results. Dave Smith is his name, from DK Loudspeakers. He takes up the story:

"I've always been into loudspeakers, but started the business fourteen years ago. Before that, I was working for ELAC (who was making drive units for the likes of Monitor Audio, KEF, TDL, Acoustic Energy, Musical Fidelity), in the lab doing the testing. It was there that I learned the ins and outs of the trade."

Dave's in the business of rebuilding drive units, to as close to original specification as possible. He doesn't take in entire loudspeakers, but if you've got a blown driver, then all you need to do is unscrew it from the front baffle and send it in, and Dave will disassemble it and rebuild it as new.

"On average, it takes two to three weeks to turn around. This depends on which materials I have to source; I don't deal with the original driver manufacturers, but rather I

get the materials for the drive units from the manufacturers' original suppliers, including surrounds, coils, back suspensions and cone materials. Most of the speakers I do are ten to twenty years old, but the oldest ones I've done date back to the nineteen twenties. They include KEFs, Celestions, B&Ws, Monitor Audios, Wharfedales, Leaks, Acoustic Energys, TDLs, Lowthers and Tannoy Dual Concentrics", explains Dave.

He adds that, "most people assume that I can't fix their speakers because they think they've got special editions, or limited production

run types. Don't you believe it! Manufacturers use pretty standard stuff, and I can get nearly all of it in. The only time you get special ones is if they're making the component parts themselves."

Asked what his favourite cone material is, Dave is a big paper fan. "There's a lot to be said for them – there are many types of paper pulp – there's wool and cotton and many other things that can go into the paper pulp. You get umpteen different grades of hard and soft, flat and ribbed. One of my main staples is rebuilding Bextrene drivers, used in KEF designs, but I don't like Bextrene and use Polypropylene instead – it's much better and is self damping. The result is greater speed and they gain slightly on sensitivity too."

Dave even does tweeters; "We try to use the original materials here – we've got aluminium domes, plastic cones, cloth domes, titanium, anodised aluminium, you name it. We measure the thickness of the dome and recreate it. I'm not saying that I can do everything that's out there, but ninety eight percent of the time I can help people out."

## BEFORE AND AFTER

Here's what DK Loudspeakers did with a pair of highly 'distressed' 1977 Wharfedale E50 woofers we supplied. The top two pictures are the old drivers with perished surrounds and clapped out suspension, the bottom two after full refurbishment. Dave says, "the whole lot comes out, and where the cone surround and back suspension is stuck to the chassis, it's cleaned up. The magnet is put to one side, a new surround is glued to the new cone, and left to cure. A new coil is weighed, impedance checked and then mounted to a new back suspension. This all goes together and then the cone is pierced for new braids, which are soldered to the terminals. A new dome is glued on, then the driver is tested, then it's ready to go. In this case, we found the sonic transformation was profound; it's amazing how much better the speakers sounded with rebuilt woofers – tighter, tauter, faster, punchier, cleaner and more dynamic; the original thirty year old woofers were sorry and tired by contrast."



## PRICES

Costs vary with the type of drive unit involved, but DK Loudspeakers can rebuild a KEF B139 'racetrack' for £72, and while an average tweeter rebuild costs around £24, all plus carriage.

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# Piano Gloss

Since 1828, Austria's Bösendorfer have crafted fine pianos. Now they have now moved into high end hi-fi loudspeakers. Channa Vithana enjoys the polish of their floorstanding VC2...

There are few brands more illustrious than Bösendorfer; the company has deservedly made a great name for itself in exquisitely crafted pianos. But being a great name in one thing does not assure success in another – TAG McLaren Audio being a case in point.

Still, there is a certain synergy

between musical instrument manufacturing and loudspeakers; both are finely honed mechanical transducers and successful design and manufacture requires great sensitivity and attention to detail. Certainly, the VC2 displays this. In the luxurious craftsmanship traditions of a world famous piano maker, Bösendorfer offer superlative finishes for their

loudspeaker range.

This loudspeaker costs £4,750 in semi-gloss black finish, whereas high gloss piano black is £6,150 and high gloss veneer costs £6,900. These comprise a reddish Pomele, Burl Maple, Bird's Eye Maple, Maple, Burl Birch, Cherry and Burl Walnut. There are more custom finish options, including White and Swarofski

Crystals, being price on application. So it is possible to have a £6,900 VC2 costing £500 more than the base price £6,400 VC1!

This loudspeaker is undeniably different in design; the company has chosen not to take the well-trodden path of using a simple row of drivers in a standard box. Rather, it sports a single tweeter, two bass/mid drivers and two resonating panels. These panels, protruding flange-like at the rear, are called 'Acoustic Sound Boards'. Fascinatingly, Bösendorfer says they've taken this approach because they view the loudspeaker cabinet as a "vibrating, resonant body". This goes right against conventional concepts of loudspeaker cabinet construction, whose overriding goal is to suppress all vibrations and resonances to make a 'dead' box.

Bösendorfer's Acoustic Sound Boards attempt to spread "a multitude of resonances" across the entire bass frequency range. The company's loudspeaker engineer/designer, Hans Deutsch, developed his patented 'Horn Resonator' from the Helmholtz Resonator Principle, where the loudspeaker, "drives the air mass in the cabinet like a spring; this 'springy' air mass is attached to a resonator tube containing air equal in weight to the bass diaphragm. Only actively vibrating particles can cause other media to vibrate. Furthermore the angle of the Horn Resonator's form enables the production of not just one fundamental resonance

tone, but of many varied resonance tones spread across the entire bass spectrum."

The front panel locates the Acrylic-coated silk dome tweeter. The advantage of this, says Bösendorfer, is a "diaphragm which is rigid for fast impulses and soft against unwanted resonances". The four-ply tweeter voice coil is claimed to offer excellent attack transients. The VC2 is hollow internally and functions as

130mm paper cones use carbon-fibre reinforced diaphragms for rigidity and Alaskan hemp for smoothness, combined with UV-resistant Styrofoam suspension (instead of rubber), which is claimed to be practically free of resonances.

The VC2 uses a hard-wired, first order 'Acoustic Active Crossover,' developed by Hans Deutsch in 1973, with a minimum of components. The 22kg (net) cabinet measures

"music was wholly convincing, with a three-dimensional quality that's usually the domain of a top ribbon design..."

a pathway (Horn Resonator) for the side-firing bass/mid driver sound out through a set of hidden openings near the cabinet base. This emitted sound then vibrates the "passive diaphragm" Acoustic Sound Boards. These are attached at specific points to the main cabinet with clamping screws adjusted to 75cNm.

The bass/mid drivers use steel baskets instead of magnesium for rigidity, and Alnico magnets with smaller air gaps instead of sintered 'artificial magnets', because magnetic performance decreases with increasing air gap size at an exponential rate, says the designer. Kevlar voice coil mounts with six-ply voice coils are used for maximum electrical conductivity. The twin

### THREE'S COMPANY

The glass cabineted Waterfall Victoria (£2,000, see HFW June 2005 p61), oval-spherical shaped, crossover-less, Eclipse 712z (£4,000, see HFW August 2005 p15) and the elegantly proportioned Bösendorfer VC2, although radically different in construction and appearance from each other, are similar in that none employ any acoustic wadding or foam within their main cabinet enclosures. I think subtraction of wadding or foam, combined with stiff, sympathetically tuned cabinets enables these speakers to time so effectively because they can unravel successive instrumental or vocal notes with swift precision, always assuring the listener's attention. The Bösendorfers combine the explicitly revealing timbral qualities of the Eclipse 712z with much more scale and power. Unlike the Bösendorfers, the Eclipses are harder to set up because they work at their very best as near-field monitors about a metre in front of the listener - hence their popularity with recording studios...

Comparing the 995x215x215mm Waterfalls directly to the 1110x304x168mm Bösendorfers, I expected them to sound harsher and less sophisticated. Unpredictably, on the Beethoven LP, the Waterfalls were rather well-composed when switching over from the Bösendorfers as the overall sound was nicely timed and free-flowing. The difference between the two was in much higher surface noise through the Waterfalls, while the Bösendorfers were a great deal quieter, while still revealing more information. Also the cheaper Waterfalls reproduced the piano with a discernible amount of coloration in comparison to the pristine clarity and expression of the Bösendorfers. Unsurprisingly, the smaller sized Waterfalls had less scale and powerful bass lines than the larger Bösendorfers on the Luther Vandross LP. The Waterfalls had the same effortless flow to music though and thus the timing was excellent and very slightly better also. So comparatively, the Waterfalls costing about £2,750 less, with their metal dome tweeter and smaller enclosures, were brighter and less powerful in comparison to the more sophisticated and deeper Bösendorfers, yet they were equal with a natural-sounding musical surge.





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1110x304x168mm. The 216mm plinth is strengthened with stainless steel and is easily adjustable for stability and set-up with locking top-screwed spikes. When setting-up the VC2s, I would suggest experimenting with/without grills and adjustable spikes, leaving a minimum of 230mm from the side and rear walls.

**SOUND QUALITY**

First, a word about placement – the VC2s need a lot of time taken to find the ‘sweet spot’; experimenting with toe in is well worth it, as is moving the speaker around relative to rear and side walls. Maybe this should come as no surprise, as these are unusual inasmuch as the cabinets have been designed to be ‘active’, rather than dead as with most boxes. There’s also the tweeter, which seems to show a rather marked change on or off axis. The result of a rather directional tweeter, and lively cabinets is what can appear to be several speakers in one, depending on positioning.

Properly fettled, these loudspeakers are quite dramatic sounding, boasting wonderful definition of the music’s leading edges. The high frequencies from the Beaux Arts Trio, ‘Beethoven Klaviertrios Piano Trios’ LP were a particular delight as there was superb note and timbral sophistication with the communication of the violin and piano. Here, these high frequencies were entirely controlled yet unforced, and the music was wholly convincing, with excellent instrumental

resolution that revealed a three-dimensional musical quality that is usually the domain of a top ribbon design.

The slick, smooth sounds of Luther Vandross received extremely sympathetic treatment too - music sounded deep and rich and emoted with ease from my ‘The Best Of Luther Vandross’ LP. There was excellent instrumental and vocal separation and interestingly a free-flowing lyrical quality also, which is an uncommon combination for a high end design. Rhythmic grip and timing were equally good, while bass lines remained tight, tuneful and powerfully defined. Overall, the instruments and vocals were nicely composed, tidy and in their place – yet never dull or dispassionately rendered.

Even with Def Leppard’s ‘Hysteria’, music was deep, finessed and rhythmically sophisticated. The sound was communicative and emotionally engaging, where sublime levels of spatiality combined with the superb instrumental and vocal separation allowed more dynamism from the super-clear Mutt Lange production. As a result, that famous Def Leppard drum sound was clean, timbrally convincing and powerfully reproduced, while the guitars were wonderfully balanced with the vocals to perfect that free flowing melodic ‘FM’ pop-rock idiom.

Although the Bösendorfers were tricky to get working correctly, once this had been done, they were consistently couth with all types of music. It’s a svelte, mature sound that they have, that gives ‘grace, space and pace’ to everything they touch. Orbital’s ‘Work 1989 – 2002’ LP is a case in point. With its compound mixture of electronic beats, rhythms and keyboard/piano melodies, it’s a long way from the classical music that many purchasers might prefer, but the VC2s distinguished themselves even with this. Frankly, I had initially expected their insightful ability, typical of high-end designs, to pick apart and ruin the carefully crafted compositions, but was pleasantly surprised however, as they proved revealing yet lyrically rhythmic.

**MUSIC**

Beaux Arts Trio, ‘Beethoven Klaviertrios. Piano Trios’ (1965)  
Luther Vandross, ‘The Best Of Luther Vandross’ (1989)  
Def Leppard, ‘Hysteria’ (1987)  
Orbital, ‘Work 1989 – 2002’ (2002)

**REFERENCE SYSTEM**

Origin Live Resolution Turntable/ Ultra+P/S & Encounter MKII vinyl front end (£3,740)  
Linn Linto phonostage (£995)  
Densen B-250/B-330 amplification (£6,000)  
Waterfall Victoria loudspeakers (£2,000)

**CONCLUSION**

The Bösendorfer VC2 proffers a revealing and generally neutral balance that is clear, informative and enjoyably dimensional. It also boasts excellent attack speed of musical notes. At £4,750 they are not cheap as standard and join a highly competitive loudspeaker sector up to £6,000, with the likes of Mordaunt Short’s £3,500 Performance 6 (see HFW April 2005 p62) and B&W’s excellent new diamond tweeter equipped 803D at around £5,000. However, they are sufficiently different from the norm, being very elegantly slim-line proportioned and finely crafted. Therefore, providing set-up is correct and you have a high-end system to best exploit them, I can give the VC2s a very upbeat recommendation.

**VERDICT**

An unusual and interesting design, the VC2 offers couth sophistication allied to redoubtable clarity and speed, but positioning is critical.

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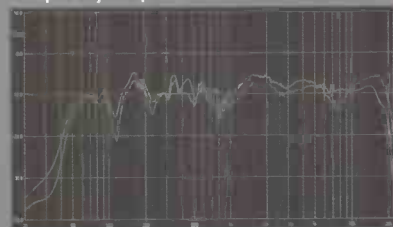
The VC2 has a treble unit at front and a bass/midrange unit either side, set at different heights, the right being higher - closer to the treble unit - than the left. However, although the cabinets are asymmetric, they are not handed, so the inward firing units are unmatched and measurement showed differences in response exist. The on-axis response (green trace) of each loudspeaker shows a broadly flat characteristic from 40Hz upward, with a rise in treble. However, slightly off axis (yellow trace) the VC2 smooths a little at high frequencies. However, because of the distance between treble unit and each bass/midrange unit and the intervening panel area, integration is ragged, as the multiple peaks between 500Hz and 1kHz show, an inevitable feature of such driver positioning. Otherwise output extends down quite well, output being -6dB down at 45Hz. The peaking from 100Hz-200Hz here is a floor / ceiling effect and will exist in all rooms, if to differing degrees.

Sensitivity measured 86dB, not especially high considering cabinet size, but reasonable all the same. Bass unit damping is a bit uneven, resulting in a large peak at 100Hz. Low bass is well damped electrically

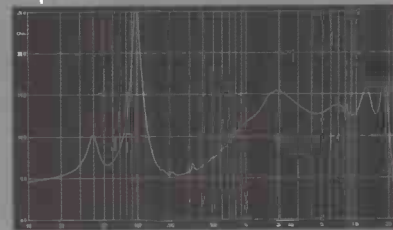
and acoustically though, so the VC2 is likely to have fairly well controlled bass subjectively; there’s no sign of undamped behaviour.

It looks as if the VC2s are best used facing directly forward - we had no handbook and apparently none is supplied as the VC2s are to be set up by a Bösendorfer agent. They are a reasonably balanced design, but drivers that fire both in and out asymmetrically give a complex result that is both uneven and room dependent. NK

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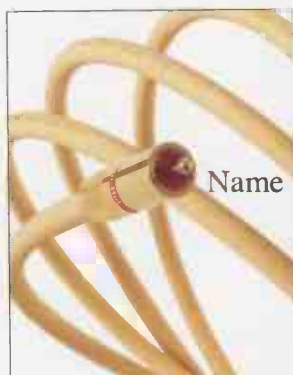
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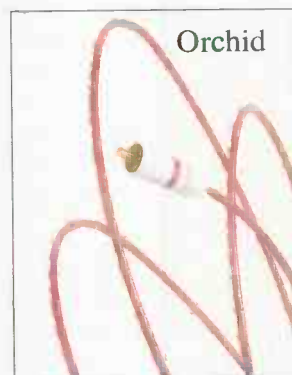


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# Five, alive

**Well, it had to happen some time – Naim Audio have just launched their 'statement' Compact Disc player. And they haven't done it by half measures, as the CD555/555PS is, says David Price, a sonic, aesthetic and conceptual tour de force...**

**"N**aim Audio make musical instruments, other manufacturers make hi-fi" – so says

one posting on a certain Naim-friendly internet bulletin board. It's an interesting proposition, because it encapsulates what Naim acolytes see in the marque. Of course, glib statements like this aren't wholly true, but they're useful as in insight as to why people adore this brand.

To me, as a (relatively) impartial observer, and one who routinely uses other manufacturers' equipment which most emphatically does make music, I find it fascinating that Naim Audio has engendered such an avid following. I don't think for one moment that it's undeserved (quite the reverse), but whereas most people use hi-fi and sometimes love it, it strikes me that for Naim owners, it's more that just a case of 'using' hi-fi, it's more a way of life...

So what's the psychology of it? Another posting on the aforementioned BB (the compelling Pink Fish – see <http://pinkfishmedia.net>) very astutely likens the brand to BMW

"the best Compact Disc player I've heard to date, bar none..."

cars. Most BMW owners, says the correspondent, think BMW are the best, and they don't even look at non-BMW cars. An excellent point, as I've encountered a number of obviously superior cars, but it's rare to find a BMW driver who'd accept this even as a possibility! So what we're talking about here then is brand loyalty; both Naim and BMW have fiercely loyal customers. There's an eerie symmetry in the way the Naim brand has been grown. From the madcap, brilliant if sporadic days when its founder Julian Vereker was at the helm, to the modern era, where under the deft stewardship of Paul Stephenson (hitherto Naim's marketing supremo), the company is trying to get great products to as many people as are ready for them...

One of the joys of Naim Audio

ownership, almost from day one, is the upgrade path. Recognising that high fidelity equipment is a good way for buyers to lose money from the moment they've opened the box, Naim took an extremely conscientious decision to support their products in respect of spares and servicing, make them easily upgradable and when this was not possible, make the 'cost to change' relatively low. Each successive upgrade was always easily demonstrable by the dealers, and easily justifiable on sonic and cost grounds.

Interesting then, that at the press launch of Naim's new £14,000 CD555 in June, the Salisbury boys started by playing the assembled hi-fi hacks their existing 'ultimate' CD player, the CDS3. They then hooked it up to the 555PS, one half of the CD555 (i.e. the power supply box), and we sat back in amazement at the improvement. Then came the full fat CD555/ 555PS (which is the statement product a proper), and lo and behold, there was another order of magnitude of improvement (i.e. very good, even better, best). This is how Naim is selling the CD555, and

also why it's making it.

The *raison d'être* for the '555, then, is its position as the ultimate attainable (?) goal in the Naim upgrade path. For a company with such amazing, awe-inspiring brand loyalty, it makes perfect commercial sense to make such a crazily expensive product. The downside is this; recognising as I do the inevitability of large numbers of people buying it simply for the name, Naim could have made a pup and got away with it. This was my initial fear (although not my expectation, I hasten to add) – that people would want this simply because it's the ultimate Naim. So, the fact that this new ultimate Naim is so deserving of its lofty status in life is indeed good news; in short, the CD555/555PS is (by any standards, not just Naim's),

quite remarkable.

To be honest, it's easy to take a pop at something crassly expensive, over the top and (very likely) over hyped by Naim disciples – it makes good copy, nice sensationalistic press – but having lived with it for two weeks, all I can say is that I didn't realise CD could sound like this.

I frequently get accused of an anti digital bias, and although I can see why, I'd counter that it's not prejudice, it's merely deduction. Simply put, I've yet to hear CD that can 'unlock' the music in a way vinyl does. Moreover, the CD spinners that come close are drastically more expensive than a good turntable (often ten times as pricey) – so this hardly predisposes me to being 'pro' digital. The CD555, like just one other 'production' CD spinner (the Linn CD12, which is very sadly no longer in production!), is an exception to my rule. It really does sound special – in the sense that it's natural, organic, musical, human, flowing, beguiling, moving, emotional; all epithets that I find able to use with serious vinyl sources, but not digital.

## SOUND QUALITY

Having access to a number of very nice CD spinners – both production models and specials such as my Marantz CD63 KI DP and Audiocom modified Sony CDP-X33ES – and having lived with a Linn CD12 for no less than a year, I was interested to note the order of magnitude of improvement (or not, as the case may be), that the CD555/555PS would bring. Well, it was quite a large one.

To give you a gauge, the Naim trounced my Audiocom modded Sony, which itself gives any sub-£2,000 production a lot to fret about. Considering the Naim is seven times more than this, it would be expected, but there's one thing you learn very quickly as a hi-fi reviewer – seven times more expensive never means seven times better, especially where CD's concerned. Often, it doesn't come close to even 'twice better'.

With this in mind, the Naim was surprising. It is quite 'other worldly' in its sound, by which I mean the



'analogue world'. No, I don't mean snap, crackle, pop and rumble (the usual tired old clichés that those who haven't heard decent vinyl wheel out), but rather I mean it has a remarkably natural and 'alive' sound; one that's technically superb (fantastic bass extension and grip, wonderful 'hear-through' midband and silken treble) and also brilliantly musical.

Lesser Naim CD players are superb – at their price points – but even £7,500-worth of CDX2/XPS2 sounds forced and mechanical, like the music's being squeezed from a toothpaste tube rather than flooding out of a sluice gate as per the '555. This new statement CD spinner brings a double whammy of devastating 'hi-fi' prowess and (for me) previously never-heard-from-digital naturalness. The sound is nine tenths as good as high end vinyl in the musicality stakes, but better (obviously, as you'd expect from digital) in respect of pitch stability and bass grip. Music gushes forth, yet it all sounds unforced and unflappable; it's the ultimate combination of easy listening and dynamics to die for.

Tonally, this player is as close to neutral as Naim have ever achieved. It's a world away from the machines the company was making ten years

back. It's smooth, slightly velvety across the mid and treble, and yet manages to give an extremely explicit rendition of a recorded acoustic. This is not achieved by brightness, or a metallic sheen, but by massive, unremitting grip of every minute detail in the mix. It's a rare combination, this; lesser CD spinners attempt to give smoothness by the addition of slightly euphonic tube output stages, whereas the Naim achieves it by innate accuracy and focus. The music on the disc is not bright; almost invariably, it is the machine that makes it so, yet the '555 does not.

Bass is wonderful; there's no other word. It's a hoot to listen to; big, fast, impactful and tremendously musical, it powers the music along with heady abandon. It can summon up massive punch when called upon so to do – there's a massive visceral thwack in your back on the moog basslines of 4hero's 'Cosmic Tree'. As the music builds in intensity, the Naim stays strong like no other; it just 'pile drives' the low frequencies out at you, but it's never wooden or emotionally detached. It's all of a piece with the midband, which is another joy...

Rose Royce's 'Wishing on a

Star' shows this machine's prowess; it's a beautiful recording (fitting, considering the magnificence of the song) and the vocals soar with profound emotional purchase; they grip you and hold you on the edge of your seat. Behind this, a vast, expansive soundstage with real musicians playing real acoustic instruments is there in its entirety. Depth perspective is astounding; this player takes whatever amplifier and loudspeakers you may be using by the scruff of the neck, and gives them no room to manoeuvre; if they're up to the job, they'll project the sound gloriously, serving up a huge, cathedral-like recorded acoustic right in front of your very ears. There's not a scintilla of brightness or stridency to behold.

Another remarkable aspect of the midband is its emotional fluency; you can see why the musicians turned up at the studio to record what they did, and you can marvel at their great prowess. Herbie Hancock's 'The Prisoner' is a riot of crazy rhythmic syncopations and dramatic dynamic stabs, yet hangs together like it could never have been recorded any differently. Musically (emotionally), the Naim is just





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**THE CD555 STORY**

Although the player was first shown at last year's Hi-Fi and Home Entertainment Show at Heathrow (September 2005), it wasn't until June that hi-fi hacks got a chance to hear it 'in anger'. It's brilliantly conceived, in the sense that it's a no-holds-barred attempt to get the maximum amount from any given Compact Disc – and precisely that, because it does not attempt to play DVDs, DVD-As or SACDs, and nor does it have digital output, nor does it have a variable analogue output. Instead, you plug it in and go.

Physically, it's quite spectacular. If Linn's CD12 was a masterpiece of compact elegance, Naim's CD555 is a triumph of size and physicality. At 114x432x314mm, the main box is large and heavy, and appears hewn from solid black brushed aluminium. For me, the motorised top loading disc lid is its best feature – press the 'open' button and it moves up smoothly, and then when you've loaded your disc and dropped the puck on, it closes – initially quickly but it slows down just before closing, a nice touch reminiscent of the electric windows of certain luxury cars, dare I say. It feels great – "nice action", as AJan Partridge would say!

The relevant transport control button illuminates in use, and the green LED display gives just enough information to make using it possible, and then self-extinguishes. All the functions (and more) are available from the superb bundled remote, the genius of which I don't have time to explain here. Overall, using the CD555 is immensely satisfying; not quite up there with classic high end Japanese transports such as the Sony CDP-R1a in terms of speed and tactility, but not far off.

As stated, the '555 package is the CD555 'head unit' and 555PS power supply. The latter is a massive affair, some 15kg or so, and powers the CD555 from two Burndy interconnects which carry discrete digital and analogue feeds. This, says Naim, extends the principle of reducing capacitive coupling between power supplies as far as possible. The CD555 gets a separate power supply from a transformer secondary winding, which is triple regulated, right through to the critical master clock and dejittering circuitry. Special attention has also been paid to reducing capacitive coupling of high frequency noises from other supplies into this super-quiet clock supply through interconnect cables and wiring looms.

The 555PS power supply incorporates significant upgrades over existing designs. More regulators have been used to isolate the supplies to various parts of the circuit, minimising their interaction. A total of seven regulated power supplies, including separate one for the clock circuitry, are used, with five secondary windings on the transformer (which is itself forty percent larger than that in the XPS2). The 555PS is backward compatible with the CDS3 and CDX2, so you can upgrade either with it, and keep it for if – or when – you take the plunge for the CD555.

The CD555 DACs are mounted in a special 'quiet room' inside the case, designed to ensure all critical signals reaching the DAC have "immeasurably low jitter" and keep their environment free of the varying electric and magnetic fields. The CD compartment has low infra red reflective coatings to reduce eye pattern interference and noise., and sports an extremely low inertia and low resonance CD clamp. The very best Philips Pro CD mechanism is used with a diecast chassis – this is a welcome change from the (in my opinion) inadequate DVD-ROM mech used in some other high end rivals. The CD555 has a very heavy brass sub-chassis - separate for digital and analogue electronics, and all analogue stages, I-to-V conversion, filtering and output drivers are built from discrete components. Seven-pole output filters are used, and there's a separate low jitter clock circuit with its own multi-stage regulated power supply with post-digital filter de-jitter circuitry to eliminate jitter.

so right – it goes loud with disarming speed and confidence, then goes quiet and soft just as the music dictates, time after time with total ease and unflappability.

Treble response is unremarkable, inasmuch as it sounds like real treble from real music; hi hats have real finesse, yet tangible 'crispness' too. There's no suggestion of hardness or grain, so much so that it makes the already superb CDS3 sound quite clanky and metallic – something I never thought I'd say. There's also a wonderful air to proceedings, which locks back into the midband; everything about the vocal booth in the studio is there to hear, yet despite the explicit detail, it's all so natural and effortless. There's certainly no sense of 'analysis paralysis', which is remarkable for something so detailed...

**CONCLUSION**

It's hard to quantify the CD555/555PS's 'value', because it's self evidently so expensive that I don't think conventional cost

**REFERENCE SYSTEM**

MF Audio Passive Magnetic Preamplifier (copper)  
World Audio Design K5881 (modified) power amp  
Yamaha NS1000M speakers  
Black Rhodium cables

considerations come into it. Certainly, on Naim's own upgrade ladder, it makes sense; it brings a natural ease, plus a host of extra detail and focus that the CDS3 cannot manage. It is, to my ears at least, head and shoulders above the powerful but rather dispassionate sounding £8,000 Meridian 808i, and betters (I think) the Linn CD12 in terms of power and impact. Indeed it has no flaws that I can discern, aside from its price, of course – and this will be immaterial to many potential purchasers. I applaud Naim for their single-mindedness in bringing this to market; it could have been a cynical 'cash in' job, a way of milking the Naim faithful, but it most emphatically is not. Rather, it is the best Compact Disc player I've heard to date, bar none.

**VERDICT**

Sublime musicality takes CD to another level; build and finish peerless.

**NAIM CD555/555PS £14,000**

Naim Audio Ltd.

+44 (0)1722 426 600

www.naim-audio.com

**FOR:**

- sublime musicality
- arresting speed and grip
- peerless focus
- build/ergonomics/remote

**AGAINST:**

- price

**MEASURED PERFORMANCE**

The CD 555 has the high frequency roll off common to Naim CD players, seen in our convolved impulse analysis, but it is not as pronounced as earlier models. The upper frequency response limit (-1dB) measured 20.8kHz, where it has been at 16kHz in the past. So this player will sound brighter, but still it is likely to come across as smooth and civil, as its filters are a bit more damped than others.

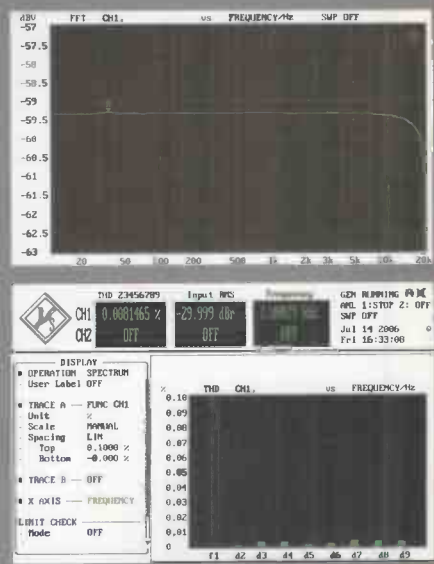
Linearity was very good at high signal levels, but not at -60dB, where a distortion figure of 0.43% is nothing special. This resulted in a poor EIAJ dynamic range value of 107dB, compared to 112dB best case. This may result in a slightly less smooth sound with, say, classical strings (i.e. low level music), but otherwise is unlikely to be of major consequence aurally.

Channel separation was high, noise very low and output normal at 2.03V, so the CD 555 measures normally enough.

The CD 555 measures well. Naim choose their D/A converters on sound quality rather than measured performance, which is likely why distortion levels were not the best. This wasn't the criterion for selection. NK

Frequency response (-1dB)  
CD 2Hz - 20.8kHz

Distortion	0.0006%
0dB	0.001%
-6dB	0.43%
-60dB	2.8%
-80dB	
Separation (1kHz)	85dB
Noise (IEC A)	-112dB
Dynamic range	107dB
Output	2.03V



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# On The Run

David Price reports on the good, bad and ugly aspects of his system...

I'm not sure if it's a case of 'golden ageing', in which you focus on a certain time that – for whatever reason(s) – seemed to be special, but the only system I've had that I've ever felt truly happy with was circa 1989, when I was running a Linn Sondek LP12/Ittok LVII/Supex SD900, Naim Nait and Linn Kans (the latter two both in Mark I guise).

Thinking of that system, it had an immensely musically enjoyable way of unlocking what was in the grooves of my vinyl LPs. It just played music; there's no other way of putting it. Actually, in absolute terms it probably wasn't much cop; a rather 'mushy' front end with little in the way of detail, image depth or accuracy; a weak-kneed amplifier (albeit great in dynamic terms) and a pair of loudspeakers with no bass. Still, it got the job done, and left me wanting for nothing.

Of course, this may have been because I hadn't experienced truly high end systems at the time, but certainly compared to my friends' systems and ones I heard at dealer dems, it was so musical. I can still remember listening to Roxy Music's 'Avalon', basking in the plaintive, moody atmosphere, feeling like I had a hotline to the original moment when the recording was made...

In hindsight, it was a brilliantly matched system; unlike the recent English World Cup football experience, when many brilliant players failed to turn up on the night, I had some very good (but not brilliant) components, which seem thrilled to be playing with one another – the result, to use an eighties expression, was 'big audio dynamite'.

Now, some seventeen years later, I find myself with a system that's probably the closest to how I remember that eighties set-up, but which is in absolute terms massively better. I love it, and I'm always seduced by it, but I still don't get as thrilled by it as my old Linn/Naim combo...

If it's any consolation, I have access to some of the very best hi-fi money can buy, but still I'm always



wanting something better. This never leaves you, once you get the hi-fi bug, so my advice is – whether you have a £500 Cambridge Audio system or £50,000-worth of designer labels in your equipment rack – pour yourself a glass of wine, turn the TV off (and the fridge and computer if you can – due to all that mains hash), sit down and let the music take you away. If it doesn't, or it can't, then maybe you should upgrade – or give up – but if it can, then just stop thinking about hi-fi!

My system is really two-to-three systems, bits of which come and go depending on reviewing duties or mood or music being listened to. When people come and listen, many are gobsmacked, because it's stunning in some respects, but it's still not right – and right at the centre of the issue is that old chestnut – tubes vs. solid-state.

Okay, first things first. Sorry if this upsets certain readers, but I now know myself well enough to know that I like vinyl and not CD (or SACD, or DVD-A for that matter). Listening to digital for me is simply not the real deal; it doesn't bring me closer to the music, no matter how good the silver disc spinner is. Maybe it's just my conceit, but in private, off-duty moments, I only ever listen to digital if I'm doing the housework.

So to the other end; having tried umpteen loudspeakers, I've chosen to

go with Yamaha NS1000Ms, as they give me what I want from live, which is lightning transients, wondrously low colouration and high detail retrieval. They also have that big,

"brilliant bass or a sublime midband – which would you choose?"

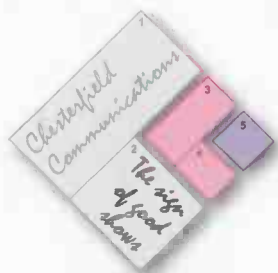
visceral punch that you only get from three ways with serious bass units. Like all speakers, they're not perfect, and one of their foibles is that they're hard to drive, which leads me on to the crunch...

Serious valve amplifiers such as my modded World Audio K588I make the Yams sing, but they have little real control on the bass units. Visitors will criticise the Yams for having 'loose bass', but you move to NuForce's excellent Reference 9SE Class D monoblocs, and suddenly the bass is tight as a viciously struck snare drum. But then that gorgeous liquid midband that you really can (seemingly) only get from valves is gone. Oh for the best of both worlds!

Brilliant bass or a sublime mid – which would you choose? From where I'm sitting, it really is either-or; if it ever isn't then I'll let you know; next report will be expand more on this; meanwhile, I'll sit back with a glass of wine and party like it's, errr, 1989...

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- What is isolation?
- Can quiet be good?



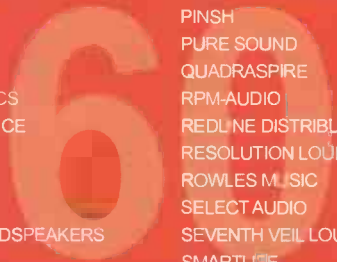
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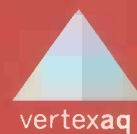
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# Silver Standard



**D**espite the price staying the same at £599 for the past five or so years, the Origin Live Silver 250 tonearm has recently undergone some substantial changes which mean that, to all intents and purposes it's a 'new' product. First is that the '250' has been dropped from the name - because there's now little left of the Rega arm that begat the OL; only the arm base remains. Unfortunately for the Silver, this is the cheapest looking part of the arm; whereas the rest of it is now exquisitely finished - we're talking Zeta quality here - the black plastic bit at the bottom rather detracts from the experience. I think making this silver would at least lift it visually, turning it into the beautiful thing to behold that it - now nearly - is.

There are only vestigial traces of the Rega elsewhere, such as the arm lift. In this latest version, the

OEM Rega armtube has disappeared, to be replaced by a superb three part polished aluminium affair. The headshell is a new alloy job too (and much thicker and stiffer than stock), decoupled from the main armtube. At the other end, there's a metal end stub, the very same that started the whole 'Rega structural modification' ball rolling. There's a special counterweight, with a hole in the centre machined elliptically. The bearing housing is also new, again (black painted) alloy, and the bearings themselves are bespoke, with a higher ABEC rating. All wiring, both inside the armtube and between the arm base and phono sockets, is special OL fare. Elsewhere, only the bias adjuster remains stock Rega.

## SOUND QUALITY

Knowing this was going to be a superb bit of kit, I was particularly interested in the respective differences between the original 2002

Silver 250 and this, the latest Silver. Going back to the original arm, I found it still an excellent performer, superior to the Michell TecnoArm I've been using recently. It was very fast, open and easy on the ear, with a nice rhythmic quality and taut, tight bass - I could see why I'd been bowled over nearly five years ago.

Moving to the new Silver, I was surprised by the difference in sound; it's fair to say that the old and the new are far closer in looks than in sonics. Most profound was the midband, which takes on a whole new life. There's a lot more detail and dimensionality, which gives instruments more 'room to roam' in the mix; the older arm sounded more 'digital', in the sense that instruments seem artificially closed in. The new one, however, was so much more open and expansive in depth perspective.

Not only was the new Silver more 'architecturally correct' then,

Origin Live's Silver tonearm has always delivered 'high end' sound for not much money, and in its latest incarnation, the company claims it's better still. David Price listens in...



but the midband showed subtle improvement in terms of rhythms and dynamics too. There's a stronger sense of the pace of a song, and a feeling of greater rhythmic flow too. In the former sense, the OL gets closer to the SMEV, in the latter it closes in on the latest Hadcock unipivots – an interesting and rather deft trick to pull off! Suffice to say, that one of the areas in which vinyl excels, timing, comes over in an altogether more impressive way than before.

The upshot of this is that beautiful analogue recordings such as Rose Royce's 'Wishing on a Star' come over with a power and poignancy previously unheard with the old Silver 250 – and about 95% of all other tonearms too. It becomes a tremendously moving, emotionally engrossing experience, and you're left in awe of the brilliant musicianship. The great thing about this arm is that you don't start thinking about the tape hiss,

"music becomes a tremendously moving, emotionally engrossing experience..."

vinyl roar, etc.; it's not analytical in the sense that the original Rega arm was, and less so than ever the first Silver 250.

Bass quality is another joy; it's strong, tight, taut and propulsive yet tuneful too, and blends seamlessly into that stunning midband. Bass guitars have a less 'cardboardy' tonality; the previous armtube was obviously failing to contrast the tonal characteristics of instruments as well as this. This goes for the midband too; there's a wider tonal palette at the arm's disposal, with which to 'paint' the original recording. Up top, treble is delightfully smooth and silken.

Overall then, the new Origin Live Silver is a sizeable improvement on

the already superb old Silver 250 – in terms of sonics, build and finish. This makes it even better value for money than its predecessor, which at the time of its launch in 2002 was exceptional in this respect. In absolute terms, it's still one of the best tonearms around, despite there having been something of a renaissance in vinyl and countless new, very able arms introduced since, that have raised the game. Spending £1,000 or so extra will give you a choice of several models from other manufacturers (and indeed OL), but none will substantially improve on the Silver. I believe it still to be the strongest value package in the Origin Live range – which is really saying something.

#### VERDICT ●●●●●

In almost every respect, this is the best tonearm at or anywhere near the price. Cracking value for money.

**ORIGIN LIVE SILVER** £599

Origin Live

☎ +44 (0)2380 578877

www.originlive.com

#### FOR

- outstanding sonics
- superb build quality
- silly price

#### AGAINST

- minor styling details

# Electra LUX

**Audion's Silver Note One is a high-end valve power amplifier designed for high efficiency loudspeakers. Is Channa Vithana electrified by its sound?**

**T**his, one might say, is a niche product - there are not many power amplifiers of this price (£2,500) which put out a paltry 3.7W per channel into 8 ohm that I know of. The manufacturers Audion would claim it's all about quality, and not quantity, which is fair enough. Any potential purchasers of the One will be going into the sale with their ears wide open, so to speak, in full knowledge that this amplifier needs an extremely efficient pair of loudspeakers. In the same way you don't buy a Caterham sports car for effortless motorway cruising, so you wouldn't take this to drive a small pair of eighties mini monitors!

Aylesbury-based Noteworthy Audio (an independent specialist

selected parts of the audio stage, Noteworthy Audio says that only high quality components are used to ensure the finest sound and non ferrous (military grade aluminium) casework is used for both sonic and cosmetic reasons.

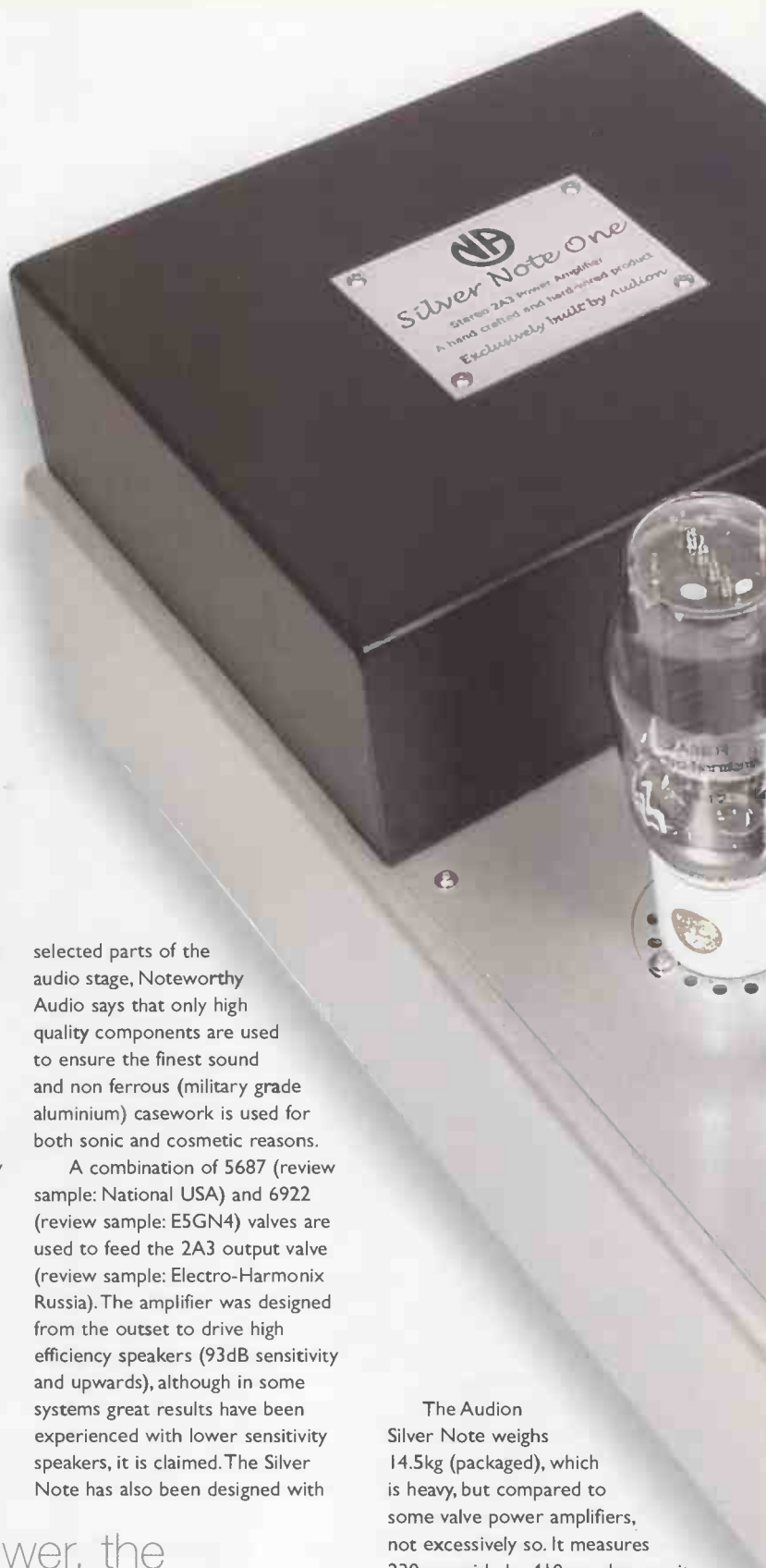
A combination of 5687 (review sample: National USA) and 6922 (review sample: E5GN4) valves are used to feed the 2A3 output valve (review sample: Electro-Harmonix Russia). The amplifier was designed from the outset to drive high efficiency speakers (93dB sensitivity and upwards), although in some systems great results have been experienced with lower sensitivity speakers, it is claimed. The Silver Note has also been designed with

"despite its lowly power, the Audion Silver Note One delighted with its ability to maintain consistent composure ..."

hi-fi dealer), commissioned this particular product to their very own specification. French based valve hi-fi company Audion International duly came up with the feedback-free design with a single ended topology. Completely hand made and hard wired with pure silver wire in

a very low noise floor enabling its use with extremely high sensitivity horn loudspeakers." Noteworthy preferred the choice of the two large 2A3 valves to the similar silhouetted 300B types on sound quality grounds and they state the 2A3 has "effortless resolution and dynamic prowess".

The Audion Silver Note weighs 14.5kg (packaged), which is heavy, but compared to some valve power amplifiers, not excessively so. It measures 230mm wide by 410mm deep, so it is not necessarily an easy amplifier to accommodate, and its 240mm height (including valves) and heat output require plenty of room for ventilation. I recommend planting it on its own dedicated stable platform and definitely off the floor to minimise sound degrading vibrations. The chassis features four compliant rubbery feet which give it some isolation, and also height clearance for the perforated vents to the undercarriage. Build quality is solid, and I find that the outside scale of the power amplifier, in





silhouette, is rather appealing in an austere nineteen fifties laboratory style. However, the silver and black casework, while smooth and blemish-free, is somewhat unexciting and lacking sophistication at the price.

**SOUND QUALITY**

Lovers of sheer visceral punch need not apply, as the Audion Silver Note One

Recorder Concertos' was played exactly well, her phrasing ultra precise in its delivery. Melodies and rhythms were dispatched in an exhilarating manner, and I was immersed in the dynamics of the performance - from delicate, quiet moments to the blistering intensity of recorder and accompanying instruments. There was superb definition to the low frequencies, with believable tunefulness that made for surprisingly dynamic music. The quality of the high frequencies and midrange were outstanding, with no discernible coloration through my reference system (Densen B-250 preamplifier, Phonosophie Impuls 2 CD player and Waterfall Victoria loudspeakers). The sound had a tangible purity to it, with excellent decay as previous musical notes gave way to new ones. The music was finely balanced and instruments like the recorder were identifiable without any harshness or cloyingly muddy warmth added. Overall

the music from 'Baroque Recorder Concertos' was of a very high resolution, which led to an emotionally absorbing performance.

The finely crafted Trevor Horn produced pop-soul of 'IV' by Seal sounded clearly articulated and

**TUBE VS. TRANSISTOR**

So how does the feedback-free valve aspirated Audion Silver Note One power amplifier, with a claimed 3.7watts output power, compare to my £500 more expensive reference, the zero-feedback solid state Densen B-330 with 120watts? With the Densen, the 'Baroque Recorder Concertos' had a slightly wider spatiality with also a discernible rhythmic quality that was just a touch tighter than the already excellent Audion. The phrasing of the instruments was identical, but in comparison to the Audion, the Densen couldn't quite match the delicacy and sophistication of timbre or clarity and forensic insight within the music. On 'IV' by Seal, the Densen showcased its outstanding rhythmic ability which is one of its great strengths, so the Audion - while good in its facility to maintain musical cadence - wasn't quite as able here. This is acceptable because the Audion had plenty of power through the bass lines and rhythmic elements, and as such, these musical parts were impressively revealed with an assured tangibility.

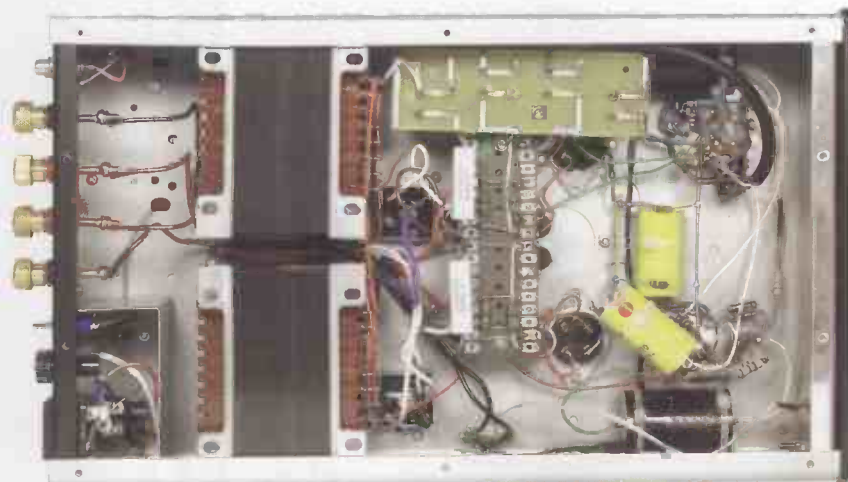
Unlike some other valve power amplifiers I have heard, the Audion didn't suffer from any bass drift and therefore was able to maintain its rhythmic grip without flagging and consequently altering the balance and timing of the music. The Audion was superior in detail with Seal's vocals where via the Densen he didn't sound as tangible in expression or texture in relation, while the phrasing however was equal between the two. Bass articulation was equivalent between the Densen and Audion with 'Hats' by The Blue Nile, while the Densen had better spatiality overall, creating a wider aperture to present music within. The Densen had a more fulsome midrange to the synthesiser melodies which wasn't as finely sophisticated or revealed as on the Audion. Rhythms, melodies, timbre and spatiality to Joe Satriani's 'New Blues' from the 'Extremist' were surprising - given the differences with the other music - as it was extremely close between the Audion and Densen. As such I couldn't fault either power amplifier because they were so similar in their ability to portray the, at times, meandering and languid piece which subsequently astonishes with fiery, attacking lead melodies.

tunefully dynamic from the lowest to highest frequency ranges. Seal's vocals were excellent in expression, phrasing and timbre, being allowed to breathe and showcase his deft singing talent with aplomb. Basslines had taut and harmonious definition, while the backing singers and groove-led melodies and rhythms were finely interwoven within the super-slick

will not rock you, or the house, unless your loudspeakers are exceptionally efficient.

However, the amount of musical enjoyment emanating from this power amplifier is completely out of proportion to the amount of watts per channel it produces - and therein lies the key. It is an exceptionally musical yet sophisticated sounding performer, one that works in a completely different way to the conventional transistor powerhouses at or around the price (such as Musical Fidelity's kW500, for example).

Pamela Thorby's 'Baroque



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B&W 805 Signature, tiger eye veneer, factory stands in silver, immaculate condition, 1 owner (£2900)	£1750
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Audio Physic Tempo 4, cherry, ex display model	£1699
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Wilson Benesch ARC's with stands, silver finish (£2.5k)	£1699
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### Analogue

Linn LP12, Ekos Arm, Arkiv cartridge, lingo PSU upgrade, excellent condition throughout	£1695
Michelle Gyrodeck, Origin Live Tonearm, Trichord Never Connected PSU+DC motor (£2000+)	£995
Linn LP12, Lingo PSU upgrade, power amp, black (£2750), including Klyde cartridge	£1295
Cyrus Phono X, black (£700)	£395
Wilson Benesch Full Circle, boxed as new (£2100)	£1495
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Mark Levinson JC-1 phono stage, very very rare	£1495
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SME 10, boxed AS NEW (£2800)	£1895
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### Miscellaneous

Pioneer PDP436-XDE 43" Plasma with stand. Brand new sealed box. Must sell! (£2900)	£2400
Townshend Super Tweeters in Titanium matt	£650
Isotek 2K Qube2, boxed, one owner. (£1595)	£695
in silver, JAS Audio Supertweeters, this is the actual HiFi World Review pair	£549
Nordost Vishnu 2m mains lead, as new, genuine cable unlike some recent e-bay copies! (£450)	£349
PS Audio P500 power plant with latest Multi-wave 2 plus module fitted (£2400), boxed new	£1695
Musical Fidelity X-Cans v2, upgraded to v3	£149
Musical Fidelity X-10v3 Tube buffer stage	£195
Nordost THOR mains conditioner (£1799)	£995



**MUSIC**

Pamela Thorby/Sonnerie, 'Baroque Recorder Concertos' (2002)  
 Seal, 'IV' (2003)  
 The Blue Nile, 'Hats' (1989)  
 Joe Satriani, 'The Extremist' (1992)

**REFERENCE SYSTEM**

Phonosophie Impuls 2 CD player (£5,000 approx.)  
 Densen B-250 preamplifier (£3,000)  
 Densen B-330 power amplifier (£3,000)  
 Waterfall Victoria loudspeakers (£2,000)

*high price, low power  
 - each Audion watt costs  
 approximately £676!*



studio production. Instrumental separation was also excellent via the Audion, as a purity of clear insight deep into the Seal recording was revealed.

Paul Buchanan's vocals from The Blue Nile 'Hats' CD were compellingly rendered by the Audion - his naturally plaintive and affecting vocal delivery was given plenty of breathing space within the production. Vocals were fully extended and enunciated

therefore a coherent emotional feel enabling me to precisely identify his particular guitar sound and style. The sub-melodies to the guitar had a tunefulness which served as a great preface to the numerous dynamic crescendos within the course of the song structure. The Audion didn't just dig deep into the content of the recording, but reproduced individual instruments with tremendous authority.

level of volume I require for reviewing in my smaller (4x3m) listening room. However, for larger rooms the Audion must be used with higher than 90dB sensitivity loudspeakers to sustain and do justice to its inherently good dynamic ability, and this may limit its appeal to those who already have irreplaceable or cherished lower sensitivity loudspeakers. Once the issue of loudspeaker/ room compatibility has been taken in to consideration, then the Audion Silver Note One, in sound quality terms, is an outstanding high-end power amplifier and deserves to be heard outside the normal realms of the low-powered valve enthusiast's society.

**VERDICT** ●●●●

Highly sophisticated and musical performer, but suitable partnering equipment is of course essential.

**AUDION SILVER NOTE ONE**

ONE £2,500  
 Noteworthy Audio  
 ☎ +44 (0)1296 422 224  
 www.noteworthyaudio.co.uk

**FOR**

- sophisticated sound quality
- great musical insight
- instrumental/vocal timbre

**AGAINST**

- very low power
- careful loudspeaker matching
- bulk and height

"an outstanding high end power amplifier, that deserves to be heard outside the low powered valve enthusiast's society..."

in a way that did not alter the exquisite and haunting balance of the music, by being dislocated from the instruments. Bass lines and synthesiser melodies had tunefulness, definition and no discernible stridency or coloration.

The opening bass lines to 'New Blues' from guitarist Joe Satriani's 'The Extremist' CD were finely and musically defined with well rounded texture, depth, and

**CONCLUSION**

Despite its lowly output power, the Audion Silver Note One surprised and delighted with its ability to maintain consistent composure and musical sophistication through timbre and balance. In to my 90dB sensitivity loudspeakers, it proved able to provide the



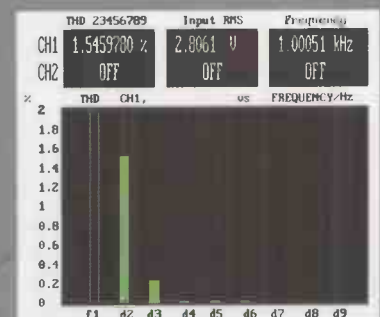
**MEASURED PERFORMANCE**

Using a fairly generous 3% distortion limit, this amplifier produced 2.5WV per channel. However, in the midband and at high frequencies this was predominantly second harmonic, as our analysis shows. It's possible to exceed this level on musical peaks without distortion making itself obvious, so the Silver Note One can provide the quoted 3.7W in practice, providing there isn't too much bass content to the music, as performance deteriorated at low frequencies due to output transformer limitations. Third harmonic, caused by core saturation, crept in at 40Hz, limiting output to 1.2W for a THD figure of 3%, making the Audion is short of power here. It will need sensitive loudspeakers, but modern floorstanders of 90dB or better may suffice if high volume isn't needed.

Frequency response was smooth across the audio band, extending from 11Hz up to 21.2kHz within 1dB limits. Hum and noise were low and sensitivity very high at 110mV.

The Silver Note One measured as expected for a 2A3 single-ended, with the exception of limited output at low frequencies. NK

Power	2.5watts
Frequency response	11Hz-21.2kHz
Separation	58dB
Noise	-93dB
Distortion	1.5%
Sensitivity	110mV





# Hot Stuff

**Channa Vithana feels the heat as he sizes up the full Class A JungSon JA-1/JA-99 preamplifier/power amplifier combination...**

**S**adly, it's still all too easy to be sniffy about Chinese products. Maybe it's latent cultural prejudice – akin to what many felt about Japanese manufacturing back in the sixties (before they started producing stuff that was manifestly superior to our own home grown fare by the end of the seventies) – but it's also because, well, they're just not quite there yet...

Actually, *quite* is the operative word, because if they're not "there", they're certainly "thereabouts". Editor DP found the JungSon JA-88D oh-so-close to being a Sugden beater (or at least a valid alternative) back in the May 2006 issue (see p50). His main criticism was the rather garish front panel, which would appeal to those with a thing for bling, but not urbane sophisticates like him... There was also the small matter of a few rough edges on the brushed steel casing, but this aside he found it offered truly superb "sound per pound".

Well, now we have the JungSon JA-1/JA-99 amplifier system, with a claimed 80W/8ohm of Class A power. It comes as a complete package for £999 – just £100 more than the integrated, and promises superior measured performance and the elimination of the huge and garish 'Volkswagen dashboard blue' power meters that DP hated so. Unfortunately, although what's taken its place is an improvement (i.e. no more power meters!), DP has opined that he's not in awe of the "his and hers monogrammed bath towel lettering" on the JA-99's fascia either... some people!

Aesthetics aside, what you're getting over and above the JA-88D is the separation of the preamplifier circuitry from the power amplifier, for superior sound quality. This is partly to do with mechanical isolation as well as the physical isolation of the power supplies, with their own mains feed. Another factor is the claimed distortion figures where the JA-88 integrated has a THD of 0.05% while the JA-1/JA-99 system has less with 0.02%. JungSon says the fully balanced design utilised in the pre and

power amplifiers along with Class A operation, "reduces distortion to a negligible degree". Well, enough PR-speak – you can read Noel's measured performance section for the last word on this.

The slim-line JA-1 preamplifier measures 438x355x69mm and weighs 7.9kg. It is remote-controllable and has five line inputs (without any apparent tape or phono-socket line outputs). One is balanced and a line output is also balanced, both using XLR sockets. The casework is nicely constructed and looks good with a contrasting light grey-brown cover to the satin-finished thick aluminium front panel. There is a simple but excellent display that can be read from afar and the control buttons operate mute, volume and input (labelled 'mode'). In use, you can hear the distinctive clicking action of the relay operated volume control. Relays are usually used in more expensive designs and in practice I found the volume control of the JA-1 to be excellent as it operated precisely and without the loud clang-type noise of some relay driven designs.

The operational feel of the control buttons, while working properly, felt a little flimsy, as did the shiny chrome-style power button (inclusive of JA-99). I would have preferred a simple array of circular buttons chamfer-cut into the front panel and finished off in matching satin silver aluminium – to give it a more refined feel. The remote control is a well-made affair with an ergonomic lower portion to fit nicely into the hand and is constructed from a thick metal band around the outside edge with wood top and bottom panels.

The JA-99 power amplifier is a big and heavy device measuring 438x430x135mm and weighing 26kg. It also has an attractively minimalist design with a simple oval opening locating the power switch and a surrounding light blue uplighting. There are a lot of perforated openings into the top, side and bottom panels of the casework, necessary for the huge heat dissipation required for the claimed

80W of Class A power. Though required for practical necessity, these openings do rather detract from the ostensibly clean lines of the JA-99. It has only one set of balanced XLR inputs at the rear.

Internally the JA-99 power amplifier uses a 680VA EI transformer (seen from the top plate, near the centre, under the air vents) which they say is made with extremely low internal resistance and large capacitance that ensures a steady flow of current to the power supply. The preamplifier uses two 30VA EI transformers to provide power independently for each channel. Positioned close by to the large EI transformer in the power amplifier are a set of eight capacitor shaped devices that JungSon calls 'audio pro wave filter condensers'. These total up to a hundred thousand micro Farads in capacity and are said to "ensure a steady flow of current supply and making the tone more beautiful".

The JA-99 uses eight pairs of "carefully chosen power transistors" and a portentously named "giant missile-type radiator" for heat dissipation. One 'missile radiator' is located on each side and can be seen through the ventilation openings. It consists of what looks like a long and thick square section rod of metal in the middle, which is then slotted through with many thin metal sheets intermingled with thicker uprights. The 'missile radiator' looks quite delicate and is probably why it is kept inside the casework instead of externally like a heatsink. It is perhaps also to lower costs – as elaborate, thick heatsinks (some of the best, as on the mid-nineties Musical Fidelity F series) cannot be cost/ space effective for Class A heat dissipation of this size.

In use, the JA-99 gets very hot and even though it is 26kg, I would recommend placing its mass onto a dedicated, level and stable support, separate from anything else. I would not place it on the floor either as that can be disastrous for sound quality, especially near the vibrations caused by a loudspeaker. I would



recommend treating the JA-1/JA-99 like valve amplifiers and switch them on for about thirty minutes to an hour before serious listening and then off immediately afterwards. I connected the Unico CD with Chord Company Chameleon Silver Plus XLRs into the JA-1 and with Moray James Cryogenic XLRs into the JA-99.

### SOUND QUALITY

At the price, it is quite remarkable that the JungSon combo produces such a finely balanced and luxuriously appointed sound. The music from the Jacqueline du Pré compilation, 'A Lasting Impression' had a rich and fulsome feel to it, being wonderfully fluid and enjoyable. The sound was deep, lush and communicative. As crescendos appeared, the JungSons handled them with excellent poise and control, without stifling any of the impact. The individual instruments such as the cello had superb timbre and deep expressive textures while the instrumental separation was acceptably good.

Neneh Cherry's rendition of 'I've Got You Under My Skin' from Red, Hot & Blue sounded authoritative. Thus, her vocals were outstandingly three dimensional with convincing phrasing, definition and emotional expression - where breath inhalation and exhalation were clearly revealed as she changed from rapping to the proper singing parts. Instrumental and vocal separation was good while the individual instruments and cleverly

"they're closer than some modern valve amplifiers to that warm, rose-tinted style of hi-fi, and have a useful 150W to underpin things..."

arranged driving electronic beats were reproduced with excellent definition bearing in mind the price.

With 'Something About You' by Level 42, the music was deep and full-bodied with good control and definition to what can sometimes be a rather bright recording on some systems. Thus the sound was immersive and communicative where the instruments and vocals were clearly defined and expressed. The music had an excellent ebb and flow to it and sounded cohesive and

engaging. Bass extension with Level 42 was very good, as was the bass tunefulness.

The climactic 'Whisper A Prayer For The Dying' by Coverdale & Page saw David Coverdale's opening vocals delivered with breathy atmospherics as the song structure started to unravel. Jimmy Page's guitar had excellent timbre and phrasing, while the instrumental separation was very good; I could identify each element with clarity but without clinical dislocation. However, as the song



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# QUAD

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REFERENCE SYSTEM:

- Unico CD Player (£1,250)
- Moon Audio i-3 Integrated Amplifier (£1,595)
- NHT Pro PVC Balanced Passive Volume-Control (£75 approx)
- Waterfall Victoria Loudspeakers (£2,000)

MUSIC:

- Jacqueline du Pré, 'A Lasting Impression' (1996)
- Various-artists, 'Red, Hot & Blue' (1990)
- Level 42, 'World Machine' (1985/2000)
- Coverdale, Page (1993)

structure progressed and changed in emphasis from lilting reflection to broad and powerful driving rhythm, typical of Page, the JungSons struggled to express the full-tilt dynamics by sounding a tad closed in and shrill in the upper midband. The JungSons were much happier when the song reverted back to its reflective, simpler moments.

I was able to directly compare the £999 JungSons to a more expensive £1595 Moon Audio i-3 integrated amplifier using the phono-socket version of the Chord Company Chameleon Silver Plus interconnect from the unbalanced output of the Unico CD. With all the music, the Moon offered a more free-flowing spatiality and rhythmical sophistication in comparison. Comparatively, the Moon was leaner and less full-bodied but it was also superior in timing where one could follow successive notes and rhythms with less concentration. The JungSons were superior with the emotional feel to the Jacqueline du Pré 'A Lasting Impression' compilation where the violins, cello and orchestration were handled with a full-bodied and convincing timbre.

Due to the weightier style of the JungSons, the music also had more

impact to the orchestral crescendos. I wasn't able to directly compare the pre and power amplifier sections of the JungSons with my high-end reference Densen B-250/B-330 amplifiers as the JungSons can only be connected via balanced XLR cables. However, I was able to substitute the JA-1 preamplifier with a (balanced in/out) NHT Pro passive preamplifier (see www.nhtpro.com) which costs approximately £75. Here the JungSon JA-99 power amplifier timed much better, bringing it into line with the more expensive Moon i-3. Thus all the music benefited from better phrasing of vocals and instruments, which allowed for a more engaging sound overall. The JA-1 is not necessarily a weak-link, because without it, the vocal and instrumental timbre that was tangible and three-dimensional with all the music used became minimised.

CONCLUSION

This £999 JungSon combo made deep, full-bodied, and powerful music, its strength being outstanding vocal reproduction for the price and excellent instrumental timbre in

all the music used. Still, if you have sensitive, high quality loudspeakers above a 90dB rating, then the Sugden A21a integrated remains my choice as the best amplifier under £1,000, thanks to its brilliant rhythmical qualities and outstanding resolution. However, these JungSons are far more versatile and much more effective in the real world of inefficient (i.e. most) loudspeakers, and tuneable if desired with different or superior preamplifiers (Shadow Distribution may be able to supply just the JA-99). As such, if you're a fan of beautifully reproduced vocals and instruments with a deep, powerful sound, these amplifiers are closer than some modern valve amplifiers to that warm, rose-tinted style of hi-fi, and offer a useful 80W or so to underpin it. Another superb, real world audiophile bargain from JungSon, one of China's best brands right now.

VERDICT ●●●●●

Brilliant value pre-power combo with a rich, full bodied Class A sound allied to real world speaker driving prowess.

JUNGSON JA-1/JA-99 £999

Shadow Distribution

+44 (0)1592 744 779

www.shadowdistribution.co.uk

FOR

- outstanding vocals
- full-bodied, powerful sound
- compelling value

AGAINST

- timing
- runs very hot

MEASURED PERFORMANCE

The JA-88D power amplifier runs very hot when idling in Class A. It is able to produce 150W into 8ohms and no less than 240W into 4ohms and, if pushed to full output will actually run cooler, but few users will achieve this on a regular basis. Also, the distortion characteristics are such that it is happiest when driving 8ohm loads up to 15V or so (around 30W) whereupon distortion will hover around 0.1%. Much above this sort of output third harmonic distortion rises rapidly, reaching 0.45% at full output into 8ohms and 0.68% into 4ohms. Third harmonic at this level adds a noticeable sharpening effect which some confuse with 'speed'. You get a glassy sound. So, providing it isn't pushed too hard the JungSon should be fine, with distortion levels hovering around 0.01%. It will harden up as volume is raised however.

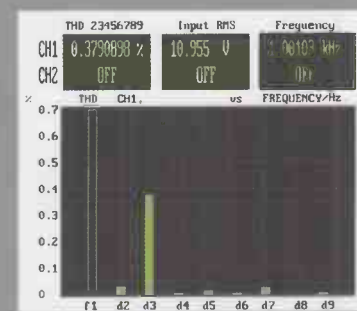
A slight counterbalance to this is a distinctly curtailed high frequency limit of 16kHz in the frequency response. This will soften and warm the sound.

Otherwise the JungSon measured well. It is unusual in running a small d.c. offset (176mV d.c. max) on both

positive and negative loudspeaker terminals. If either is shorted sparks fly and protection trips in!

The JungSon measures well at low power into 8ohms or more, but not at high power, especially into 4ohms. It will have a unique sound. NK

Power	150watts
CD/tuner/aux.	
Frequency response	2Hz-16kHz
Separation	78dB
Noise	-91dB
Distortion	0.38%
Sensitivity	240mV



pro amp: the JungSon preamp only connects to the power amp via balanced XLRs...



# Silver Dream Machine

David Price auditions Music First Audio's delightful Silver Passive Preampfier...

If ever I'm asked to recommend a CD player at a certain price point, I can come up with any number of seriously capable designs from a variety of manufacturers. This holds for turntables, tuners, integrated amplifiers and power amplifiers too. But if ever I'm asked what preamp someone should buy, the conversation falls silent; there's a strange dearth of truly excellent designs, not just at one price, but at any.

It's funny, isn't it? A preamp is a relatively simple thing; there's no delicate mechanical engineering involved in its design, nor is there

much in the way of electronics. We have no sensitive digital electronics, no requirement to pump vast amounts of electrical current. All a serious preamp really has to do is switch between inputs unobtrusively, and not introduce much in the way of signal degradation. In essence, it's a simple gain stage, which doesn't require a command of Quantum Theory to expedite. There are some decent preamplifiers around, but – at least in my experience to date – there are precious few excellent ones.

One of the few stars in the rather small 'preampfier constel-

lation' is the MF Audio Passive. It's actually a rather boring device. It's not big, sexy or packed with leading-edge technology. Rather, it uses a clever transformer-based topography and doesn't get in the way too much. This fact alone led me to call it one of the very best that I've heard; no mere hyperbole, because along with my GyroDec, it's been the only thing that's stayed consistent in my system over the last three years...

Remarkable, isn't it, that what's effectively a 'volume control on steroids' should present such a gnarly, knotty problem to hi-fi designers? And it's all the more

so that so few have stepped up to the plate to fight it out, even at relatively high price points. Quad's 99 preamplifier is a case in point - it costs about as much as you'd think you'd need to pay for a decent hi-fi preamp, and yet (unlike the rest of the Quad range, I hasten to add), it's quite depressing in what it does to a hitherto 'pure signal', managing to turn it into a dry, sterile, barren shadow of its former self.

The chronic lack of decent mid-price hi-fi preamps has forced me to turn my attentions to the higher end, and it's here the MF Audio came in. Around £1,500 bought you a rather crude aluminium box with rather garish gold plated brass knobs, with not-so-impressive gold plated phono connections round the back, but a heck of a good circuit design inside. The result was a largely neutral, self-effacing musical performer which simply let the flavour of whatever went before or after it in the signal path, 'flood out'.

As I moved back from Quad 989s to Yamaha NS1000Ms as my reference loudspeakers, the MF Audio's few failings became a little more explicit. The Quads are a tad warm and woolly (but wonderfully endearing all the same), whereas the Yams have a rather more 'summary' attitude, and like a true born Yorkshireman, don't dilly-dally when it comes to saying 'what's what'. The Yams began to highlight a slightly diffuse centre stereo image, and a less than impressive depth perspective. When I say this, I mean in absolute terms; in £1,500 terms (for that is its price), the MF Audio was (and is) still a stunner.

The MF Audio Silver Passive Preamplifier is considerably pricier at £2,750; indeed you might be surprised at the price premium. Certainly from the outside, it would not seem to warrant it, even if there are some welcome detail changes. Indeed, I thought this looks a little like a 'cash in job' (trade off the reputation of the original and grab some serious profits for not much extra performance)... I have to say though, after three weeks of life with it, I couldn't have been more wrong.

## THE DESIGN

For those unfamiliar with the original design, it's essentially a transformer-based magnetic volume control featuring two attenuating transformers and Swiss made ELMA switches, point-to-point hand wired inside an aluminum case. It changes output level via passive control in multiple steps to control the volume of the line level input signal.

What distinguishes it from the fray is precisely the fact that it's transformer-based, in a world of preamps using resistive attenuation. Additionally, most preamplifiers use active electronics to 'amplify' the signal. Whereas the idea of passive preamps has existed for quite a while (if you want to try one, buy a 50k

instead of the standard copper.

The debate's still out on silver vs. copper; neither are absolutely better than the other, although silver is more expensive. Although this isn't always the case, copper can sound mushy and coarse in audiophile applications - almost akin to a transistor amplifier. Silver

"with superb ancillaries, the sense of scale is akin to standing atop the Grand Canyon, looking down..."

ohm stereo potentiometer from RadioSpares, or suchlike, and wire two pair of phono sockets on to it - and hey presto, you've got a passive preamp for a few quid!), transformer preamps are very rare.

Conventional passives are simply resistive networks selected with a switch, or rotary variable resistors (i.e. a potentiometer). The problem with this type of device, asserts MF Audio is substantial mismatches of impedance either at the source or the load, coupled with a perceived loss of dynamics, which is a very real consideration.

By contrast, MF Audio's Passive Magnetic Preamplifier instead uses custom-made, hand-wound transformer said to feature the largest commercially available 80% nickel Permalloy core for maximum level handling and low distortion, plus a heavy duty Mumetal shielding can for protection from external magnetic fields. The Silver version adds, as you might expect, silver coated copper core wire windings

is always cleaner and smoother but has a slightly hazy, romantic quality and a tonality that's best described as, ermm, 'silvery'. I'm a firm believer in using a bit of both in any system, but generally silver - or silver plated copper (which you could almost say has the best of both worlds) can be used extensively with very positive results. I know this is a tad reductive (because it's not just about what wire you use, but how you actually wind it on a transformer, or what dielectric you use with it on a cable), but it's a useful working analogy.

This hand built preamp claims 100kHz bandwidth, regardless of the selected attenuation (50 Ohm source/ 47kOhm load), and the maker says it's flat to +/- 0.5dB (50 Ohm source/ 47kOhm load) all the way up from 10Hz. It has six inputs, four unbalanced and two balanced, plus balanced or unbalanced outputs. Round the back, there's a +6dB switch, which means the unit is passive with gain, so low gain amplifiers can be driven to their





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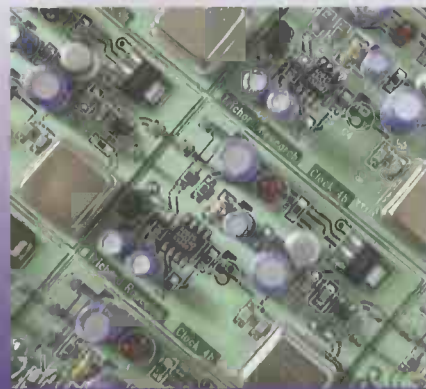
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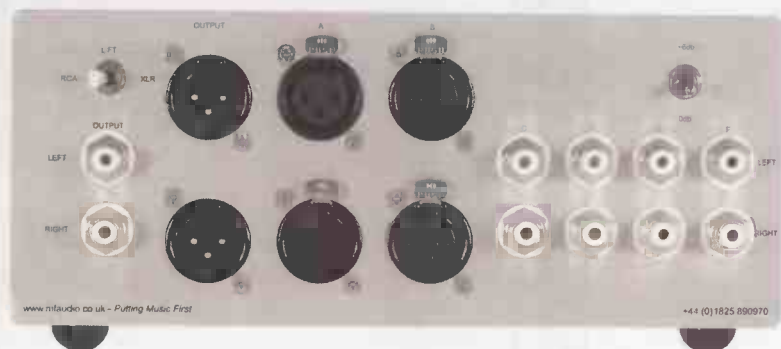
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 Naim CD555 CD player  
 MF Audio Passive Magnetic Preamplifier (copper)  
 World Audio Design K5881 (modified)  
 Yamaha NS1000M loudspeakers  
 Black Rhodium interconnects/cables

maximum efficiency by components that otherwise might require active boosting. All internal connections use 0.6mm silver coated solid core copper wire with PTFE insulation, hand wired. The best Neutrik and Deltron connectors, and Swiss made ELMA silver contact rotary switches, are employed. Also around the back is a three way grounding switch which allows any grounding issues to be addressed easily – if you have hum, just flick it!

## SOUND QUALITY

This preamp made rather more of an improvement to my system than I'd expected, and this is a system inside which the standard copper MF Audio Passive Pre had permanent tenure – and thus was already quite special. I've heard the cooking copper version deliver some quite superb sounds with all number of power amplifiers, so wasn't quite ready for what the silver one was going to do...

The basic character of this new version is similar to the copper version as you'd expect, but builds on it in a number of ways and doesn't detract in any. The first thing you notice is that switching from the stock pre to this brings quite profound improvements in stereo imaging and depth perspective. Funnily enough, I'd attributed the largest of the few deficiencies in my system to my NS1000Ms, which was only so-so image projection. Although they're a mirror image pair, they have a wide front baffle and if you listen to the received wisdom of the nineties, that's a bad thing for pin-point image precision. Although sublime in many ways, the Yams had been less than perfect in conjuring a vast, capacious stereo soundstage, often falling back to sounding like two speakers rather than a homogenous whole. At a stroke, the Silver removed this...

This new preamplifier has disarming spatial prowess;

instruments and vocals project with breathtaking ease from the recorded acoustic, and sit locked in place in space with a feeling of utter immutability. There's no sense of music struggling to get out of a box; suddenly it's right up there in front of you with tremendous authority and confidence – yet it doesn't just hang right in front of your face. Rather, there's real depth here too. The original MF Audio Passive Preamplifier was excellent in this respect; it didn't hang images around the plane of the speakers, but rather let them fall back when appropriate. Well, the new Silver version seems to add an extra twenty yards or so behind the speakers. The result is boldly projected images coming right out at you, yet other elements of the mix hanging way, way back. With superb ancillaries, the sense of scale and perspective is little short of standing atop the Grand Canyon, looking down.

The other dramatic improvement is in the area of tonality; put crudely, it feels like Silver Pre has just wiped your windows clean, and you can hear into the mix with so much more precision. Dull recorded acoustics sound duller, warmer ones warmer and brighter ones brighter. This new preamp scythes through the mix with remarkable sharpness, telling you everything about every instrument – and it's most profound in communicating tonality and textuality. The difference between Fender and Rickenbacker electric guitars is marked, the contrast between an original Fender Rhodes electric piano and a sampled, digitised one is plain to see (and hear). It's amazing to hear different albums from the same artist, and the massive changes effected by using different recording studios and vocal booths. The MF Audio just cuts right to the quick, letting you know everything that's happening in no uncertain terms.

Actually, I've heard a few high end preamps that do this – or some of it – but the genius touch of the Silver MF Audio is that all this wonderful textural and spatial accuracy in no way detracts from the core elements of the music – the dreaded 'pace, rhythm and timing'. The cooking MF Passive was excellent at this, and the Silver version is better still; whereas the former could be characterised as just a tad 'dark' (i.e. dull in the wrong system), the lighter, more spry nature of this one seems to hold dynamic accents back less; the result is a brilliantly lively, pacey sound. As I said, the standard version is indeed accomplished in conveying the music's ebb and flow, along with its drama, dynamics and visceral impact, but the Silver version seems all the more game. Music becomes disarming dramatic and poignant, while retaining all that wonderful spatial and tonality accuracy. In practice, this makes for little less than a stunning listening experience.

## CONCLUSION

This review was written as a 'sequel' to my October 2003 review of the original copper wired Music First Passive Magnetic Preamplifier, and so I've spared you all the hyperbole about the basic design; the fact is that this takes what was (is) one of the best preamplifiers around and substantially improves on it. The result is a truly special, brilliant even, design which – to my ears at least – does things that no other preamplifiers I've heard can. It is stunningly neutral, open, three dimensional and musical, and yet has no perceivable vices (to me). Indeed, its main crime is to show how the original (much cheaper) one was flawed. This makes me feel a fool, as the few imperfections it showed I attributed to the rest of my system. Still, I'll take that on the chin and say that this is currently the best preamplifier I've ever heard, bar none.

## VERDICT ●●●●●

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## dominic todd

**T**here was a time when if you wanted a multi-room system then the likely set-up would consist of a few power amps, speaker switches and volume controls. Companies such as QED did a fine job in making the bits and pieces, but the overall system was rarely that sophisticated. How different it is these days! Now we have companies that specialise in multiroom systems, and a whole industry of 'home automation' has sprung up around the concept of connected entertainment. If you want to be one of the more successful companies then you'll also have to plan on sending your installers on courses at least four times a year – such is the pace of change.

Whilst we've touched on home automation a handful of times in these pages before, it's an issue that rarely gets a mention within the hi-fi press. Perhaps this is why the pace of change has surprised many within the industry. Many, that is, but not all. At opposite ends of the UK hi-fi separates industry are two companies renowned for their hi-fi separates. Both are launching their first multi-room systems.

As we've come to realise, strengthening interest in modern inner city living has had a profound effect upon spending habits. Anyone with even a passing interest in antique prices can't have failed to have noticed a softening of prices for pre-1900 furniture whilst modern 21st century now takes precedence since it looks good in contemporary city apartments. Likewise, with hi-fi the trend has been away from larger speakers and separates in recent years and towards "lifestyle" type products such as MP3 docks, hard drives and, yes, multi-room systems.

Personally, whilst I will always espouse the benefits of a decent separates system to anyone, I don't think we should be quick to mock the benefits of multiroom. After all, a decent multiroom system still requires quality hi-fi. The only difference is that it's quality hi-fi in larger amounts, which can only be a good thing for the hi-fi trade in general. Clearly both Cambridge Audio and Naim agree, for they are the two newest entrants to the multiroom scene.

As you'd expect, cheapest of these is the Cambridge Audio system. Called the Incognito, the system uses the industry standard CAT5E cabling and a series of audio and video hubs around the house to supply up to 32 "zones" with sound and music. Readers of this magazine will probably find the active speakers and powered keypads a little on the puny side, but the key aspect here is that higher quality components can be substituted. Better still is that Cambridge is actively promoting its range of Azur hi-fi separates, many of which we've endorsed within this magazine, as "Incognito Ready". In short, whilst some may step from hi-fi separates to multiroom, there is also a good chance that the opposite will happen, thereby winning new converts to the joy hearing real music on real hi-fi.

For those rather more serious about sound and with rather deeper pockets, then the new NaimNet is one impressive looking system. Although it too uses CAT5E cabling, its similarities with the Cambridge Incognito system end there. Naim claim that the NaimNet system suffers from zero audio compression. In itself this is great news in a world where the key to the success of a

good many rivals is still how much data can be stored and never mind the quality. As with other systems, it uses digital transmission to each room. This means there isn't the loss of quality in the second or third room that you used to get when you ran fifty metres of 79-strand all around the house. Multiroom fans will also no doubt be pleased to hear that the NaimNet is capable of delivering sound and full home automation to no less than 1.8 million zones...

Yet it isn't until one takes a look at the hardware "front end" that one sees just how serious Naim is about the concept. Rather than bundling everything into one box the top servers use two boxes with the power supply separate – just like their famous amps and CD players have done for years. Hard drives are also kept separate and, as this is Naim, you can expect the individual room amplifiers to be of pretty decent quality. Finally, there's even a DAB/FM radio with four separate tuners in one case; meaning that four listeners can listen to different stations in any number of different rooms. There's little doubt that the NaimNet will be an impressive network of kit and, no doubt, will have a price tag to match.

Some may feel that they're betraying their hi-fi roots, to which I would say that to survive a company sometimes has to make decisions that will upset and offend loyal purists. Whilst I have no need or want of it myself – turning up the volume usually suffices when I'm in another room – I will never criticise manufacturers who produce it. After all, any format that can actively promote hi-fi separates outside of the usual specialist sphere can only be good news for the industry. ●





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"it is now effectively certain that the BBC will never be able to provide good audio quality on DAB..."



## steven green

**J**une 16th was the conclusion of the Regional Radio Conference 2006 (RRC-06) in Geneva, which saw the completion of a new frequency plan that is designed to enable the transition of terrestrial TV and radio broadcasting from analogue to digital.

The new plan sets out how much spectrum each European country (and countries in the Middle East, Russia and Africa) has been allocated in Bands III (175–239MHz), IV and V (470–862MHz). To give you an indication of how infrequent these things are, the last plan on such a large scale was drawn up in Stockholm in 1961 – don't expect another one soon!

Although Ofcom had been hoping that two new national DAB multiplexes could be launched, it has only managed to secure enough spectrum for one new national multiplex, and that won't even be able to cover the South Coast, much of Kent or East Anglia in order to avoid causing interference in neighbouring countries.

Unfortunately, what this means is that while there was a glimmer of hope that the BBC would be able to acquire some additional national DAB capacity if two new multiplexes were to be launched, as there will only be one new multiplex the BBC has virtually no chance of getting any more.

The main problem is that the licence will be awarded using the 'beauty parade' method, where the bid that extends the breadth of available radio formats the most will win the licence. This leads to bidders proposing to use the maximum number of stations allowable within audio quality limits, but this also ensures that the lowest allowable audio quality will be provided, which

is an obvious flaw in this process, to give them the best chance of winning the licence. But this also rules out the possibility of leasing any capacity to the BBC, so I'm afraid we're stuck with the current low audio quality on the music stations and stereo content being transmitted in mono indefinitely.

Three companies have already announced that they will bid for the new national multiplex, including two of the 'big three' commercial radio groups, Emap and Chrysalis, and Channel 4.

No details have yet been released about Chrysalis's bid, but Emap proposes to launch new digital radio station versions of some of its consumer magazine brands, such as FHM, Grazia and Closer – Emap already transmits digital radio station versions of its Heat, Smash Hits, Kerrang and Q magazines. Personally, I find their proposals completely uninspiring...

Channel 4's proposals for digital radio are much more interesting, however: C4's chief executive, Andy Duncan, gave some details about their plans in a recent New Statesman Media Lecture, where he said they would deliver "something different: intelligent speech and music content with attitude and younger appeal" and that "our modest aim is to redefine commercial radio" and provide "real public service competition to the BBC where it counts – on quality and original content." Bold claims indeed. However, the only programmes he mentioned they would launch were: "spin-offs from Channel 4 shows like Richard & Judy, Lost and Big Brother", which displays an almost total lack of imagination. So the jury is still out on whether C4 really can produce the goods for radio or not. Personally, given time, I think they will achieve all of what they claim, and they will

prove to have a very positive effect on UK radio.

Thankfully, C4 has suggested that its radio stations will be available on various digital platforms, so hopefully they will provide higher quality streams on the digital TV platforms and on the Internet than the inevitable poor quality they will be at on DAB.

Other results concerning UK DAB from the Regional Radio Conference were that all areas that don't currently have a local DAB multiplex will get one; transmission powers will be increased so reception quality should improve (although no details have been released about how much the power will be increased by); and there will be new regional DAB multiplexes for the North West and North East of England.

On Freeview, the overall data capacity will increase from the current 120 Mbps (million bits per second) to 192 Mbps after analogue TV has been switched off. This increase will result from the launch of two new national multiplexes and increases in the capacity of some of the existing multiplexes. The increase in capacity should allow the launch of a handful of HDTV channels, as well as a few additional standard-definition TV (SDTV) channels.

Overall, the results from the Regional Radio Conference produced very few surprises, because Ofcom had always downplayed the likelihood of being able to secure spectrum for two new national DAB multiplexes. But as it is now effectively certain that the BBC will never be able to provide good audio quality on DAB, they should accept this fact and make their radio stations available at high audio quality on one or more of the digital TV platforms where they already have a huge amount of capacity at their disposal. ●



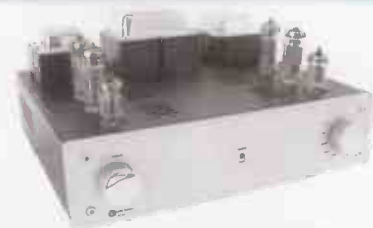
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**KEL84 kit £325**

**KEL84 built and tested £499**



## WD88VA Valve Amplifier Kit

*"The result is an amplifier that combines majesty, transparency and rhythmic boogie factor with the ability to swing and sing on all types of music"*

Often described as a 'sweet sounding' valve, our particular implementation of the KT88 makes sure that it is driven to its ultimate performance. Available as a 35W stereo power amplifier with single input volume control, or as a relay switched integrated with five inputs.

**WD88VA kit £699**

**WD88VA built and tested £999**



## Headphone II Valve Amplifier Kit

*"Headphone II is a single-ended design with the power pentode wired up in triode configuration for added purity and is as quiet as a mouse"*

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**Headphone II kit (HD83) £275**

**Headphone II built and tested £399**



## WD25A Standmount Speaker Kit

*"The one aspect that stands out is the easy ability to resolve instruments and voices ... bass quality and definition is a revelation"*

**Cabinet kit (pair) £179**

The aperiodic enclosure offers the bass clarity and definition of a larger closed box, together with the efficiency and easy amplifier load necessary for users of valve amplifiers. Available with SEAS STD soft dome treble unit, or high performance SEAS Excel treble unit.

**WD25A STD kit (pair) £215**

**WD25A XL kit (pair) £398**



## WD25T Floorstanding Speaker Kit

*"The WD25T always sounds crisp and taut, but can 'rumble' menacingly giving impressive physicality reminiscent of far larger boxes. Imaging is superb, the midband is also special; it's very open with masses of detail about the condition of the recording"*

**Cabinet kit (pair) £398**

Cunningly arranged as an aperiodic enclosure leading to a lower sealed compartment, the WD25T combines the optimum damping of aperiodic loading with the bass extension of a large closed box. Available with STD soft dome or high performance Excel treble units.

Both the WD25 kits are based around a SEAS 26cm (10") paper cone bass unit with an efficiency of 89dB for 1W. The crossover has been developed for an easy drive 6 - 8 Ohm load making the system ideal for all types of amplifiers.

**WD25T STD kit (pair) £279**

**WD25T XL kit (pair) £459**



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"a reviewer has access to the best speakers on the planet, but that doesn't mean they'll get good sound..."



## noel keywood

**M**any readers have a sneaking suspicion that reviewers have access to items of hi-fi that either alone or in combination possess almost mystical properties, and that for obscure reasons, perhaps political, they're not letting on. They do not, I can assure you - and with loudspeakers there's as much argument, confusion and misunderstanding amongst reviewers in a group as you'll find anywhere. Only a few things differ.

Once you live with loudspeakers you become accustomed to their sound - but rarely do I spend long enough with any one loudspeaker to be able to 'live with it'. This gives me a perspective on the whole complex business of trying to reproduce sound in the home, but I'm not sure that having gained so much knowledge about it all after something like thirty years, I am any wiser!

Loudspeakers, even when very good, still vary enormously in their presentation. For example, the extraordinary mbl 101E Radialstrahlers we reviewed recently are as highly developed as you can possibly hope to hear, and some in our office thought they were the best they had ever heard. But this astonishing loudspeaker is an omni that distributes sound evenly all around. The upside is a wonderfully open and spacious sound; the downside is that you don't get the intensity of experience that you get from, say, a horn. An mbl 101E is perfect for certain homes and expectations, especially those who want a great sound and can pay for it, but don't want to be pinned to the spot - one particular spot. And when there's a dinner party everyone can enjoy the mbls, a gregarious loudspeaker then, one to share with

your friends!

I've never lived with an omni, although since Stig Carlson and Sonab arrived just before Abba, from the same direction, they're an idea that pops up regularly. It's difficult to explain the difference between an mbl, a Quad and a Tannoy, all of which seem a galaxy apart in the way they operate - and sound like it too. Yet, believe it or not, they all share a concept: they are - notionally - point sources. This is an old idea and not one to get too excited about, practical experience suggests.

Imagine something like a tennis ball pulsating to produce sound. Mbl took the notion of a pulsating sphere as an ideal source of sound at face value and decided to make such a thing. Okay, they ended up with three pulsating spheres, stacked vertically, which destroys the purity of the concept, but it's a great piece of engineering all the same. Quad use concentric or annular rings to produce sound, connected together by a delay line to provide what amounts to spherical radiation and Tannoy place the sources closely together to give hemispherical radiation. If loudspeakers fascinate you, as they do me, then this is all interesting stuff, but it doesn't in the end say much about the quality of the sound you get or, more cogently, how much it affects you emotionally or otherwise.

In this area, after spending a life living with a wide variety of loudspeakers, conventional boxes generally pass me by. I am not quite sure that any of today's conventional multi-ways are quite what I'm after. Electrostatics contributed to this dissatisfaction. My first experience was a borrowed pair of arcing Braun ESLs: I was intrigued, if a little apprehensive, having only scant idea as to why they occasionally mimicked an electrical storm. Then I heard

a friend's Quad ESL-57s, playing Reggae in a long room; their bass was extraordinary! In the nineties I bought and lived with Quad ESL-63s and learnt what every nut, bolt, piece of wire and Clingfilm does to produce such results. I also learnt that electrostatics are an unfinished symphony that can in theory give almost perfect sound, but only from huge panels in a huge room, driven by a spectacularly good amplifier.

Then I ended up with a specially tuned prototype World Audio Design 300B amplifier that has fended off all attempts at being replaced by the latest wonder box. The better the loudspeaker I hang onto it, the more it extends its lead over other amplifiers and I am learning that I get great results from Tannoy Yorkminsters as much because of what they reveal from the amplifier as what they are in themselves. The big Tannoy Duals do solid-state no favours at all I find, and if you listen to them with a transistor amp what you hear is as much the amplifier as the loudspeaker.

Where's this leading us? As loudspeakers improve they get more efficient and sensitive. This will become an increasing problem for amplifiers, especially solid-state. B&W's 801Ds illustrate the problem well. Giant cabinets, massive 15in bass units and built to fill a large studio, yet they only need a few watts. If you don't give a loudspeaker like this the best watts in the world you may never know what it can do. Where those watts come from is a big issue. This all adds to the complexity of the business of getting superb quality for a hi-fi system. A reviewer has access to some of the best loudspeakers on the planet, but that doesn't mean they'll get a good sound; in fact it just makes getting a good sound more difficult! No wonder reviewers are as confused as everyone else. ●



**JIM HALL**  
*Concierto*  
**Pure Pleasure/CTI**

When a company declares that an original master tape was utilised to get the very best out of a new reissue, your first question should be "which one?" This is because, for any recording which uses, or has used, analogue tape, there will be a range of master tapes created for that release. For example, a multitrack master tape will capture the live session. In some cases, this tape might be split to record individual instruments. This multitrack will then be mixed onto another master tape which will feature any EQ settings, compression and other filtering. There then may be safety masters created – copies, in case the first tape is damaged. From there, further copies might be made for use by varying pressing plants around the country or abroad – and so on. All the tapes are, technically, master tapes.

The tapes for this album were located at Sony/BMG's vaults in New York. The company actively selected the best available masters for this project based on sound quality and condition – although all tapes in the vault are well looked after. A master copy was made, from a straight transfer, without any tweaking, and sent directly to Pure Pleasure. "It was mastered by Ray Staff, an ex-Sony employee, at Alchemy. In fact, Ray helped me to open doors to gain access to these masters," said Pure Pleasure MD Tony Hickmott. Which

gives you an inkling to the 'game' of sourcing the master tapes in the first place. Audiophile companies don't just turn up at the door of the likes of EMI with their hands held out. Sourcing master tapes from the major labels, is all about establishing relationships. This release is a double album in a gatefold sleeve, disk 2 featuring two long extra tracks. Accompanied by jazz legends Paul Desmond, Ron Carter and Chet Baker plus session men Steve Gadd and Roland Hanna, Jim blends the music with his own guitar work. The whole ensemble was arranged by Don Sebesky with production by the legendary Creed Taylor. This is one album that really talks to you, especially via the track 'Concierto de Aranjuez', a masterpiece of jazz, sublime and uplifting.

**NAT KING COLE AND HIS TRIO**  
*After Midnight*  
**Pure Pleasure/Capitol**

For this release, "all the masters for this album didn't appear on one tape," declared Tony Hickmott, MD for Pure Pleasure. "In fact, I believe the album was spread over six to eight different tapes." This was due to the stopping and starting of the original session. To secure all and the best versions of those songs, Hickmott had the professional assistance of Michael Cuscuna, the boss and co-founder of the specialist record label, Mosaic, in the USA. He is in the privileged position of being able to access the original masters in the Capitol vaults. From these tapes,

Capitol then created a 'copy master' tape, by the experienced figures of the aptly named, Ron McMaster plus Steve Hoffman and Kevin Gray. This copy was sent to another US outfit – RTI/ AcousTech, who created the lacquers. You will come across this company again, if you read this issue's Classic Cuts on Pink Floyd's 'Dark Side Of The Moon'.

This 1956 release was notable for Cole because it was the final album in which he accompanied his own singing with his own piano playing on all tracks. It would also be his final jazz-based album. The record features new liner notes from Ray Holmes from the Nat King Cole International Fan Club. It is also now a gatefold, instead of the original single sleeve, due to the extra tracks that were originally included on the earlier CD version. The problem with these extra tracks is that you don't know where the original album ends and the extras begin – there are, in fact, six songs added to the original 12. 'Route 66' being the final track from the original. However, this can be easily forgiven once you play the thing. The sound has initially been enhanced by spreading the original album over three sides, instead of the original's two, giving it room to breathe. Immediately, the dynamics are heightened – all aspects of the sound come alive. As for the silences, they're deathly quiet. The album is beautifully mastered. Anyone interested in the Popular Song and damn good sing-song, should give this one a spin.





**JOE COCKER**  
*With A Little Help From My Friends*  
**Speakers Corner/A&M**

When negotiating for the release of the audiophile version of this album, Speakers Corner found the owners of the tape difficult to work with. This was down to suspicion on the basis that the company, was not American. This, despite contacts from Universal Germany giving the A&M office a full rundown of Speakers Corner. Even worse, Speakers Corner's natural tongue wasn't English! Imagine the horror of it! So, the German outfit had to prove their worth. One aspect of the meeting with the A&M office that struck the Speakers Corner MD, Kai Seemann, was, "at the time, they were located in Hollywood. In fact, they owned the old Charlie Chaplin studios. It was a remarkable building. We met a lot of people but as soon as you introduce yourself to them, then it works." At this time, A&M still had its own cutting facilities, so they cut a copy of the album, "We always rely on the local cutters, they know best about the tape condition and they can reproduce the original sound. Who am I to tell them how to do their job?," said Seemann.

One of the most remarkable aspects of the album was the artwork, "When I visited A&M, they showed me their closet – well, a small room which they still stored all the films for their LP covers. This was interesting for me because no other label I have ever visited still had their own LP films. I received the original

cover image from this source," smiled Seemann. This was the final production art work film, not a bare photo of Cocker. As with all Speakers Corner productions, the reissue has been excellently mastered and the packaging exhibits no barcodes, modern dating or extraneous added symbols – it's presented as it was in 1969. The album is a gut-wrenching rock, full of emotion with a powerful portrayal of, not just the title track, but others such as Dylan's 'I Shall Be Released' and 'Just Like A Woman'. The album also features guests such as Jimmy Page and Steve Winwood plus luminaries from the bands Spooky Tooth and Procol Harum. As a representative release from the '60s, this is a 'must have'.

**PATTI SMITH**  
*Horses*  
**Speakers Corner/Arista**

"What makes this album different from many others we have is that it was cut in London by Ray Staff in Alchemy," said Kai Seemann, MD for Speakers Corner, the same Ray Staff, who mastered Pure Pleasure's Jim Hall album, 'Concierto', reviewed this month. Speakers Corner albums are normally cut in Hanover, so moving to another cutting plant, especially an untried outfit, can be a little daunting. The process of creating an audiophile album is an art and its inherent processes give it its own personality. Moving to Alchemy, even on a temporary basis could, therefore, spark some trepidation. Fortunately, 'Horses' passed muster, despite

teething problems with other albums mastered at the plant.

One of the questions often asked by audiophiles is, 'does the original artist ever get involved with an audiophile reissue?' With Patti Smith, the answer is no. "If possible I try to keep artists out of it," said Seemann. "They don't care about time or money. However, it somehow works with classical artists. It did work with the guy who did the Rodrigo: Concierto de Aranjuez, originally on Philips (the jazz version of which appears on the Jim Hall album, reviewed elsewhere – wheels within wheels folks...) by Pepe Romero. He was fast and efficient." Seemann believes that classical artists trust their engineers more than pop artists because classical artists want a natural sound. Pop artists prefer to tweak the final sound a lot more. He says that classical artists are also used to working as part of a team (i.e.: with a conductor, orchestra, etc) – all of which are hired on tight schedules, along with the expensive room and so on. Smith's album was a lot more freeform than that, however. In fact, freeform poetry dominated this album which merged with a punk ethic that soaked the music. It's intense, it snarls at you and, most importantly, it's original. The punk movement tended to embrace the female artist more than most, a facet of punk that has never been properly examined - if you ever wondered where Alanis Morissette to PJ Harvey came from, then listen to this masterpiece.

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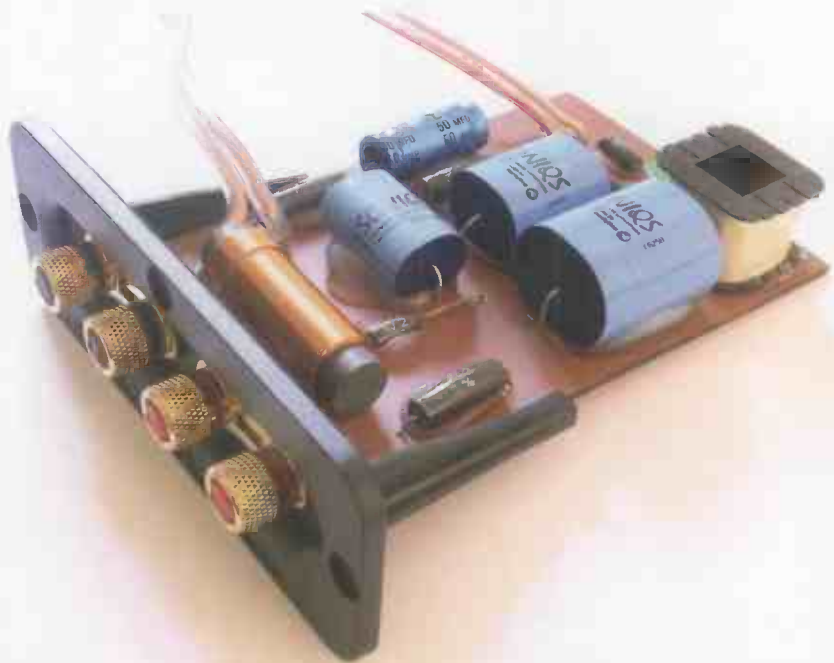
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# Upgrading Yo

## Part 2 - The Crossover

Last month we looked at the best way of damping the enclosure to reduce internal resonances and panel coloration. In this part we will tackle improvements you can make to your crossovers.



*Layout of hard-wired crossover. Note spacing between coils and arrangement of coils and capacitors at right angles to avoid mutual coupling.*

Crossovers are tricky things for the designer but not necessarily difficult for you to upgrade. Chances are that the manufacturer will have cut corners on a variety of issues, particularly with regard to component quality. Just replacing bottom-dollar components with better performing ones can lift the sound quality of your speakers well above the small upgrade outlay.

First thing to do is extract the crossover from the speaker. Crossovers are usually placed in areas which allow them to be easily serviced, so you really shouldn't have too much trouble here. The first port of call is the rear terminal panel. Often this is a plastic moulding that is screwed in from the rear of the speaker. Undo the screws and you should be able to gently prise the terminal plate from the cabinet.

Be careful here as you will be pulling on the cables inside the speaker. If you have followed last month's system of removing the drive units then there should be free play on the cables. But a good manufacturer may well glue the

cables to the inside walls of the cabinet, or trap them in some way to stop them buzzing against the cabinet when vibrated. So don't yank at the terminal panel but ease it out gently and carefully check that the wires are free.

If there is not enough free play in the cables, and this is often the case with small bookshelf speakers, then you will need to remove the drive units first. Then have a look inside the cabinet to see if the cables are trapped or glued in some way. Note how the cables are arranged. In a small speaker you can usually remove the crossover and wiring as a complete set to work on outside the speaker.

If you are lucky then you will find the crossover board mounted on the terminal panel. Sometimes, however, the designer will just have fitted terminals to the rear of the speaker with cables leading to a crossover board bolted inside the cabinet. This makes things a little more difficult, but you should be able to trace the cables and uncover the crossover, usually buried underneath some cabinet damping or wrapped in a

bundle of foam.

High end loudspeaker designers may get a little paranoid about someone 'copying' their pride and joy. These guys can encapsulate their crossovers in resin so you can't get at the components. There is another reason for this beyond paranoia. The resin reduces vibrational effects on sensitive components like capacitors and inductors. If the manufacturer has gone to all the trouble of resin potting then you can be pretty sure the components will have been chosen carefully to do a prescribed job. You shouldn't try to 'upgrade' this type of crossover build.

## OUTBOARD CROSSOVERS

Talking of vibration leads us on to the next decision. Having found the crossover are you going to keep it inside the cabinet or house it outside? There are pluses and minuses to this. For a start, putting the crossover outside the cabinet means you have to find something neat to house it in. Then, by doing so, you are going to increase the cable length and possible number of interconnections if you plan to retain the rear terminal panel. The plus points are that you remove the crossover from the main source of vibration and magnetic field influences and can allow yourself a lot more room to install those hefty polypropylene capacitors that are going to feature in your upgrade.

Moving a crossover outboard of the speaker makes a subtle improvement. It's not usually going to be as big an improvement as changing the components, so you might like to retain the neatness of having the crossovers inside the cabinet. Don't beat yourself up about this. If you think it is neater and easier to have the crossovers in the speakers then keep them there. However the true enthusiast will have no qualms about moving them outboard.

You should house crossovers in a non-ferrous box e.g. plastic, wood or aluminium. Before you rush out and buy or make a suitable container,

# r Loudspeakers

have a look at the crossover layout. If you have read the blurb on Vibration and Magnetism you will realise that moving components apart is a 'good thing'. If the manufacturer has opted for the smallest possible circuit board, and the components are crammed together, then you can get surprising sonic improvements just by laying out the crossover correctly.

If the crossover is of the simpler type, i.e. not a superfluity of components, then you can get real gains by hard wiring the crossover on your own board. Printed circuit boards were designed for small signal, low current applications. Putting a crossover on a PCB is asking for trouble. The copper on a PCB is very thin and designers do not often allow for the use of wide tracks. Hard wiring can sometimes significantly reduce the impedance in a circuit.

In addition you can usually remove the problems of circulating ground currents. Tracks on a crossover PCB often loop around the board, joining up components in a jumble of spidery tracks that are prone to magnetic and eddy current effects. With hard wiring you can arrange to star earth all the components that go back to the negative terminals on the crossover, and usually arrange for a more straightforward signal path too.

To hard wire a crossover you need to be able to trace out the circuit from the PCB. If you are not familiar with circuit diagrams then don't attempt this unless the circuit is really straightforward. Draw out the circuit from the input terminals to the speaker cables making sure you designate every component along the way. If you cannot identify a component then call it L1, L2, C1, C2 and so on. Then count the number of components on your diagram against the actual count on the board to make sure you haven't missed a connection.

Most crossovers are of the parallel type, i.e. the filters and drive units connected in are in parallel with the drive units. These fall into the basic types shown in Fig 2. You may also see impedance correction circuits in parallel with drive units as in Fig 3a, or notch filters which can take parallel or series forms as

in Fig 3b and 3c. Don't worry if your circuit does not exactly mirror one of these. Speaker designers are funny creatures, continually trying to invent the wheel, and sometimes they come up with weird looking circuits.

Occasionally you will see a series circuit. This is so called because the filter elements and drivers are in series with one another. This type of crossover is heavily reliant on component selection and value as all the components and drive units interact, sometimes in unpredictable ways. Typical series circuits are shown in Fig 4.

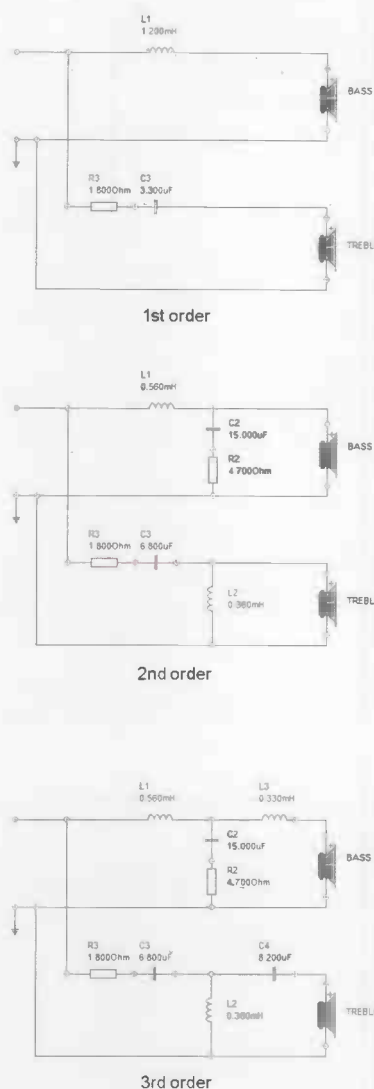
Whether parallel or series you don't have to understand how the circuit works in order to upgrade the components and layout. As far as layout goes, though, you do need to consider the signal and ground paths. The general rule is keep the signal path, from the positive input terminal to the drive unit, as short and direct as possible. In a parallel circuit star earth every component, or group components by filter section, back to the negative terminal. Take the cable return from the drive unit also back directly to the negative terminal.

## CAPACITORS

Probably the easiest, and most satisfying, components to upgrade in your crossover are the capacitors. Easiest because they are normally marked with their value and are straightforward to identify. Most satisfying because this is where the cost-cutting corners usually make their mark.

The most common, and cheapest, capacitor used in commercial loudspeaker crossovers is the bipolar electrolytic. Because we are dealing with AC music signals the capacitors cannot be polarised plus and minus as they are in, say, an amplifier power supply. What is not commonly known is that bi-polar electrolytics are the equivalent of two capacitors, of twice the value required, wired in series with their cathodes common, wound in one case. The usual losses and inductance in an electrolytic are doubled as a result.

Usually you will find electrolytics used in bass circuits because of the,



**Fig 2.** Circuit diagrams of parallel type crossovers commonly found in commercial speakers. Drive units and filter sections are connected in parallel.

relatively, high values required. 100 or 200uF capacitors are not prime for replacement by, say, polypropylene types because of the size and expense of the latter. You can, however, improve matters considerably by bypassing large value electrolytics by putting smaller value polypropylene types in parallel with them. Don't worry about altering the crossover characteristics. Capacitors in crossovers are rarely selected to better than 5% tolerance – often 10% suffices. The variations in drive unit performance between speakers are normally greater than this level of value tolerance. So adding a polypropylene capacitor of 5% of the value

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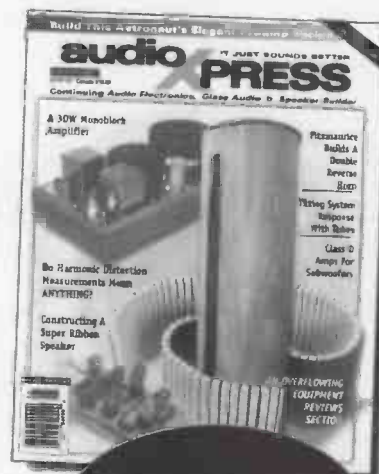
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of the electrolytic won't affect the designed crossover slope.

What it will do, however, is improve the high frequency characteristics of that part of the filter. This could mean better transmission of midrange detail and/or a reduction in upper midrange distortion. If the capacitor is in parallel with the drive unit, bypassing it could well ensure better adherence to the required crossover characteristic, improved phase performance and a reduction in upper frequency intermodulation.

In high frequency circuits it is definitely worthwhile replacing any bi-polar capacitors with polypropylene types. The improvement in clarity and reduction of distortion can be surprising if you have never done this before. How do you recognise them? Fig 5 shows the physical differences between electrolytic, polyester and polypropylene. Electrolytics have a groove at one or both ends (to show they are bi-polar) and may be marked BP.

Better quality circuits may well be fitted with polyester film capacitors in the high frequency sections of the crossover. These sound much better than electrolytics but not, in most people's estimation, quite as good as high quality polypropylenes. Both types are much larger, for a given value, than electrolytics – polyester film caps are usually encapsulated in resin, either as orange 'drop' or grey/black rectangular forms. They will usually have the value printed as 4.7K 100, meaning 4.7uF 10% tolerance 100v – a letter J after the value is 5% tolerance.

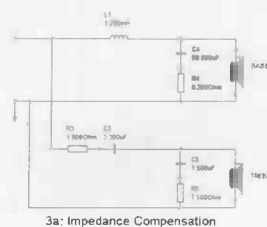
So what can you replace any of these capacitors with? The simple answer is a good quality polypropylene. Having said that not all PP

capacitors are created equal. For example World Designs uses Soniqs capacitors which come in two types. The PXX type uses a foil wound on a spindle. After the spindle is withdrawn the core is 'collapsed', resulting in a classic oval shape, and the foil encapsulated in resin. By contrast the SAX type is tightly hand wound to a perfect cylinder before encapsulation. Both types are fitted with high purity copper leads hand soldered and tinned using Silver solder. The PXX type sounds excellent, the SAX type is superlative, because both are mechanically constructed to lower internal resonance and keep ESR to a minimum.

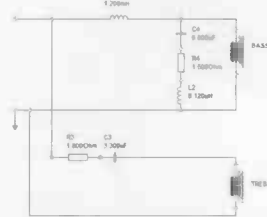
## RESISTORS

Can you upgrade the humble resistor? The short answer is yes, but the effects are often very subtle though, in the overall scheme of things, usually worthwhile. Some people swear by non-inductive resistors, though the inductance of wire wound resistors is so small it really only has an effect on supertweeters. Of more consequence is self resonance and here the simple answer is to use vitreous enamelled wirewound resistors.

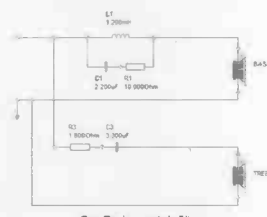
You need to replace like with like, not only with regard to value but also power rating. Vitreous enamel types are available in 3W, 7W and 10W sizes and are more robust in terms of mechanical vibration and temperature fluctuation than the ceramic coated style. If you really want to keep to non-inductive resistors, for example in a supertweeter circuit, then paralleled metal film or metal oxide resistors can be used. For example a 2 Ohm 2.5W wirewound resistor could be



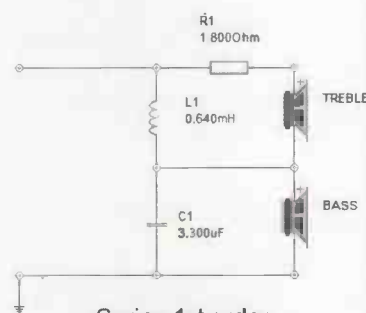
3a: Impedance Compensation



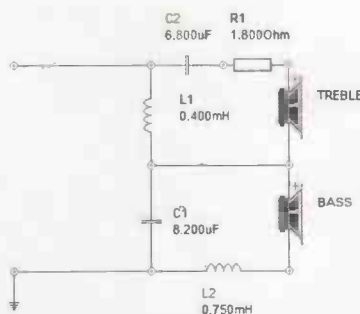
3b: Parallel notch filter



3c: Series notch filter



Series 1st order



Series 2nd order

Fig 3: Parallel crossovers with a) Impedance compensation for the drive units b) parallel notch filter for bass unit c) series notch filter for bass unit.

Fig 4. Circuit diagrams of series type crossovers. Note that the drive units are in series with the crossover components 'bypassing' the drivers.

## BI-WIRING – MYTH OR MAGIC?

If your crossover is not bi-wired, now is the time to do it if you can afford bi-wire speaker cables. A lot of nonsense has been talked about bi-wiring, mostly along the lines of 'high frequencies travel along one cable and low frequencies along the other' - rubbish. Both cables carry a voltage signal from the amplifier that is full range – the high frequency and low frequency separation only occurs in the crossover. However each drive unit generates a back EMF as it moves and has different current requirements. Higher level currents will be happening in the bass section than the treble section.

Does the cable care about what voltages and currents it is carrying? Probably not. But you could make a case for the higher currents and return voltages from the bass unit creating EM interference due to cable impedance effects. In which case splitting the cables for bi-wiring could provide a 'cleaner' signal path to the high frequency unit.

If you view bi-wiring like star earthing, however, the reason to bi-wire becomes a little clearer. The cable is an impedance between the amplifier output terminals, and therefore power supply, and the crossover. Bi-wiring takes separate signal and earth leads from those terminals to each crossover section. The impedance of each section is reflected accurately to the amplifier, as are the respective drive unit back EMF voltages and currents. If you believe that star earthing makes a difference, then bi-wiring is the way to do it.

replaced by 4 x 8.2 Ohm 0.6W metal film resistors in parallel. Alternatively non-inductive planar thick film cermet resistors are available in 5W and 10W styles, but the range of resistance values on offer is limited.

## INDUCTORS

As we pointed out in Vibration and Magnetism, air cored inductors are the darlings of the audiophile builder. But they are rarely seen in commercial crossovers. The reason is not just down to cost. Because



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**SEAS CA15RLY** £53.52  
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**SEAS 29TFF/W** £38.34  
29mm soft dome treble unit used in the WD25 STD speaker kits

**SEAS T29CF001** £137.82  
29mm Excel soft dome treble unit used in WD25 XL speaker kits

**SEAS T25CF002** £161.09  
25mm Excel 'Millenium' treble unit lowest distortion, smooth response



**SONIQS M8 spike set** £4.70  
Set of four speaker floor spikes with matching M8 cabinet inserts

**SONIQS M4x16mm** £0.08

**SONIQS M4x25mm** £0.09

Hex Hd Nickel Plated wood screws

**SONIQS PDC per metre** £2.61  
Heavy 6mm Bitumen Panel Dampening Compound 50mm wide strip

**SONIQS CDF per metre** £1.49  
Long fibre enclosure damping mat 30mm thick by 250mm wide

**Aperiodic reticulated foam** £1.25  
80ppi reticulated foam strip for Aperiodic port airflow resistance

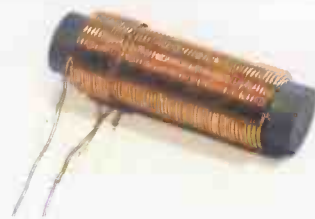


**SONIQS Polypropylene Caps**

SONIQS capacitors are formed from high voltage polypropylene film and hand soldered using silver solder to copper leads. Construction and resin encapsulation has been formulated for optimum acoustic and electrical performance.

- PXX 1.0uF 250V** £1.13
- PXX 1.5uF 250V** £1.28
- PXX 2.2uF 250V** £1.41
- PXX 3.3uF 250V** £1.70
- PXX 4.7uF 250V** £2.06
- PXX 5.6uF 250V** £2.35
- PXX 6.8uF 250V** £2.66
- PXX 8.2uF 250V** £2.90
- PXX 10uF 250V** £3.18
- PXX 12uF 250V** £3.74
- PXX 15uF 250V** £5.03
- PXX 18uF 250V** £6.03

- SAX 1.0uF 630V** £2.40
- SAX 1.5uF 630V** £2.81
- SAX 2.2uF 630V** £3.17
- SAX 3.3uF 630V** £4.19
- SAX 4.7uF 630V** £4.49
- SAX 5.6uF 630V** £5.28
- SAX 6.8uF 630V** £6.16
- SAX 8.2uF 630V** £6.93



**SONIQS Ferrite Inductors**

SONIQS coils are wound on high density 12.5mm dia. ferrite cores for high power handling and dynamic range. High purity copper 0.71mm wire heat bonded to reduce vibrational effects. Tolerance 5%. State value required when ordering.

- 25mm core 0.33 - 0.6mH** £2.47
- 50mm core 0.6 - 1.0mH** £3.49
- 50mm core 1.1 - 2.5mH** £3.98

**SONIQS Air-Core Inductors**

SONIQS air core coils utilise 0.56mm dia high purity copper wire on a rectangular bobbin that allows vertical and horizontal orientation to minimise coupling effects. Tolerance 5%. State value required when ordering.

- Air-core coil 0.18 - 0.5mH** £1.99



**Vitreous Enamel Power Resistors**

High Power resistors encapsulated in Vitreous Enamel to minimise vibrational effects. Tolerance 5%. State value when ordering.

- 3W 0.68 - 100 Ohms** £0.99
- 7W 1.0 - 100 Ohms** £1.47



**SONIQS TP1 panel** £3.60

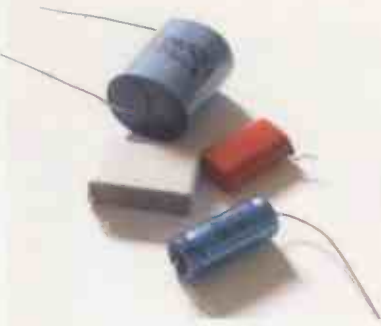
Bi-wireable terminal panel with gold plated connections allowing spade, bare wire and 4mm plugs. Plain Tufnol CCB circuit board also available to fit PCB slot at rear to allow component hard wiring.

- SONIQS CCB board** £1.49

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**Fig 5.**  
*Three types of crossover capacitors, from front-bipolar electrolytic, two polyester types, polypropylene*

of the low permeability of air you need a lot more turns for a given inductance value in an air cored coil compared to an iron core. So the series resistance increases dramatically. Of course you can always increase the copper diameter to reduce resistance but then the coil becomes almost unmanageably large, especially when used for the class of values you need in a bass circuit.

As you need the coils in series with the bass unit in a bass filter circuit, a high resistance reduces the current flow below the crossover point and so reduces the ability of the amplifier to control the drive units accurately. If you were designing your own speakers you could take account of this to a certain extent by configuring the Q of the speaker system to suit a reduction in amplifier damping factor. But here we are considering upgrading an existing design, so it's best not to mess with the electrical damping in this way.

Where you do see air cored coils is in treble circuits. Because the inductance values are smaller, and the coils will usually be in parallel with the drive units, the resistance is minimal in significance. But watch out for the interaction through magnetic coupling with other coils when you are laying out the crossover.

So for bass circuits it is safest to keep to iron cored coils if those are already in place. That doesn't mean you cannot improve on the ones there. Using better quality cores will help reduce harmonic distortion on musical peaks and will often result in a clearer midrange performance due to the reduction in intermodulation distortion. Good quality ferrite cores with direct wound, high quality copper windings heat bonded for minimum resonance are difficult to beat. You can also obtain coils wound on transformer type silicon iron laminated cores from specialised suppliers. As a generalisation larger cores offer better quality – the Soniqs range uses 12.5mm ferrite in 25mm and 50mm sizes, for example. But component layout will determine sound quality equally as much as component quality in the final crossover.

## LAY IT OUT

If you want to keep the crossover on its existing board then you need to pay attention when ordering components as to the physical size and whether they can be fitted in place of the existing coils and capacitors. This especially applies to PolyPropylene capacitors which are much larger than electrolytic and polyester types.

When you have decided on a new board layout, whether inside or outside the speaker, then the fun can begin. One way to start, especially with a relatively simple circuit, is to quick solder the circuit, keeping the component lead lengths long, on a piece of wood on the floor behind the speaker. You can then juggle the position of the components to hear what sounds best. Draw this layout on a piece of paper so that you can position everything correctly when you are constructing the final crossover board.

For example to listen to the interaction between the bass inductors and treble inductors just disconnect the bass unit from the crossover but leave the bass circuit powered by the amplifier. Then remove the amplifier connection to the treble circuit but leave the treble unit connected. By moving the coils around in orientation you can listen to the treble unit and hear it pick up magnetic induction from the powered coils in the bass circuit. Positioning the coils for minimal coupling is easy this way.

Once you have decided on the layout then you need to consider how to hold the components in place. For the World Designs crossovers we drill holes in a Tufnol board, hot melt glue the components in place, then pass the leads through the board and solder underneath. Alternatively you can fix a tag strip to a wooden board and connect the components via this after hot melt gluing them to the board. Either way the important aspects are to glue the components down firmly so that they don't move in use, and connect the leads with tightly twisted connections before soldering.

## VIBRATION AND MAGNETISM

We tend to think of coils and crossovers as 'passive' components that are not affected by external influences to have an 'active' effect on the sound passing through them. Actually things are not that simple. Both coils and crossovers are wound components. That means that their properties include electrical inductance and mechanical resonance.

In the case of a coil there is obvious inductance – that's what makes a coil work. When a current is passed through a coil it sets up an internal magnetic field which provides an increasing impedance to the current flow as the frequency increases. This magnetic field is a tiny fraction of the field produced by the permanent magnets on your drive units, but because it varies with the signal it will still have an effect upon other components.

Ferrite or iron cored coils have a localised magnetic field that reduces quickly with distance. Still, if you put two ferrite cored inductors in line with each other then the mutual coupling between them will be significant. If one coil is in the bass circuit and one in the treble circuit you will get considerable 'bleed' of signal from bass to treble. Even within the bass circuit two coils arranged to have mutual coupling can ruin the required crossover filter characteristics.

Things get even worse with air cored coils. Air cores are the darlings of the high end fraternity because the 'core' will never saturate, unlike a poor ferrite design. However the downside of air cores is a huge magnetic field that can extend from tens of centimetres for a small coil to as much as a metre from a large coil. Mutual coupling between air cored coils is very difficult to avoid. Small coils can be spaced several centimetres apart, but the field from large bass coils is tough to avoid.

A general rule is always position coils widely apart and with the cores at right angles to each other. The main pole of the magnetic field runs through the centre of the core and spreads out at the end. At the sides of the coil the field is concentrated close to the windings and so causes less interference with other, nearby, components.

Similarly it is good practice not to put capacitors in a line with the core of a coil. A capacitor is a wound spiral of film and this has a small inductance. So you can get mutual coupling between coils and capacitors just as you can between two coils. The effect is hugely reduced as the inductance of a capacitor is very small, but can have a noticeable effect at high frequencies.

You also have to be careful of the magnetic field of the drive unit magnet. Put a ferrite or iron core inductor near the bass magnet and its core will start to saturate early. This could mean an increase in distortion on signal peaks. Moving a crossover 25 cms away from a drive unit magnet can improve clarity at higher signal levels significantly.

As for vibration, the effect on wound components is difficult to quantify but it does exist. If the coils of wire in an inductor vibrate then that can vary the self inductance of the coil, only by a small amount but, again, it may have an effect at high frequencies. Capacitors have internal resonances which can be excited by external vibration, again affecting high frequency performance. Both effects are subtle, but isolating the crossover from vibration can be the safest bet.

Once the crossover is finished double check the circuit again before connecting it up. Then sit back and revel in the new found spacious, clear and detailed performance issuing from your drive units.

*Next month – Loudspeakers and rooms*



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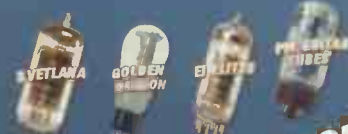


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# world classics

In this heavily revised section, you'll find the great and the good from audio's glorious past. Most are seminal designs which have earned their place in hi-fi history, but you'll also see some oddities which aren't classic as such, but are great used buys. The year of introduction is given, alongside the original UK launch price. Think we've overlooked something? Then write in and let us know!

## DIGITAL

**CAMBRIDGE AUDIO CD11** 1986 £1500  
Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.

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

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

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



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



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

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

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



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



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

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



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

**YAMAHA CD-X1** 1983 £340  
Nicely built 16x2 machine with a very sharp and detailed sound; sometimes too much so. Excellent ergonomics, unlike almost every other rival of the time.

## COMPACT DISC TRANSPORTS

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



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

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

## DACs

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



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



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



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



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

## TURNTABLES

**ARISTON RD11S** 1972 £94  
Modern evolution of Thorens' original belt drive paradigm, Scotland's original super-deck was warm and musical, albeit soft. Still capable of fine results today.



**PIONEER PL12D 1973 £36**

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



**DUAL CS505 1982 £75**

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

**GOLDRING Lenco 88/89 1963 £15.65**

Simple, well engineered middleweight with soft, sweet sound and reasonable tonearms. Good spares and servicing support even today from specialists.

**LINN AXIS 1987 £253**

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

**LINN SONDEK LP12 1973 £86**

For many, the Brit superdeck; constant mods meant that early ones sound warmer and more lyrical than modern versions. Beguilingly musical but now off the pace.



**TECHNICS SP10 1973 £400**

Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SP10/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

**MARANTZ TT1000 1978 £ N/A**

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



**MICHELL GYRODEC 1981 £599**

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

**REGA PLANAR 3 1978 £79**

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

**GARRARD 301/401 1953 £19**

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



**ROKSAN XERXES 1984 £550**

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

**THORENS TD124 1959 £ N/A**

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



**TOWNSHEND ROCK 1979 £ N/A**

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

**TRIO LO-7D 1978 £600**

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

**TONEARMS**

**ACOS LUSTRE GST-1 1975 £46**

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

**AUDIOTECHNICA AT 1120 1978 £75**

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

**ALPHASON HR100S 1981 £150**

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



**SME 3009 1959 £18**

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

**GRACE G707 1974 £58**

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

**REGA RB300 1983 £88**

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



**SME SERIES III 1979 £113**

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

**HADCOCK GH228 1976 £46**

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

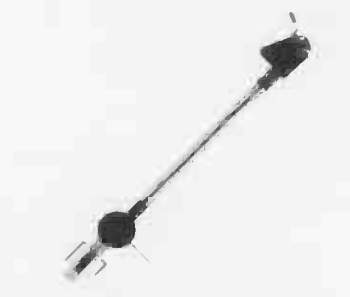


**LINN ITTOK LVII 1978 £253**

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

**NAIM ARO 1986 £875**

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



**TECHNICS EPA-501 1979 £ N/A**

Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

**INTEGRATED AMPLIFIERS/COMBOS**

**DELTEC 1987 £1900**

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



**ROGERS A75** 1978 £220

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

**EXPOSURE VII/VIII** 1985 £625

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

**SUGDEN C51/P51** 1976 £130

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

**VTL MINIMAL/50W MONOBLOCK** 1985 £1,300

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

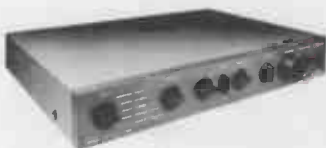
**A&R A60** 1977 £115

Sweet and musical feature-packed integrated; the Audiolab 8000A used its blueprint to great effect.

**CREEK CAS4040** 1983 £150

More musical than any budget amp before it; CAS4140 loses tone controls, gains grip.

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

**MCINTOSH MA6800** 1995 £3735

Effortlessly sweet, strong and powerful with seminal styling to match.

**SUGDEN A21** 1969 £ N/A

Class A transistor integrated with an eminently likeable smoothness and musicality. Limited inputs via DIN sockets.

**MISSION CYRUS 2** 1984 £299

Classic eighties minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.

**MUSICAL FIDELITY A1** 1985 £350

Beguiling Class A integrated with exquisite styling. Questionable reliability.

**NAIM NAIT** 1984 £350

Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power.

**NAD 3020** 1979 £69

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

**MYST TMA3** 1983 £300

Madcap eighties minimalism, but a strong and tight performer all the same.

**ROGERS CADET III** 1965 £34

Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable phono stage, sweet, warm a good introduction to valves

**ROTEL RA-820BX** 1983 £139

Lively and clean budget integrated that arguably started the move to minimalism.

**PREAMPLIFIERS****AUDIOLAB 8000C** 1991 £499

Tonally grey but fine phono input and great facilities make it an excellent general purpose tool.

**AUDIO RESEARCH SP-81982** £1,400

Beautifully designed and built high end tube preamplifier with deliciously sweet and smooth sound. Not the last word in incision or grip, but that didn't matter to those who aspired to it.

**CONRAD JOHNSON****MOTIV MC-8** 1986 £2,500

Minimalist FET-based preamplifier from the Yank valve specialists is brilliantly neutral and smooth with a spry, light balance in the mould of Sugden high end stuff. Something of a curio, but worthwhile nonetheless.

**CROFT MICRO** 1986 £150

Budget valve pre-amp with exceptionally transparent performance.

**LEAK POINT ONE STEREO** 1958 £ N/A

Good for their time, but way off the pace these days. Use of EF86 pentode valve for high gain rules out ultra performance. Not the highest-fi!

**LINN LK-1** 1986 £499

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

**NAIM NAC32.5** 1978 £ N/A

The Salisbury company came of age with this, their classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.

**LECSON AC-1** 1973 £ N/A

Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.

**QUAD 22** 1958 £25

The partner to the much vaunted Quad II monoblocs - cloudy and vague sound means it's for anacrophiles only.

**QUAD 33** 1968 £43

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

**POWER AMPLIFIERS****LEAK STEREO 20** 1958 £31

Excellent workaday classic valve amplifier with decent power and drive. Surprisingly modern sounding if rebuilt sympathetically. Irrepressibly musical and fluid.

**LECSON API** 1973 £ N/A

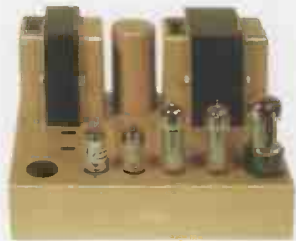
Madcap cylindrical styling alluded to its 'tower of power' pretensions, but it wasn't. Poor build, but decently clean sounding when working.

**MARANTZ MODEL 9** 1997 £8000

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

**MICHELL ALECTO** 1997 £1989  
Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!

**LEAK POINT ONE, TL10, TL12.1** 1949 £28  
Early classics that are getting expensive. Overhauling is de rigeur before use, using original parts if possible. Surprisingly crisp and musical sound, that's far more modern than Quad IIs. Deeply impressive when in fine fettle.



**MUSICAL FIDELITY XA200** 1996 £1000PR  
200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.



**RADFORD STA25 RENAISSANCE** 1986 £977  
At the time, very possibly the least cool amplifier on the planet – and we're not talking heat dissipation here. This reworking of Radford's original late sixties design was possessed of a wonderfully rich, old school valve sound with enough power (25W) and lots of subtlety.



**QUAD II** 1952 £22  
The all-time classic valve amplifier, with a deliciously fluid and lyrical voice. In other respects though, it sounds hopelessly dated. Low power and hard to partner properly.



**QUAD 405** 1978 £115  
The first of the current dumpers is a capable design with smooth, effortless power and a decently musical sound. 606 and 707 continue the theme with greater detail and incision.

**QUAD 303** 1968 £55  
Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!

**KRELL KMA100 II** 1987 £5,750  
Ludicrous monoblock version of the giant KSA-100 is one of the seminal eighties transistor power amplifiers. Massive wallop allied to a very clean and open Class A sound makes this one of the best amplifiers of its type, ever.

**PIONEER M-73** 1988 £1,200  
Monster stomp from this seminal Japanese power amplifier, complete with switchable Class A and Class B operation. Clean, open and assured sounding, albeit a tad behind the pace on high speed dance music. Rosewood side cheeks and black brushed aluminium completes the eighties-tastic experience.



**PHONO STAGES**  
**CREEK OBH-8 SE** 1996 £180  
Punchy, rhythmic character with oodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination.



**LINN LINNK** 1984 £149  
Naim-designed MC phono stage built to partner the original Naim NAIT – yes, really! Fine sound, although off the pace these days.

**MICHELL ISO** 1988 £ N/A  
This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy – if lacking in finesse.

**TUNERS**  
**MARANTZ ST-8** 1978 £353  
Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.



**CREEK CAS3140** 1985 £199  
Excellent detail, separation and dynamics – brilliantly musical at the price. T40 continued the theme...

**NAD 4040** 1979 £79  
Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica. Needs a good antenna to work properly, however.

**NAIM NAT03** 1993 £595  
The warm, atmospheric sound is further proof of Naims proficiency with tuners.

**PIONEER TX-9500** 1976 £295  
Another of the serious classic solid-staters. Boasts the usual high end Jap package of fine sound, brilliant sensitivity and superb build.

**LEAK TROUGHLINE** 1956 £25  
Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Fed by a modern outboard decoder they're deliciously lucid with true dimensionality.



**YAMAHA CT7000** 1977 £444  
Reputedly the best of the classic Jap analogues, this combines sleek ergonomics, high sensitivity and an explicit, detailed sound.

**QUAD FM4** 1983 £240  
Supreme ergonomics and styling allied to a pleasingly lyrical sound with plenty of sweetness and detail made this one of the best tuners around upon its launch.



**REVOX B760** 1975 £520  
More of a semi-pro machine than a domestic bit of kit, the Revox offers superlative measured performance although the sound isn't quite as staggering as the numbers. Fine nonetheless, and surely the most durable tuner here?

**NAD 4140** 1995 £199  
Brilliant affordable digital tuner has a smooth, detailed musical sound plus sensible real-world facilities.

**ROGERS T75** 1977 £125  
Superb mid-price British audiophile design, complete with understated black fascia. Fine sound in the true Rogers mould – smooth and sweet with fine dimensionality.

**SANSUI TU-9900** 1976 £300  
A flagship Japanese tuner designed to steal sales from the likes of Accuphase and Revox, it boasts superlative RF performance and an extremely smooth and lucid sound, along with very fine build and finish.

**SONY ST-5950** 1977 £222  
One of the first Dolby FM-equipped tuners, a format that came to nought. Still, it was Sony's most expensive tuner to date, and boasted a very good sound quality allied to brilliant ergonomics.



**TECHNICS ST-8080** 1976 £180  
National Panasonic's specialist hi-fi brand was a big hitter back then, and this is no exception. Superb FM stage makes for a very clean and smooth listen with lots of detail and depth.

**ANALOGUE RECORDERS****YAMAHA TC-800GL** 1977 £179

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

**AIWA XD-009** 1989 £600

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

**NAKAMICHI CR-7E** 1987 £800

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

**PIONEER CTF-950** 1978 £400

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

**REVOX A77** 1968 £145

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

**SONY WM-D6C** 1985 £290

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

**DIGITAL RECORDERS****SONY MDS-JE55ES** 2000 £900

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

**PIONEER PDR-555RW** 1999 £480

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

**MARANTZ DR-17** 1999 £1100

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

**KENWOOD DM-9090** 1997 £500

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

**SONY TCD-8 DATMAN** 1996 £599

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

**LOUDSPEAKERS****ACOUSTIC RESEARCH****ARI8S** 1978 £125

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

**BBC LS3/5A** 1972 £88

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

**LOWTHER PM6A** 1957 £18**EACH**

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

**TANNOY****WESTMINSTER** 1985 £4500

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

**JR 149** 1977 £120

Infamous cylindrical speaker that was ignored for decades but now back in fashion! Based on classic KEF T27 / B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but rewards with fine clarity in imaging.

**SPENDOR BCI** 1976 £240

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

**QUAD ESL57** 1956 £45**EACH**

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

**KEF R105** 1977 £785

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

**IMFTLS80** 1976 £550

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





**MAGNEPLANAR SMGA198X £800**

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



**MISSION 770 1980 £375**

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



**MISSION 752 1995 £495**

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

**HEYBROOK HB1 1982 £130**

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

**CELESTION SL6 1984 £350**

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



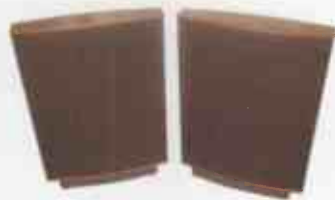
**LEAK SANDWICH 1961 £39 EACH**

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



**QUAD ESL63 1980 £1200**

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



**YAMAHA NS1000 1977 £532**

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



**MISSION X-SPACE 1999 £499**

The first mass production sub and sat system using NXT panels is a sure-fire future classic - not flawless, but a tantalisingly unboxy sound nevertheless!



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## Letter of the Month

### EMOTIONAL ENGAGEMENT

Imagine someone saying, "you can pay me £29 for product A or £100,000 for product B. Both products do the same thing... well nearly. Product B will only perform one of the functions of Product A. Which one would you like?" There are thousands of hi-fi products on the market today, all of which have the common goal of reproducing music. So why is it that some people will get a great deal of listening pleasure from a CD/radio/cassette player costing £29 and some will be dissatisfied with their £100,000 system? I believe it's all about emotional engagement.

Music is emotional. When I am listening to my favourite music through my main system, the hairs on the back of my neck will stand up; I feel completely emotionally engaged to the point of the music bringing on a trance-like feeling (or what I imagine a trance-like feeling to be)! It's difficult to describe, sometimes it will be one particular thing that I engage with, like the crack of a snare drum, the clear definition of a cello or the pitch of a singer's voice. Most often it is the complete musical picture with all its depth, clarity, soundstage and dynamics.

Listening to the same piece of music in the car or on the aforementioned £29 wonder, I hear, rather than feel the music. The music will still have an emotional impact but to a lot lesser degree. It's like I am listening to the music standing outside the concert hall, it's still great to hear but I'm not fully engaged or involved.

Emotional engagement is different for everyone. I remember saving all my pocket money for weeks (and years!) to buy my first hi-fi system at the tender age of eleven. I purchased one component at a time, proudly admiring each one sitting in its box in my bedroom until finally I had the full set. On a desperately tight budget, I had managed to purchase a Trio turntable with an Ortofon cartridge, JVC amplifier and a pair of Dalesford speakers that I put together at my uncle's factory (he built speaker kits at the time for Wilmslow Audio).

Upon hearing the system for the

first time, I was elated. It sounded so much better than my parents all-in-one Amstrad (sorry Sir Alan!) and even better than my best mate's dad's system (and he had an Alfa Romeo GTV, so was deemed to know what he was talking about!). I couldn't stop listening, it was addictive, school friends were bringing their friends round to listen and I was even getting invited to parties (as long as I brought my system!). It was audio ecstasy, I loved my system and so did everyone else... until one fateful day when my audio nirvana was blown into oblivion. A friend of the family invited us over for a bit of a social get together and I decided to take along some of my music. It was this experience alone that set me off in search of a greater emotional engagement with music.

It was around 1977/8 when I was exposed to the Garrard, Shure, Quad 33, Quad II's and ESL57 experience. The bar for emotional engagement was raised by levels that I never thought possible. Quite simply, the music just seemed to appear in the room rather than coming out of the speakers. It was from that day on that greater emotional engagement became my goal (and still is). In its pursuit, I have been through many systems, tweaks and accessories and only now am I starting to get close to what I really want to hear. It is a frustrating but an infinitely rewarding goal that brings all those involved in its pursuit, a great sense of pleasure and achievement. Emotional engagement drives our continual desire to upgrade, change cables, go vintage, go modern or modify what we have. Doesn't it feel fantastic when you change an element of your system and you hear the results for the first time? You've got another step closer and you want to share it with the world! Okay, that maybe a bit over the top, but you know what I

mean. So, it is my belief that emotional engagement is what we are all seeking (when we spend more than £29). Seek and ye shall find, oh and enjoy the journey, I certainly am nearly thirty years on!

**Andrew Bratt**

Well put sir! I think you're absolutely right, and it's easy to forget as we spend ever more money on hi-fi. The thing is, as hi-fi gets better (i.e. as we move up the upgrade ladder), there's a strong temptation to obsess over transparency, detail retrieval, focus, dynamics, power, grip, etc. All of these things are desirable aspirations, and worth pursuing when system building, but some of the best systems I've heard have none of these. My uncle's ancient mono Leak TL12-based system was a case in point – it wasn't accomplished in any of these respects, yet was one of the most satisfying to listen to I can remember in terms of musicality. Quad electrostatics are also interesting inasmuch as they're pretty poor in some of the aforementioned areas (i.e. dynamics and power) yet are tremendously emotionally engaging – the 57s have an eerily hypnotic quality... **DP**



**Leak TL12+ - more emotional than an actress accepting an Oscar...**



**Rega Brio – a transistor amplifier for tube takers!**

### YE OLDE WORLDE

*I keep re-reading your enthusiastic endorsement in the May 2006 issue of your Rega P3 based system. I had a very similar system in 1986 [Rega Planar 3, Linn K9, A&R A60, Celef Domestic II Supers, all connected up with QED 79 strand] and it sounded great. Kept it for quite a few years.*

*I'm guessing we are about the same age (forty five), and were newish graduates finding our feet at around that time, girlfriends, gigs and parties. I know we both had similar systems. I don't doubt that May's system sounded brilliant, I just wonder if you could have been influenced by a touch of nostalgia for a slightly simpler time, perhaps when life was a bit less complicated! Just curious?*

**Chris**

Hi Chris – no, I don't think so! This system really hit the spot – it was an absolute hoot. It was a case of great synergy – the Rega P3 worked beautifully with the Brio amplifier and the result was loads of fun. Rega's Terry Bateman, the guy who designed the Brio, is a real valve amp fan (he uses a Leak Stereo 20 and Radford STA15 at home) and I think this shows in the Brio, which has a big, warm, fulsome sound (albeit a tad loose and vague), and this impressed me so much – not any nostalgia for mooching around tedious student parties with a can of Woodpecker cider and a CND badge on, listening to Cabaret Voltaire. Still, you're right, life was far easier when you only had Margaret Thatcher and your mother to blame for your tragic student plight... **DP**

### SETS YOU THINKING...

*My high end CD transport died a sudden and unexpected death the other day. Unable to face the week or three without my CDs that will be needed to try and sort it, I borrowed my wife's DVD player - about £25 from the local supermarket - a Yamada something or other. As a standalone player using the onboard DAC it is awful, but it has a coaxial digital output. Well, I thought, I can feed that to my high end DAC, so at least I can play some CDs, even with*

*grotty sound. Ermm, actually it's the best sounding CD transport I've ever heard, and I've owned Mark Levinson, Musical Fidelity, Quad, Cyrus, etc. Transparency, focus, stage depth and presence are genuinely top notch. It kind of sets you thinking, doesn't it!*

**Jerry Jacobs**

Sure does – sets you thinking about how most CD transports aren't very good, and are essentially overpriced big boxes of air with cooking OEM mechanisms inside! I think you have to go for a good basic CD transport and get it heavily clocked, by the likes of Trichord or Audiocom, rather than spend squillions on something in a nice box – because you end up paying for the same mech in a nice box with a prestigious name. There are exceptions to the rule of course, such as the Linn high end transports, which are bespoke, and the top Japanese ones too, but most use a Philips CDM12.3 mechanism or suchlike, which can surface in CD spinners from £200 to £2,000 and beyond. **DP**

### ROUND AND ROUND

*With SACD slowly dying away I am getting more interested in turntables again. I have all your issues where you did turntable group tests. I have two bones to pick with them! First, unlike your other reviews you don't have any measurements at all. Surely some basic measurements like speed accuracy, wow and flutter and rumble are not too much to ask? If you have the time and inclination some extra measurements like arm resonances would be great too. Second, all the decks in the group tests were quite expensive - at least for me. I do understand that at least where turntables are concerned that you have to spend a bit to get decent quality. But I think the sub-£500 pound arena has a few good ones like the Project Xpression and Project RPM6. I, Rega P3, etc.*

*If you haven't noticed the hobby we all love is slowly dying away. The next generation is not really interested in hi-fi as we know it. Someone who's coming from an 'all in one' mini system or one of those awful iPods is unlikely to spend £500 pounds or more on a turntable. If this magazine can interest the next generation (which I think you are trying with the review of portables) it will benefit all (bigger the market more choices and cheaper prices). The simple fact that Project seem to sell more Debuts than all other manufacturers combined certainly says some thing. But the Project Debut though good as it is, I don't think shows vinyl at its best. So I think affordable yet excellent sounding is where you should concentrate your efforts.*

**K Fonseka**



**Most CD transports are much of a muchness, but Linn's classic Karik isn't...**



**Project Six Pack – supreme vinyl value!**

Although turntable measurements are useful in some circumstances, can I remind you that by 1979 the Japanese were making £99 turntables that had something like 0.03% wow and flutter and -79dB rumble figures (i.e. better than a £400 Linn LP12), but they didn't sound any better – quite the reverse, in fact. My point is that the general standards had got so high that subjective listening became the key criterion for choosing between them, not stats. This is where we've been for decades, and where we still are now – and why we don't do measurements on turntables. You'll note, of course, that we do measure cartridges, however.

Our group tests reflect the tone of the massive amounts of readers letters we get each month, much of which is pertaining to vinyl – most readers have £1,000 or thereabouts to spend on one vinyl-related item (i.e. turntable, arm or cartridge). We do cover the budget side though – we've done all the Goldrings, Pro-jects, etc. and I'm constantly recommending the still-brilliant Rega P3! The last vinyl special had 'affordable sub £1,000' turntable packages reviewed – and the £600 Pro-ject 'Six Pack' came out with flying colours, so I think we're keeping our feet on the ground. This is important for me, as I've never understood how certain other hi-fi magazines that shall remain nameless can recommend £90,000 products as being 'excellent value for money', which they have been known to do in the past! November has our next vinyl special – and you'll find a nice spread of kit from bottom to top prices. You might be interested in the next issue too – which is an 'affordable separates special'; we'll be showing you new and old budget bargains, and reviewing an extremely inexpensive (yet superb) classic vinyl based system. **DP**

### RADIO GAGA!

*The August issue is first rate. Well done! It just so happens I have a keen interest in FM tuners and have done since the mid 1970s – perhaps the heyday of tuner design. I've owned a Lecson FM1 tuner, well actually five and none of them ever worked – surely a classic for all the wrong reasons! I've owned a Yamaha CT7000, a handful of Accuphase units, a couple of mighty Sansui tuners and a Trio KT919. The Trio is what I have used for over twenty five years and to date I've never heard a more musically satisfying FM sound.*

*I completely agree with the comments regarding declining and variable quality of BBC FM broadcasts. To me, standards have slipped. No doubt the commercial imperative takes precedence there now – a great pity. Anyway, I'd like to humbly submit the Trio KT917 as being worth for inclusion in your World Classics section. Apart from the magnificent sound quality, and bearing in mind it sold well in 1980 for over £800, the engineering design and implementation was and remains magnificent.*

*I agree totally with your inclusion of the Sansui TU-9900 in the World Classics. A typical price for a T-9900 today is around £380. TU-919s go for a similar price. Not wishing to be an anorak about this, might I suggest that if you do a follow up feature on FM tuners, and if you can get hold of them you might be amazed by the Accuphase T-107 (1985 to 1991) or a T-109 and the very recent T-1000 (2006)? T-107s sell for around £300 in Europe while the last T-109 I heard of sold for a staggering £1,373.*

**Howard Popeck**

Thank you Howard – consider it done! **DP**

### UH OH, NOT AGAIN!

*Every so often and as regular as clockwork, I get the upgrade bug, fuelled*

*mainly by the hi-fi press. This happens to me about every twenty years or so (I did say regular but not necessarily often). Recently I came across an Audiolab 8000A for £70, a set of ex dem VDH Clearwater cables with decent connectors for £25 and an Arcam Alpha Plus CD Player for £50.*

*Then on reading your article on tweaking an older CD player I was thrown into a quandary – which player should I think of upgrading, my Marantz CD63 or the Alpha Plus? I was then fortunate enough to be lent a fairly decent TEAC DAC by a friend also with the upgrade bug. This meant that I was able to perform straight A-B comparisons with both machines with and without the DAC. Although second-hand this piece of equipment had cost only around £250, it was in excellent condition and would have cost roughly £700 new.*

*Could I hear a difference? Well, yes I could, so could my wife. I thought the soundstage was larger and that there was more space surrounding the instruments and the top end was portrayed with more detail. Was it £700 pounds worth of difference? I would say not, but the one thing it did highlight was how much better my Rega 3/1RB300/Entre MCC sounded than it, especially through the Audiolab's very nice MC stage.*

*So decision reached; invest in the Michell Tecnoweight, this choice being made on the weight of high praise from many sources, its reasonable price and the fact that the arm doesn't have to be physically modified and the change being totally reversible if I'm not happy. The rest of the budget is then free to spend on vinyl. I'm lucky in that my local music shop stocks a wide range of second-hand albums in very good condition for £2.50 a shot. That's a lot of music for £700.*

*I think it's all too easy and I'm probably more guilty than most, to get swept along on the upgrade wave*



and to forget what the object of that equipment is for. I'm now enjoying listening to the music and not just the system.

**Terry Symonds**

I think that people need spend far less money than they might imagine; basic systems can be made to sound superb with some judicious tweaking (clean all plugs and contacts with Kontak, isolate equipment from vibrations with Foculpods, position your speakers correctly and clamp them down as firmly as possible and switch off noisy fluorescent lights, etc.) that costs just a few quid. Then spend the rest on music! **DP**

### NOISE ANNOYS

As you know David, spread spectrum technology offers many advantages in terms of robustness, security, power-saving, etc. – a little like a radiated version of the current wired (and fibred) internet. Imagine a spread spectrum system so diffuse and sophisticated that even the most advanced early twenty-first century military and commercial technology is totally incapable of detecting transmissions – dismissing all such activity as just low-level background noise. Steven Green's current article on Software Defined Radio [SDR] is interesting, but it's when it gets to talking about Cognitive Radio and Ultra-Wideband Systems that some dangerous assumptions are put forward. For example, it is reported that supporters of cognitive radio believe that the apparently unused spectrum within the FM waveband could be used by other applications – just as long as they don't interfere with the existing users of the band.

First, the existing FM spectrum forms an important part of an existing and vital diffuse spectrum transmission system – which currently operates around the relatively narrowband FM transmissions, making the concept of unused bandwidth erroneous, and these transmissions are of vital importance. Filling more and more of the airspace with traffic would compromise the integrity of a critically essential



**One of the Marconi's first transmitters, from 1899, which used spark transmission - spread spectrum technology in early form! Picture from Museum of Science and History, University of Oxford ([www.mhs.ox.ac.uk](http://www.mhs.ox.ac.uk))**

framework already well established. Second, as even the most advanced technology available is unable to detect these vital transmissions, the concept of sensing unused spectrum – whilst valid in principle – is not, in practice, viable. The working assumption that what you can't detect doesn't exist is a very dangerous one to adopt, but I am not at liberty to make explicit the dire consequences of adopting such an assumption and building a wireless transmission system around it.

When you think about it, the human brain is an extremely powerful pattern recognition system, but it may also be viewed as an extremely sophisticated signal detection and processing system. Of course, just as the communication systems used by dolphins and whales are currently limited by all the human activity in and under the water, the myriad electromagnetic transmission of modern man severely compromise the signal detection performance humans – combined with the constant information overload experiences through other senses which already makes diffuse spectrum signal detection over more than a short distance often difficult if not impossible. In such a hostile environment

it is often only when under extreme stress, ironically, during an accident, when near to death, etc. that the overloading signals can be suppressed and the brain can reach a state of sufficiently heightened sensitivity to detect such weak signals.

That is, not only is the assumption that there is lots of currently unused radio spectrum that can be used at will wrong, but any system that tries to exploit such an assumption would be extremely dangerous. I thought that GM was extremely dangerous (no, not General Motors) until I thought about the potential impact of Cognitive Radio and Ultra Wideband Wireless Transmission Systems. The solution, of course, is to focus on fibre-optics and wired systems for all but the shortest links, and to be extremely careful with any proposed or widespread use of frequency-hopping, dynamic frequency allocation or adaptive systems. I guess first remember the very first requirement of the Hippocratic oath – first do no harm... Oafish hippo forms quite a good starting point (even though doctors' ignore it). The signal of life hidden within cosmic background "noise."

**James Morrow**

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Well, all I can say is that I too am not totally convinced that filling every last radio frequency known to man with content is a great idea. Whether or not we can formally hear it or not, it's still 'noise' of one type or another, and I think we (like David Sylvian) should still be "searching for the quiet life" as humans and hi-fi aficionados alike... On a less esoteric and more prosaic and literal level, I find that switching my TV, fridge, wireless modem and computer off, along with all fluorescent lights, truly improves my system sound – especially with vinyl, whereupon I disconnect all my digital sources too, and discern a further improvement. Whilst we may only hear 20Hz-20kHz, the more 'noise' there is around us, the more it's able to annoy. **DP**

### TAKE THE TUBE

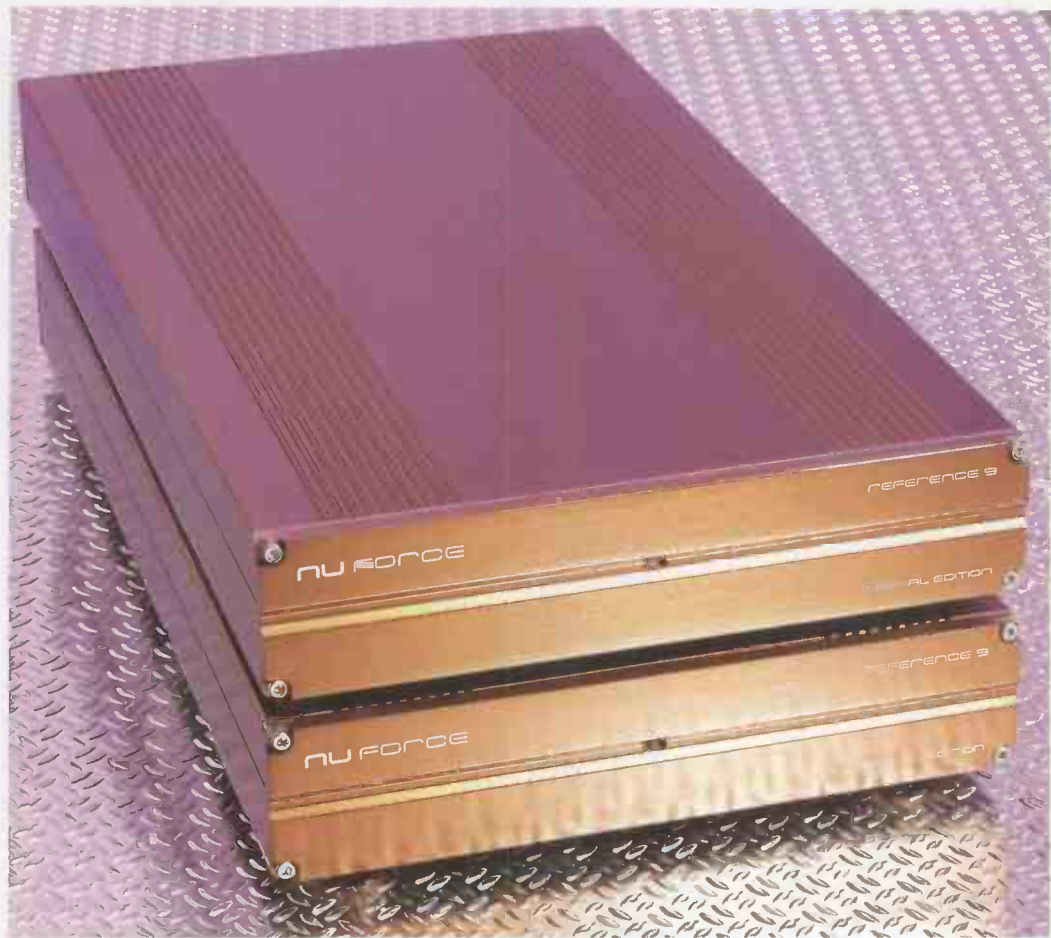
*In seeking a replacement for my Musical Fidelity A300, might Cambridge Audio's Azure 840a offer a closer-to-valve performance with its new Class XD operation? It appears to have enough power to comfortably drive my rather current-hungry Martin Logan Aeon Is in a fairly large room (27' x 14') and all the right features: pre-out for a subwoofer, remote control and enough inputs. Word has it the 840 performs far beyond what its price suggests...*

Noel recently suggested Audio Research's VS155. Tubes are very tempting, but doubt's about justifying the expense and keeping toddler's paws away from the rather warm tubes forces me to consider a suitable compromise.

Your advice on upgrades has proven to be invaluable in the past and lack of a dealer within a hundred miles leaves me confidently trusting your recommendations once again. I'm after less clang and more air, warmth and musicality. Music tastes cover most of the musical styles Beck Hansen has dabbled with in the studio.

Also, I was pleased to see your editor reporting his success with the various mods performed on his Sony X33ES CD player in the June issue. I recently carried out some extensive component mods to a Sony 508ESD CD player including the addition of a clock with PSU and removing the muting transistors to stunning effect. Adding a Lite Audio DAC-60 has improved things further by removing many of the remainder of the least appealing audible aspects of digital playback. Performance gains from adding an IEC socket, upgraded power cable and a high quality coaxial digital output haven't gone unnoticed either. Any further ideas Hi-Fi World may have on alternative ways to improve the listening experience would be more than welcome.

**Bernard Gibbes**



**NuForce Ref 9SE monoblocs – dream partners for Martin Logans.**

Hi Bernard. Martin Logans need a solid-state amp to control their wayward bass units, I feel. Whilst valves suit electrostatics generally, I would advise caution here - and the Cambridge isn't ideal for revealing electrostatic panels either.

I don't know whether this interests you, but having just auditioned Quads new 2905 electrostatic, price £6,000 (\$12,000 in the US!), I was left wondering whether it was the best loudspeaker I have ever heard. Your room would do them justice. Then you could use an Audio Research VS155 tube amp., although a Quad QC24 tube preamp and Il-forty power having KT88s and thermionic rectification courtesy of the popular 5U4G are more appropriate. Tubes definitely cut out the clang and give air and musicality. Modern tube amps aren't warm, so much as naturally liquid and hash-free in their treble.

If all this is far too extravagant then I suspect you need a clean sounding solid-state which David can elucidate on. I am surprised you are running a subwoofer with Martin Logans. Perhaps that's why Southern California is an earthquake zone. REL recommend running subwoofers from the loudspeaker outputs rather than the preamp, by the way. **NK**

I think NuForce's Reference 9SE monobloc Class D solid-state

amplifiers would be ideal for your MLs. Noel's quite right to say they don't work so well with tubes, and need a really gutsy, clean and open solid-stater to do the business – and the NuForce is precisely that. At £1,550 here (and you'll need two), they're not cheap, but you can't cheat with poor power amps if you have Martin Logans. **DP**

### ISLAND LIFE

*Thirty years ago I believed that a big power amp, weighing at least 30kgs, was the thing to have, and that flashy buttons and VU meters were a sign of top quality. However, budget obliging, I fell in love with and purchased a Garrard 301 chassis fitted with an SME 3012 and Shure V15, the whole thing bolted to a piece of top board. At the same time, I bought a pair of LEAK TL12+ with matching preamps. Ahs the latter were in agony, I purchased a Radford SC22, renewed the valves, a quick servicing, linked everything to a pair of new AR28 and started listening to music. I was happy with my system, even though the V15 seemed lifeless (an M95 seemed to fare better). Five years later I sold the whole system and bought a Triumph Daytona!*

*I finally got the music (or hi-fi) craze again and bought a Harman Kardon Citation 17 preamp, a pair of KEFTLS Kit, fitted with B110 and Seas tweeter, which I had the opportunity to listen to*





**Croft Vitale – brilliant entry level tube preamp.**

through the Citation 16 power amp. A Quad 405 power amp, Vecteur speaker cables and a Sony CDP M34 CD player later and I was back in business. Meanwhile, a friend of mine gave me an Oracle Alexandria turntable, fitted with a Syrinx tonearm and VDH MCD 102 Mk III special, which needed and still needs attention. The suspension has collapsed and many parts are missing from the Syrinx.

I am now considering giving a new life to my system. Lack of cash commands me to tweak the present setup, as I cannot consider buying new components. Even if I had the money, I could not audition anything new, as all you will find here in the shops are compos and MP3 players. Most CD players are DVD combos, but I won't settle for less than a dedicated CD player. This is the only item I might consider buying new. Here I will have to settle for your advice as I won't be able to audition anything. If I have to follow your advice in your article CHAOS vs. THEORY, I first need to pay attention to the source, i.e. the Oracle. Is it possible to find the missing parts for the Syrinx (if I send you a photograph, can you help) or buy a good secondhand, or should I go for something else which will fit the Oracle plinth without modification?

As the Citation has two phono inputs, I am considering a budget MM (Goldring 1042) or, if my Supex SDT-77 pickup transformer permits, a budget MC (your advice most welcome). The Quad is being repaired (new capacitors) and tweaked by a friend who is an electronic engineer, and I will need to replace the B110, whose cones have been heavily modified by a three year old some time ago. I look forward to your comments and advice.

**Gilles Beau Bassin,  
Mauritius**

You sold a Garrard 301 and Leak TL12+ for a Daytona? I suppose both are ways of reaching heaven, if by different routes. As you seem to like cobbling things together I'd suggest fitting a Rega RB300 to the Oracle as a starter, with a decent modern MM cartridge, like the Goldring

1042. Budget MCs are, generally, not very entertaining, although Denon's DL103 has a good band of supporters. The Syrinx is dead and long gone as far as I am aware. If you want to spend less try an RB250 and a Goldring 1012GX. The Eastern Electric Minimax valve CD player is a budget audiophile special well worth the money, and it will suit your system and tastes I suspect, although it is perhaps expensive. See DP's next reply for KEF driver repair information. **NK**

#### **KABER CAPER**

I've just read the recent article and subsequent letters regarding allocation of spend on various components (Chaos vs. Theory), in particular the comments by Ben Bishop (letters, July issue) and this has really got me thinking as to where I go next with my system. Over the past couple of years I have had some great advice from your magazine that has taken my system forward considerably. The main areas of change involved the bridging of two NAD C270 power amps that were originally running in a stereo bi-amp set up and adding a dedicated C160 preamp powering my Linn Kabers (before I bridged the amps the Kabers sounded woefully in need of much more power).

The result was great and so onto my next move, the front end. I was running a Linn Mimik that was starting to play up, so following advice from Hi-Fi World, I picked up a Musical Fidelity Tri-Vista 21 DAC and partnered this with a Teac T1 transport modified with a Trichord Clock 4 and Never Connected power supply. Again the result was great and really made a noticeable difference.

The question is: where next? I have had the Kabers for about six years and like them but to be honest haven't heard any other speakers for years and can't help wondering whether the sound could be improved further by banging a more modern speaker onto the end of the system. Would, say, a pair of something like the Monitor Audio GR60s or Mission e82 floorstanders be better, or would they show up the amps and front end, and just how good are the Kabers compared to newer designs?

Again on the subject of the amps, should I be looking for something a little better? I really like the bridged NADs and they drive the Linns very easily but they are, after all, just budget amps. Should I be looking for something a little more mid market? I have seen a Meridian 557 in a local dealer and wonder if that would be better than my two NADs and how about looking for another one to bridge at a later date?

My last puzzle is regarding power supply. My CD jumps sometimes when lights are turned on or off in the house, which is about fifteen years old, so would a power conditioner help to solve this and also improve the sound at the same time?

As you can see, I really need some help in determining where to go now. Overall, the sound of the system is (I think) really good, but I wonder how much better it could be with maybe some different (more modern) speakers, or a more accomplished amplifier set up. Hope you can point me in the right direction.

**Dave Mayer**

The Kaber, fitted with the later Tonigen ceramic tweeter, was a fine loudspeaker. The first version though had somewhat obvious treble, and this is likely the model you have. Monitor Audios GS60 I reviewed recently is very much in the same mould, a good Rock loudspeaker



**Linn Kaber loudspeaker, a great Rocker and a real klassik.**



with a sense of clarity and openness that makes others seem slow and dull. By today's standards it is a great listen and, I suspect, the sort of loudspeaker that would suit your expectations. There is a little too much treble, measurement showed, that brings a lightness to its strongly lit midband. Its sense of openness and detailing is exceptional though, everything happens at lightning speed and dry, highly damped yet precision bass underpins the whole performance in a way many listeners crave. You do have to accept a balance contrived for precisely this effect, though. It isn't the most neutral, self-effacing loudspeaker I've heard, but it is whistle-clean, fast and dynamic. The old GR60 gathered quite a reputation and the GS60 continues it with aplomb. Certainly worth a listen I feel and likely the sort of sound to woo you.

I found during measurement, by the way, that the treble peaking was largely due to surface wave effects around the tweeter. They could be suppressed completely by a two cm long piece of Blu-tak rolled into a cylinder about 5mm diameter and placed vertically at one (either) one side of the tweeters protective mesh grill. So the loudspeaker is amenable to a bit of simple tweaking!

Bridged NAD C270s will have muscle. Although you can buy more subtle devices nowadays, you may miss their wallop. I would be tempted to replace the preamplifier before the power amps, dare I say it with a valve design, to add some subtlety and air. The GS60s will benefit from this yet you will retain the raw power of NADs. Croft make a sweet sounding preamp in the Vitale that you might like to try, costing under £400. **NK**

### SPENDOR SPLENDOR

One week ago I've been given a pair of Spendor BC1 for free: their destination was the waste. These loudspeakers look good and don't appear much weathered by time. They show just a few scratches on the veneer finish; the drivers look almost brand new, even the woofers and their rubber joint. The woofers (8") have a strange, irregular texture, more artisan than industrial. After a quick test I discovered that one of the bass units didn't work: I tried to see if the crossover delivered the bass signal: it did. The driver do not appear damaged and the connections are okay. After a few investigations I ended thinking that the problem was the voice coil. I was asking myself if there is a way for repairing it or, maybe and more realistically, to find new bass drivers, fit for the task. I don't want to be too conservative and at the same time I'd like not to stray



### Rega P3 – beats CD players at three times the price hands down.

too far away from the Spendor "peculiar temper"; but I'd really love to bring those venerable classics to life. I addressed an e-mail to Spendor: the only suggestion I've got was to consider their brand in case I would like to purchase loudspeakers! I hope you could kindly give me some advice for the restoration of the BC1.

**Alessandro Marchesan**

Good news, as my feature shows on p45, DK Loudspeakers can return your Spendors to their previous splendour – just phone Dave Smith on +44 (0)1708 447344. **DP**

### BIG IN JAPAN

I saw a valve amplifier system in Japan ([www.shiroshita.com](http://www.shiroshita.com)), back in April this year. Having contacted the manufacturers, they claim that they cannot ship outside Japan as the voltages are different, and even dropping our 240v to their 100v in an external transformer would stop their unit from functioning correctly. Are they right in this assertion? I have no experience with valve amp technology, but assumed that if the voltage was dropped externally, it would make no difference.

Since I cannot get this system here in the UK, can you point me to a similar system that I can purchase? This is the only time I have seen a valve amplifier offered with matching speakers and an optional integrated amplifier. The whole unit appears to offer the valve amp experience, with none of the associated pain, or massive bills.

**David Evans**

Hmmm - nice system and nice idea style wise. I suspect a lot of people would love something like that, because it is intriguing at many levels, as well as satisfying to listen to I suspect. But . . .

These are Single Ended triodes, with no feedback, the English text says. Pictures appear to show EL84s, perhaps connected as triodes, in which case power outputs will be very low. The loudspeakers are small and small loudspeakers need lots of power to go loud. In this way the system pictured on their website looks less than ideal. I don't see any reason why it would not work on a step down transformer, as Japan works on 110V, 60Hz, like the USA (some parts of Japan are 110, 50Hz –Ed.). There's no technology inside that makes 110V, 50Hz from a UK step-down incompatible. At 80,000 Yen (£365) the price seems unusually



### A nice looking Shiroshita system - for Japan only.

low, which makes me suspicious.

There are no equivalently priced systems in the UK. The nearest to this would be a Shanling STP-80 valve amp at around £1,300, driving - say - budget B&W floorstanders, like DM602s or 603s, which are very sensitive. This would give a tidy and inexpensive valve system able to give a fine, modern sound featuring the

best of both worlds - a smooth, hash-free sound lacking harshness or clang (as another reader put it earlier), with bright upper treble and plentiful bass, plus the ability to go really loud. The total cost would be around £1,800. Otherwise, look at Unison Research valve amps, which work very well and have similar styling, and couple them to loudspeakers from B&Vs 700 or 800 ranges, again selecting a high sensitivity floorstander. This way you'll get classy system that works beautifully. Not cheap, but the results will justify the expense, I assure you. **NK**

**INTELLIGENCE QUOTIENT**

*I have recently purchased a pair of KEF iQ5s purely on the strength of reviews. I am using a Cambridge Audio A5 amplifier with IXOS XAS213 16 gauge biwire cable. Source is a Technics SL-PG520A CD player. The result is astounding - accurate, tight and enveloping is the only way I can describe the sound. However I am slightly disappointed with the lightness of the bass, so my question is - is there anything I can do to enhance the bass weight without changing the main components?*

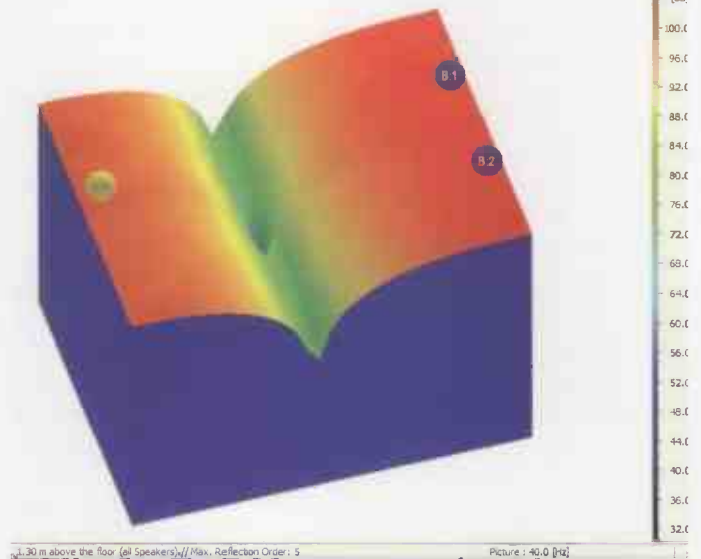
**J.P-Smith**

You say nothing about your room and placement of the iQ5s in it, both of which are crucial. The iQ5 is a small room loudspeaker meant for near wall standing, so position as close to the rear wall, firing down the length of the room, then sit at the other end against the opposite wall. This positioning of the loudspeaker gives you the deepest bass possible from the room, by driving its lowest resonant mode most effectively. By sitting against the far end wall you are at the point of highest sound pressure, where bass is loudest, so as far as deep bass in concerned

ROOM BEHAVIOUR	
longest dimension	lowest frequency
ft	Hz
8	68
10	54
12	45
14	39
16	34
18	30
20	27
25	22
30	18

it. If there's too much bass, moving the loudspeakers (or your listening position) away from the walls and into the room will reduce it, whilst improving sound stage clarity and upper bass smoothness. Choose the balance that is right for you.

Our chart shows bass against room size. As musical instruments go down to around 40Hz you can get full level on the lowest notes in a room just 13.5ft long (half a wavelength), with loudspeakers and listener against the walls. However, it will usually sound boomy, and a slightly larger room, around 16ft long gives better



*This is how Cara, a room acoustic programme (www.cara.de) depicts the lowest bass note in a room, with listener at left (L1) and speakers at right (B1, B2). Maximum sound pressure is against the walls, minimum at room centre.*

this is as good as it gets in your situation. The question now is: is it good enough? Play music with plenty of deep bass and see what you think. If there still isn't enough bass then you either change the loudspeakers, add a subwoofer or put up with

results. Bass quality improves all round as room size increases, but worsens significantly within rooms smaller than 12ft. Experiment with positioning to make the most of your room and furniture layout (i.e. seating position). I hope all this helps. **NK**

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**KEF iQ5 floorstanders – keep them close to walls for strongest bass.**

## FORMAT WARS

Dear David,

*I noticed that despite MiniDisc being a goner, there are now some bargains to be had. Due to what turned out to be a cable problem (thought that the analogue out on my CD player was dead), I fed my Marantz CD6000SE LE through my MD Player (Sony 470) recently, and discovered that it contains a DAC at least as good as the Marantz. Now I'm thinking about buying up one of the ES series MD players to use as an upgrade on my DAC - because it's an awful lot cheaper than buying a better CD player, or even a good separate DAC. Also, please stop pushing the 'blows away CD at the same price' argument for vinyl. Because when you push it you never mention the cost of phono stages and cartridges - most of us don't have half a dozen of those lying around. It does no one any favours when the playing field isn't level.*

**Neil McKirdy**

Hi Neil – well, you're right about the DACs in MD recorders; they aren't bad at all, but don't think they're a magic replacement to a real hi-fi

design – the Sony MDS-JE500 is a fine example. It's a decent enough little ATRAC4-era MD deck, which sold for £300 in 1997, and is now on ebay for peanuts. It has a smooth, softish sound, but is limited in detail and depth. Moving up to the high end, the MDS-JA50ES (same era, cost around £600) has a decently clean and punchy sound with a nice strong bass and crisp treble, but it's little better than Cambridge Audio's DACMagic DAC, which is so cheap it's virtually free secondhand! Personally, the latter would be my chosen path, and then there's various mods that can be performed by the likes of Audiocom to up its performance still further...

As for vinyl vs. CD – yes, you're right to an extent, as phono stages and cartridges are hidden extras (both of which you need, unless your amp already has a decent phono stage),

but I think the point still stands. I'd put a Rega P3 (£289), Goldring G1042 (£135) and a Cambridge Audio 640P (£59), total £483, against a Shanling CD-T80 (£650) any day – it would walk it.

**DP**



**Modern pickup cartridges sound better than ever, Goldring's excellent 1006 being a fine example.**

## TO THE POINT [1]

*Can you shed some light on the issue of replacement styli offered by some companies who are doing a sterling*

*job keeping old pickups going? It's wonderful, for example, to be able to buy new styli for my old nineteen fifties Bush portable autochanger. I think there may be a problem where it comes to the more exotic pickups. It seems that original styli for my A&R P77 pickup are no longer made so I had to settle for an 'equivalent'. My setup is not the most demanding and the performance did not seem too bad but I was convinced that I was not getting the same sound. The grooves were tracked fine, it just gave the impression of being not quite as good. Then I acquired a Shure V15 IV with a duff stylus. This again had to be replaced by an 'own brand' as the originals are no longer available. Here the difference can be seen. The original cantilever was very delicate and almost hair like, while the replacement seemed like a rock stuck to a drainpipe in comparison. This is obviously going to differ in performance and I will clearly never be able to hear what the cartridge really should sound like. Are any 'equivalent' styli any good, or should I have put my money into a new modern cartridge. For example would a hundred pounds spent on a modern one perform better than a V15 with a Bloggs stylus, thus making it a Bloggs cartridge?*

**Paul Williamson**

The performance of a pickup cartridge is determined largely by the mechanical behaviour of its stylus assembly. If the cantilever of your V15 replacement is much thicker than the original its tracking performance will almost certainly be inferior, due to increased moving mass, and you will hear the difference. Since modern cartridges like those in the Goldring range these days offer far better performance than those of yore it makes little sense to buy an old fave, even if its stylus assembly is in

good condition. Simply get the best Goldring MM you can afford. The vinyl revival seems to have triggered a wave of ebay interest in all sorts of



ageing esoterica that, measurements and usage tell me do not match modern designs. Ironically, now that vinyl is officially dead, cartridges are more alive than ever! Don't ask me why, but there it is. Give yourself an easy life: buy a new cartridge. They are not even expensive. **NK**

### TO THE POINT [2]

*I use a Micro Seiki MB-10 turntable fitted with an Audio Technica MM cartridge for which I recently purchased the replacement stylus 3012J, the construction of which seems inferior to the original. Despite an increase in both mat height and tracking force (now 2g), the tip angles back, 'digging into' the grooves. There is sometimes breakup on loudly cut HF signals such as vocal sibilance, again not noticeable with the original. The sound is otherwise fine. Should I be concerned for my less replaceable vinyls?*

**Geoffrey Briggs**

If you hear mistracking where previously you did not then, yes, you will be inflicting groove damage. The vinyl is pushed beyond its elastic limit and will not return. When you get a new cartridge you will hear exactly the same sound at the same spot; you will be playing the implanted damage. As with the previous letter, get a decent new cartridge from Goldring or Ortofon. **NK**

### WHEN I'M SIXTY THREE...

*Reading your magazine has tempted me into buying a pair of Quad ESL-63 electrostatic loudspeakers. They sit in my small but long stock/rest room at work between Marantz 6000 K1 amplifier and CD players and a Linn Axis turntable. Great for a wind down at the end of the day, but not the sort of equipment that would be allowed in the living room at home! My intentions were to switch the amp to valves (possibly Quad vintage) but some research has left me unsure. It seems the ESLs need 40w amplification and were developed using Quad solid state transistor amps? For once in my life I would like to build a system with a bit of synergy, so any suggestions on good partners for the ESL-63s? Valve and/or solid state? Vintage or modern? Pre-power or integrated? Or should I stop worrying about missing out and continue to enjoy what I've got?*

**K. Waller**

I'm inclined to say, relax and enjoy them as they are, because once you start down the ESL path there's no end! Here are a few things you might like to consider.

I suspect you bought your ESL-63s second hand. In which case

you need to find out whether they are early models with self powered protection circuits, or later ones with secondary breakdown diodes. If you have early ones then ideally you need to get the horrible compressor circuit changed to the later diode scheme. This clears muddle and grunge that invades when volume is turned up. Ask Quad about this.

Next, if you paid a modest amount you may not be averse to removing the sonically obstructive outer cloth sock and underlying safety grills. You can replace these if you wish, providing you remove them carefully. Underneath lies the basic loudspeaker, wrapped in a plastic dust cover. Some people even remove this, but I don't advise it. Once the protective paraphernalia is out of the way you will hear the real loudspeaker and realise how good it really is. And all this for nothing!

A stripped down ESL63 is an ugly beast. It would be possible to construct an alternative grille able to support a light fabric, restoring appearance whilst maintaining sound quality. Quad were obliged to ensure a small child was unable to poke a metal knitting needle into the fixed

stators, which carry thousands of audio volts when music is being played. It's the stepped up audio that is dangerous by the way, not the polarising voltage. In your circumstance, as in mine, such belt and braces safety may not be necessary, but it is always wise to try and ensure the electrodes cannot be accidentally touched.

Having cranked up the ESL-63s quality so greatly, you will be in a position to appreciate amplifier differences more fully. A reasonably bright solid state jobby that's clean, like the Marantz you own, is a fairly good match at a basic level, since the 63s roll off gently at high frequencies, I recall. Ideally you should go to a 40W valve amp and there's no better than today's Quad II-forty power amps driven by a QC24 preamp. Oldsters like the Quad 22/II combo will sound sweet enough, but they won't really do stripped down 63s justice. If you win the lottery, go to Audionote, who will equip you with Kegons. For stockroom read: Heaven. Your boss will think you love the job so much you don't want to leave. But when he finds out the real reason for you being in there - he will join you! **NK**



**Quad ESL-63s - get a pair cheap and strip them down, says Noel. Not pretty, but very effective. Shown here are '63s paired with Celestion SL6000 dipole subwoofers. They were being used as recording monitors by Philips.**

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- Consonance Reference 2.2, ex dem, smooth as... 899
- Copland CD266, ex remote new laser 449
- Cyrus Quattro, c/w tuner module, NR HALF PRICE! 579
- Cyrus CD3G, ex, boxed 379
- Cyrus PSXR, ex, boxed 279
- Esoteric DV505 new, full warranty, LAST ONE! Call
- Harmon Kardon DV22, New 629
- Linn Genki, nr mint boxed 199
- Marantz CD63KI Signature, ex remote 499
- Marantz CD17 KI nr mint boxed 399
- Marantz SA8400, nr mint boxed 2499
- Marantz SA1, vgc boxed 279
- Meridian 200 Transport, ex remote 249
- Meridian 206, ex remote 129
- Meridian 203 DAC, ex 499
- Meridian 518, as new boxed 799
- Micromega D-drive and T-dac nr mint boxed 129
- Micromega Optic bargain intro to Micromega Monarchy DIP vgc 149
- Musical Fidelity X24K 249
- Musical Fidelity XDACv3 as new boxed 379
- Musical Fidelity Kw SACD as new REDUCED Call
- Musical Fidelity X-Ray, excellent, boxed 399
- NAIM CD5 as new boxed 699
- NAIM CD3, ex boxed with remote 349
- NAIM CD51, ex with power supply, remote etc 1199
- NVA Transparent Statement, ex crated 1749
- Procead PD12, nr mint boxed 699
- QUAD 67, excellent boxed with remote 399
- Rega Jupiter, as new boxed 549
- Resolution Audio Opus 21, excellent, crated 1849
- Roksan Caspian M series, ex dem 799
- Roksan Kandy 3, ex dem 399
- Rotel RCD1072, excellent boxed 399
- Shanling CDT300UK rare ltd edition new Call
- Sony CDP3000ES toploader - free matching amp! 329
- TEAC DV20 new, the best at its price 149
- Trichord Pulsar DAC, as new [£2800!] 549
- Wadia 302 as new boxed 2599

### Radio/Recorders

- Arcam T61 nr mint boxed 159
- AVI S2000 Tuner vgc boxed 299
- Harmon Kardon TU970 DAB/FM New 199
- Marantz ST4000 359
- Meridian 604, ex 399
- Nakamichi CR1E 99
- Pure 701ES, new 149
- Quad FM3 ex 99
- Rega Radio 149
- Sony JB920, ex v decent minidisc Call
- Sony MDSJE330, excellent bargain minidisc 89
- TEAC RWD280, Twin deck CD recorder 189

### Amplifiers

- Arcam Alpha 8 Integrated 199
- Arcam Alpha 9 Integrated 279
- Arcam Alpha FMJ C30 Preamp ex boxed 649
- Arcam AVR200, ex boxed 399
- Arcam AS5 ex boxed 429
- Audio Innovations, 200/500 pre and power, ex, boxed Call
- Audiolab 8000P New version in silver 249
- Audiolab 8000A Integrated in black 199
- Audiolab 8000C ex boxed in black 699
- Audio Research L57 Preamp 599
- Audio Research D130 Power, ex 299
- Audio Research D70 Power, ex 599
- AVI S2000 Integrated, fantastic ex box salvation 499
- AVI S2000 Pre/Monoblocks, fantastic combination 799
- Cairn Mea Monoblocks, ex in silver 749
- Cairn Ion T2 Monoblocks, mint in black 499
- Cairn Ezo Nanda pre and K1 monos new £4000, now! 1799
- Conrad Johnson Sonographe SA250 399
- Cyrus 7 integrated, nr mint boxed 349
- Cyrus 5 Integrated, ex boxed 279
- EAR 509 Mk2 monoblocks, superb boxed 1999
- Exposure XIX Preamp, nr mint boxed superb 249
- Graf WB12 and 50/50 Pre/Power combo, ex boxed 1249
- ITL MA80/MA100/MA100 Pre/Power x2 lovely combo 349
- Krell KAV300i, ex boxed 799
- Linn Kaitia Pre, just back from Linn 599
- Linn UK100 power, ex boxed 299
- Linn Majik, ex, c/w remote, bargain Linn introduction 299
- Marantz PM7200, ex boxed 179
- Marantz PM66SE KI Signature, excellent with remote 149
- Meridian 518, as new boxed 499
- Meridian 205 Monoblocks 499
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- Musical Fidelity 3a Preamp/P150 Power, ex 449
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- Meridian 72/180 pre/power combo 799
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- NAIM NAC32.5 pre 179
- NAIM NAP140 Olive, boxed 399
- Nuance preamp c/w off board p/s, beautiful 249
- Primare A20 mk2, nr mint integrated 429
- Quad 66 pre c/w remote control unit 299
- Quad 606 Power amp 499
- Quad 306 Power amp, ex 299
- Quad 50 Monoblocks 179
- Quad 44 Preamp, 405 and 405/2 Power amps from 707, ex 549
- Quad 33/303, vgc for year fully serviced 199
- Radford STA25mk4, excellent 999
- Roksan Caspian M Series Poweramp mint unused 449
- Roksan Caspian M Series Pre/Monos 5 Star BARGAIN!!! Call
- Rothwell Indus pre and Reflection monos, ex boxed Call
- Rotel RC99S superb preamp with system remote 299
- Rotel RA1062 integrated, ex boxed 379
- Rotel RA03 integrated, ex boxed 349
- Rotel RMB1066, ex boxed 349
- Sugden AU41 Pre AU21 Power Call
- Sumo Artemis remote preamp, balanced options 299
- Unison Research S6 Integrated, mint boxed in cherry 999

### Speakers

- Acoustic Energy AE2, ex black 699
- Acoustic Energy Aegis EVO 3 in Maple as new 249
- Audiovector M3 Sig, active crossovers, new £4k+, amazing 1699
- AVI Neutron, cherry, ex 299
- AVI Positron Mk2 in Walnut Burr Call
- B&W CDM2SE 149
- B&W 602S2, ex in cherry, boxed 149
- B&W 602S3, vgc in black 149
- B&W 805S, boxed in cherry 849
- B&W 704, ex, boxed 949
- B&W CDM7NT, ex, boxed 749
- Celestion SLo6, excellent example of seminal standmount 349
- JM Lab Elektra 936, ex signature finish, superb 1599
- JM Lab Elektra 905, signature finish, sonic bargain 399
- KEF Reference 2 nr mint boxed 749
- KEF Q1, as new walnut 179
- Mirage FRx9, boxed in beech c/w active subs, megal 499
- Mission 752, in Rosewood 249
- Mission 753, in Rosewood 329
- Mission 75C, in Rosewood 179
- Monitor Audio Radius 270 as new in silver 349
- Monitor Audio GR10 nr mint boxed in cherry 449
- Monsoon Audio PFI1000 excellent, ribbon/dipoles 499
- Nbien NX6 Standmount ex, boxed 499
- Neat Acoustics Motive 3 Cherry, as new boxed 449
- Neat Acoustics Petite originals, vgc boxed 199
- Neat Acoustics Petite 3 SE c/w Ultimeat bass drivers 550
- PMC FB1+ ex boxed 849
- Proac Studio 150 649
- QUAD 111 Standmount, boxed new REDUCED 229
- QUAD 12L Standmount new REDUCED 299
- Revolver R33 ex dem, well reviewed bargain 249
- Ruork Prologue One, vgc in Rosewood 299
- Sonus Faber Concertino, stands available 349
- Spendor LS3/5a, in black 449
- Tandberg Studio Monitor Langel 399
- Triangle Comete ES, ex dem 299
- Usher Audio X719, ex dem 549
- WAD KLS9 kit, professional CNC cabs 199
- Wharfedale Diamond series, various from just 49

### Accessories/Systems

- Audioguest Python RCA 1m 179
- AVI S2000 Ref CD, DAC, Tuner, Pre & Monos - Save loads!!! 1199
- Chord Signature RCA 1m 299
- Cyrus - PSXR, ex boxed from 229
- JPW 204/200/208 - 5.1 Speakers ex display as new 399
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- TEAC A1/D11 TD, Amp/CD/Tuner 449
- TEAC DV200 DVD player and AG70 6.1 amp x/d save £150 329

### Analogue

- Ariston RD80, wood finish ex condition 149
- Audio Research PH3SE, nr mint boxed 1249
- Audio Technica AT1120 tonearm, excellent! 129
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- Audio Technica AT1120 tonearm, excellent! 129
- Clearaudio Emotion package, ex boxed bargain 379
- Electrocompaniet Phono stage, mm/mc, Lynwood p/s 399
- Goldring GR2 Call
- Goldring PA2 Phonobox as new 39
- Graham Slee Era Gold, as new 379
- Hadcock Integra, excellent unipivot, boxed (£750new) 399
- JKE Slate series 3/Mission774 rare as... 349
- Kishow Perception phono stage and p/s 479
- Linn LP12, early, RB300 379
- Linn LP12, Akito, Valhallo, boxed, ex 799
- Linn LP12, OL Advanced DC Kit Call
- Linn LP12, early model, fair condition 199
- Linn LP12, Lingo, Ekos 2 ex, boxed 1799
- Linn LP12, Akito, Valhallo, boxed 399
- Linn LP12, c/w K9 cart and LP12 armboard 399
- Linn Itok 12" 999
- Linn Ekos 2, ex boxed 899
- Logic Datum tonearm, ex boxed 149
- Michell Odyssey limited edition - last one!!! Call
- Michell Gyrodec Export/RB300/Goldring 1042 879
- Michell Synco, c/w Rega arm and Goldring cart 499
- Michell Transcriptors Reference Hydraulic/Fluid arm 649
- Mission 774 original arm 149
- MRM Source heavyweight suspended deck 499
- Oracle Delphi V, full version, turbo ps, as new 2749
- Origin Live Ultra deck with off board p/s SME cut 199
- Origin Live Aurora Gold ex dem 999
- Origin Live Silver as new 699
- Origin Live Encounter ex dem 699
- Origin LIVE OL1 c/w stub mod 129
- Pink Triangle LPT/RB250, the best I've seen 379
- Pink Triangle PT1 479
- Project Debut 2 in yellow! marked 69
- Project Debut 3 in green! As new 89
- Project Perspective, vgc c/w Goldring cart, bargain! 499
- Project Classic Cherry, ex c/w G1042 cart, bargain! 349
- Project Tube box, as new, boxed 229
- Rega P25, as new boxed 349
- Rega RB300, excellent 129
- Rega RB250, excellent 109
- Roksan Kerxes, ex in stunning rosewood, SME cut 499
- Roksan Radius 3, as new 699
- SME 3 boxed 299
- SME 3009, excellent boxed 249
- SME IV, ex 799
- Thorens TD160b boxed 199
- Thorens TD125/SME3009 349
- Thorens TD160b/Mayware vgc 249
- Thorens TD160 original, fair 399
- Tom Evans Microgroove, ex dem Call
- Townshend Elite Rock Mk2/Mission 774LC 499
- Transcriptors Skeleton/Vestigal 799
- Trichord Saturn, vgc 349
- Trichord Diato, ex 599
- Trichord Dino, as new black version 229
- Voyd Vaidi, c/w Hadcock Integra 799
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### CD PLAYERS AND DACS

- ALCHEMIST 38 upsampling cd player, boxed 850
- ARCAM CD92 BOXED 400
- AVANTAGE T1 cd transport, piano black finish 900
- AUDIO ANALOGUE MASTRO mk1 CD boxed 635
- AUDIOLAB 8800 transport and 8800 DAC, boxed 880
- AUDIOWITZ CD3 with Border Patrol psu 1250
- AUDIO NOTE DAC 1 SIG 500
- AUDIO SYNTHESIS TRANSCEND MK1 cd transport 400
- AUDIO SYNTHESIS DAC DECADE 1150
- COUNTERPOINT DA17/DA10 cd transport and dac, 20 bit filter 800
- DENSEN BA000 cd player with sumo 600
- LECTOR CD81 PLAYERS IN STOCK
- MERIDIAN 500 TRANSPORT AND 563 DAC 800
- MONARCH SUPERSAMPLER 1200
- MSB PLATINUM 3 upsampling dac, boxed 1500
- MUSICAL FIDELITY A3CD, boxed 400
- MUSICAL FIDELITY A3CD 400
- MUSICAL FIDELITY X-DAC HXCD 120
- NAIM CD1 cd player 600
- PASS LABS DIGITAL 1 dac, with volume control 1800
- PINK TRIANGLE LITAE CD PLAYER 800
- ROKSAN CASTAN mk2 CD silver 425
- SHANLING CD100, boxed 900
- SONIC FRONTIERS TRANSPORT 3 2000
- SUGDEN CD1 cd player, silver front 600
- THEIA PRO BASIC 2, dac, boxed 700
- THEIA PRO BASIC 3a, dac, balanced outputs boxed 850
- Z-SYSTEMS RQ0-1, DIGITAL EQ 3500 800

### TURNTABLES/ARMS/CARTRIDGES

- AUDIO TECHNICA AT-CL30 mc 200
- BENZ LP ebony mc cartridge 300 hrs 1000
- BOULDER MS11 PHONO STAGE 1150
- CARERA mc stage with 3 impedance choices 1350
- CYRUS Ae77 PHONO STAGE, black, boxed 350
- GRAHAM SLEE PHONO STAGES NOW IN STOCK
- GRIFFON HEAD AM 2 & PSU 1500
- HADCOCK GM242 cd hull silver wired, new 750
- LECTOR HYALINE PHONO STAGE
- LINN TONEARM CABLE UPGRADE, money back if you don't like it! 75
- MANTICORE NANTRA with OL wired and modded rega arm trade in offered 400
- MICHELL 5750 SE, new, decent 418
- MICHELL TENO ARM, UK sales only 418
- MICHELL HYDRAULIC REFERENCE, late version, smc 3000 imp arm 600
- ORION LIFE kit one modulus deck with rega arm and golding cartridge 400
- ORTOFON MC30 SUPREME 200-300 hrs use only, excellent 725
- ORTOFON KONTRAPUNKT A new boxed, 500
- ORTOFON ROHMAN, just retrofitted, boxed 600
- PINK TRIANGLE ANNIVERSARY with battery psu, sme cutout 1300
- PINK TRIANGLE FT100 with GRABO ARM 750
- REGA lono mc stage 125
- REGA PLANAR 2, with rh250 150
- RB300 INCOGNITO rewired 350
- REGA R8000 arm, argon live wired and counterweight mod 2000
- ROKSAN CIGANOEXTRE (piano black axes), SMC 309 1500
- SHINDO LABS uk sales only 1000
- SPE Y TONEARM 1000
- SUNNKO BLUE POINT SPECIAL, boxed 150
- TALK ELECTRONICS BREEZE 1, phono stage 150
- TECHNICS M10 MK2 in date plinth & BBC psu 700
- THORENS ID126 ELECTRONIC, no arm 200
- THORENS ID160 with thorens arm 100
- THORENS TO 468 & REGA RB250 arm 115
- TRICHORD DIABLO with base, ex DEM 750
- TRICHORD DINO, black case 400
- VAN DEN HULL MC1, just rebuilt, 450
- VAN DEN HULL MC10, just rebuilt, 450
- VOID the void mk1 modular, PSU FAULTY offers 1000
- WHEAT AUDIO 2.0 phono stage and reference psu NEW ON DEMO

### TUNERS, CASSETTE DECKS, REEL-TO-REEL, HEADPHONES ETC

- CARVER TE10 tuner 100
- CYRUS 7.5T fm tuner, silver, boxed 275
- DENON TU 660L tuner 80
- FANWAVE FT1A, back remote fm tuner 500
- LEAK THROUGHLINE 3 MONO, serviced 80
- MUSICAL FIDELITY F500 tuner 150
- MUSICAL FIDELITY X-CANSV3, mint boxed 250
- NAD 4172 tuner, boxed 80
- NAKAMICHI DR2, 2 head dual capstan nice 300
- NAKAMICHI ZX7 cassette deck, serviced, awesome beast! 550
- NAKAMICHI DRAGON, boxed 700
- PIONEER P91 fm tuner, no wooden side cheeks 150
- PIONEER CT91a cassette 250
- QUAD FM3 fm tuner 90
- QUAD FM4 brown 200
- REGA RADIO, boxed 75
- REVOL BT60 fm tuner, ALL OK 175
- REXON G36 3 track very nice indeed 350
- ROTEL BT940AX remote tuner 125
- SONY D77275 dab and fm tuner, champagne finish 75
- SONY TC777 reel to reel with dust cover 500
- STAX LAHRDA NOVA REFERENCE 8 SRMS energizer 750
- TEAC 6030S cassette deck, black boxed 350
- TEAC R-10001 reel to reel 400
- YAMAHA TC B00GL six slope cassette deck, 150

### SOLID STATE AMPS

- ACUPHASE 200 preamp, 25 years old but lovely 200
- ARCAM ALPHA 10 amp 350
- AUDIO ANALOGUE BELLINI mk1 preamp 400
- AUDIO ANALOGUE BELLINI mk2 DONIZETTI monos 850
- AUDIO ANALOGUE PUCCELLI SE, boxed 450
- AUDIO ELECTRONIC SUPPLY SE HOSFET power amp 1250
- AUDIO SYMPOH 10 graphic pre/amp 600
- AUDIOLAB 8800C, boxed 325
- AVANTAGE MONOBLOCKS STATEMENT 250, silver finish 2500 pair
- AVI INTEGRATED amp, original model 1500
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- AWI mk1 150 watt monoblocks 400
- BHISTON 0.58 preamp 275
- CABASSE POLARIS AM1000 monoblocks, boxed, as new 1250
- CAJON E20 integrated amp 350
- CARIN ME4 monoblocks 600
- CHORD PEBBLES, boxed 400
- CHORD SPH 1000B, boxed 1100
- CLASSE MODEL 30 preamp 500
- CYRUS THREE amp 250
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- CYRUS PRE POWER SPA, boxed 900
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- ELECTROCOMPANET org class A pre & poweramp, 1000
- EXPOSURE 11/12 PRE with mm/mc phono 900
- KRELL K57P preamp, serviced 500
- KRELL K51.100 power amp 900
- KRELL K51A100 power amp 2000
- LINXVGA POWER AMP 200
- LINLEY 24000 100 watt transistor power amp! 700
- LUXMAN L2090 power amp, boxed lovely 700
- MAGNUM 250 pre/amp, with mm and mc inputs, boxed 375
- MAGNUM SE CLASS A integrated 400
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- MANTICORE M501 monoblocks, UK spec, 4 hours use, mint boxed 500
- METATAS CHARISMA PREAMP, chrome finish 1525 400
- MICHEL ARGON/HERA line level preamp 325
- MICHEL ALLECTO MONOBLOCKS 1000
- MUSICAL FIDELITY PRE 8 with MA65 monos, chrome 575
- MUSICAL FIDELITY X-A1 amp 280

### MUSICAL FIDELITY DR THOMAS, the big one

- MUSICAL FIDELITY A3 integrated amp, boxed 1200
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- MUSIC FIRST AUDIO PASSIVE MAGNETIC pre (TVC) home demo, 1350
- MUSIC MODEL 3 preamp 1150
- NAIM NAC 102Z NAP 180 1500
- NAIM NAP 250.2 boxed 1500
- NAIM NAC 327/110 pre/power 200
- NAIM NAIT 3 integrated amp, line only 250
- PASS X0 preamp 3 box 3000
- PIONEER C90 preamp, reference series 400
- PIONEER M73 power amp, reference series 500
- PIONEER REFERENCE AMP D90 450
- PLINIUS 8100 integrated amp, boxed, silver, 400
- PRIMAIRE A20 amp 400
- QUAD 77 AMP/77 CD, boxed 400
- QUAD 34/405 MK1 with dn socket inputs 330
- YARD 66 very nice, with remoted 606 power 250
- REGA CUBA PREAMP 750
- REGA EXON 3 monoblocks, boxed 600
- SHI AUDIO CELESTE PW4000 integrated amp 550
- SONOGRAPH 250 pre/power - made by Conrad johnson 1200
- SUGDEN AS18A148 power org model late 1940s class A power amp 400
- SUGDEN A21P 600w, mint, power amp version 500
- TALK ELECTRONICS HURRICANE 2 power amp 250
- TALK ELECTRONICS HURRICANE 3 preamp with WHIRLWIND 2 psu 600
- TECHNICS SU-C1000 preamp, battery powered XTE PRE1 400

### LOUDSPEAKERS

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- AUSON ONES, fully refurbished 1200
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- AURUM CANTUS LESURE 2 SE 300
- BEAUHORN B2 MK 3 speakers with latest drive units & vbra-plane plinths, metallic blue 1500
- BKS 107 MK2 wood sides boxed 1000
- BES 107 MK2 SUPREME, GRANITE 1200
- CABASSE FARELLA 400, boxed 450
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- CELESTION DITTON 66 speakers 450
- CHARIO AUDIO/SPR solid walnut, excellent punchy standmounters 775
- CHRYSLER AUDIO/CDR CAL CAR 400
- CURA 10 speakers stand mount 400
- DIAPHRAM BARIAS speakers 500
- DIESEL SOLITAIRE, black boxed pair 1000
- DYNAMADIO CONTOUR 3, floorstanders, need powerful amp 1250
- DYNAMADIO CONTOUR 1.8 mk2, floorstanders, boxed 1050
- HALES REVELATION 2, 2000 new 650
- HYPERION HPS-930 in stock home demo available 3750
- ICON AUDIO ICONPHAC, upgraded with PMZC, boxed 700
- INFINITY MODULUS, mint black ribbon hybrids, boxed with stands 800
- JAMO CONCERT 11, cherry, boxed 1000
- JBL L149 with way decaje series nice 900
- KEF Q35 speakers, black 200
- KEF Q55 speakers, black 400
- KEF Q54.2 rosewood, boxed 450
- KEF REF 105 mk1, walnut 400
- KHARMA 3.0 speakers, 2000
- LINEMUP granite ribbon speakers, very small boxed superb treble 1000
- LINN SOBARIAS rosewood DHS serial# 005502, with stands 450
- LINN KELEON with ku-stone stands, black 275
- LUXMAN LX77, like Yamaha mk1000, japanese 3 way in heavy cabinet 250
- M8X UK OD SUBWOOFER 400
- MISSION 713 black, boxed 700
- MISSION 714 dark rosewood 250

### MISSION 752, light oak

- MISSION M73, black 125
- MONITOR AUDIO S8 floorstanders 400
- MONITOR AUDIO SILVER 9P floorstanders, boxed 500
- NAIM SBL mk2 beech loud 900
- PROSOL ALBATROSS (Dantax) speakers 1100
- PROSOL RESPONSE 1 in tablette cabinets with external crossovers 300
- PROAC STUDIO 100, mahogany 500
- QUAD ESL 57 pair, good one pair, black grilles, close numbers 700
- REFERENCE 3A DA CAPO ROTAL VIRTUOSO new boxed 2750
- REGA RP, maple, boxed as new 1400
- REL 0150E, boxed, entice 275
- REL STORM, boxed 500
- ROKSAN ROK 1, boxed 575
- ROKSAN ROK L, boxed 350
- RUARK PALADINS II, boxed 400
- RUARK SLIO 400
- SMELL K, boxed, BLACK ASH 225
- SMELL K, black, mint & foundations stands 375 pair
- SPENRO S3, boxed 1/3 3/4 wobble 1000
- TANNOI WINDSOR, 10" dual and 12" bass, drive units just rebuilt 1000
- TANNOI GREENWICH, baby prettier range 550
- TANNOY CANTERBURY T5 PRESTIGE RANGE 200
- VALENOY SPL-800r AVAILABLE FOR HOME DEMO

### VALVE AMPS

- ART AUDIO VPI PRE 950
- ART CONCERTO power amp 750
- AUDIO ELECTRONIC SUPPLY (cary) AE2 valve pre with phono stage 350
- AUDIO INNOVATIONS 2nd AUDIO MONOBLOCKS, mk 3 BOXED 950
- AUDIO INNOVATIONS 800 ANNIVERSARY power amp, boxed 700
- AUDIO INNOVATIONS 1000 mk1 50 watt monoblocks 800
- AUDIO NOTE M-2E0D line preamp 100
- AUDIO NOTE K4 6V6 valves, 400
- AUDIO NOTE GTO SE phono 500
- AUDIO RESEARCH VT130, balanced input cost 6000 when new only 2000
- AUDIO RESEARCH L58 mk1/mk2 700/800
- AUDIO RESEARCH L5 400
- AUDIO RESEARCH SP9 upgraded to MK3, boxed 900
- AUDIO RESEARCH SP9 mk2 700
- AUDIO PREMIER HEAD AMP 2 BOX 500
- AUDIO APOLLON single ended 1st edition monoblocks, 25 watts 2500 pair
- AUDION STYLING phono stage, boxed 500
- CADENCE 100watt monoblocks 800
- CHESS REFERENCE 2 box preamp with mm phono 500
- CONRAD (JOHNSON) P1000 450
- CONRAD JOHNSON M775 power amp 800
- CONSONANCE PS50 3000, approx 20 watts monoblocks 1100
- COPLAND 301 valve preamp with phono 500
- COPLAND 401 integrated valve amp 35 watts 750
- CR DEVELLOPMENT'S CALYPSO 12 watts integrated amp 350
- CRAPT SERIES V, chrome, boxed 575
- EAR 509 monoblocks, mk2, serviced and new valves, boxed 1750
- EAR 509 power amp (mk1 integrated) 800
- EAR 844 preamp, boxed 1250
- GAMMA GEMINI integrated amp 375
- GAMMA SPACE REFERENCE integrated 3000 amp 1000
- LEAK STEREO 20 fully serviced 400
- LIMLEY LIT 5 LINE PRE & ST70 POWER AMP chrome, c 1400
- LIMLEY LIT 1 line preamp & ST70 power amp 1000
- PAPWORTH TVAL integrated 1000
- QUAD IIS pair with knob VALVES 400
- ROGUE TEMPEST integrated amp, boxed 700
- SHANLING MONOBLOCKS, boxed 1100
- SONIC FRONTIERS LINE 3 2 box preamp 2000
- SONIC FRONTIERS POWER 2 power amp 2000
- TRILIGHT 948 power amp 800
- UNION RESEARCH MYSTERY ONE preamp 800
- UNION RESEARCH UNICO mk2 integrated amp 550
- VIVA SOLISTA Z2 WATT remote integrated amp 7000

**0% FINANCE AVAILABLE FOR UP TO 3 YEARS ON SELECTED ITEMS. SUBJECT TO STATUS. CONDITIONS APPLY.**

**SPEAKERS**

Living Voice OBX-R2 speakers  
Dynaudio Audience 7 speakers with stands  
Elac CL330 Jet speakers with stands  
Origin Live OL-2 speakers  
BKS 107 Supreme speakers  
Mordaunt Short MS815 speakers  
BKS Hybrid 107 Supreme speakers  
KEF Concorde speakers

£2800 Kora Triode 100 SB Monoblocs  
£395 Quad II Amps with 22 Pre and Tuner  
£995 Mark Levinson 383 Integrated Amp  
£250 Jeff Rowland Model 5 Power Amp  
£1495 Mark Levinson 27.5 Power Amp  
£175 Classe A CA201 Power Amp  
£1495 Arcam Alpha 8R Integrated Amp  
£150 Arcam Alpha 8P Power Amp  
Cyrus 2 Integrated amp  
Mark Levinson 431 amp X-Demo  
Audio Research D130 Power amp  
Perreux 200p int amp  
Audionote Neiro mono-blocks  
Parasound HCA 1000A amp  
Audionote Keron mono's (new £28000)  
Advantage integrated amp

**PRE-AMPS:**

Rotel RC995 Pre Amp  
Conrad Johnson MC-10 Pre Amp  
Musical Fidelity 3A Pre Amp  
Naim Nac 92 with Nap 90/3 amp  
Proceed PAV pre-amp

£295  
£395  
£175  
£995  
£995

**AMPLIFIERS**

Mark Levinson 11 & 12 Pre/Power Amp  
Ayre AX-7 Integrated Amp

£1695  
£1495

**CD PLAYERS & TRANSPORTS**

Micromega Drive 3-DAC1  
Denon DCD 590 CD Player  
Sonic Frontiers Transport 3 (5K new)  
Denon DCD 590 CD Player  
Sony CDPN41 CD Player

£3500 Pioneer PD-S502 CD Player  
£595 Counterpoint DA-10E DAC  
£2995 Roksan Attezza with ROC DA1 dac & PSU  
£1995  
£1695  
£1995  
£195  
£195  
£175  
£3750  
£995  
£1095  
£5495  
£345  
£11995  
£995

**MISCELLANEOUS**

Transparent Music Wave+ 10-ft pair £425  
AVI Tuner £675  
Accuphase P1200 Mains regenerator £3500  
Hitachi FT5500 MK II Tuner £125  
Technics ST-GT550 Tuner £65  
Winds ALM-01 Stylus Gage (New) £525  
Sony ST-SE570 Tuner £60  
15 Foot Transparent Music Wave Super single mono run. £795  
Zerodust Stylus cleaner (new) £25  
Zerodust CD & lens cleaning cloths (new) £17.50

**TURNABLES, CARTRIDGES & TONEARMS**

Trichord Delphini Phonostage with PSU £595  
My Sonic Eminent (EX review) £1995  
£60 Audio Tekni Cartridge with step up £2450  
£1995 Blue Pearl (the prototype) Turntable with Graham Phantom arm £9995  
£60 My Sonic Eminent cartridge (new) £2750  
£60 Project 9c S carbon fibre silver wired arm £375

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& COLIBRI-R RCA  
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Established 1988

I have the following items for sale. This is an assortment of ex demonstration (ED) or secondhand (SH) equipment. Most of the ex dem pieces will carry a warranty and are generally in pretty much as new condition. Secondhand items too are generally in as new condition. Please call to ascertain exact details. Unless otherwise stated items will be in original manufacturers packaging. If an item needs to be sent then the carriage costs will be borne by the buyer.

1. SME Model 20 Mk 1/V/Transfiguration. SH. One owner from new. £2950. No box.
2. SME Model 10. Brand new. Still in sealed box. Cancelled order. Special Price £2495.
3. Tannoy Dimension 12 loudspeakers. Cherry. ED. Virtually unused. £4500.
4. Innersound Eros 111 semi-active hybrid Electrostatic speakers. Maple side cheeks. Complete with 600 watt bass amp. Brilliant, Brilliant speakers. ED. (New price £7500) £5000.
5. Sugden Masterclass AA mono blocks. 150 watts Class A. Black. ED. £4500.
6. Sugden Masterclass pre amp. Black. ED. £1595.
7. Sugden Masterclass phono stage. Silver. ED. £950.
8. Tom Evans Vibe line pre amp. ED. £2700.
9. Unison Research 5R1 hybrid valve amp. ED. £975.
10. Complete Chord Choral system including rack. Comprises Blu cd transport, DAC 64, Prima pre amp and Mezzo 50 power amp. Silver. ED. (Price new £11935) £9500.
11. Chapter Audio Verse 11 (NOT Plus) power amp. ED. £2250.
12. Roksan Kandy KA-1 Mk 11 Integrated amp. ED. £225.
13. Roksan Caspian CD player. SH. Some minor marks. £450.
14. Densen Beat B-400 Plus (DAC upgrade) cd player. ED but never used! Black. £950.
15. Densen Beat B-200 pre amp. ED but never used. Black. £725.
16. Densen Beat B-340. Power amp. New. Albino. £1500.
17. Densen Gizmo. I have two of these - both brand new in boxes. £150 each.
18. Moon IS integrated amp. Black. No remote. Remotes are available separately from importer or me. ED. £1950.
19. LFD LS1 lineage pre amp. Black. SH. No box. £375.
20. Plinius SA102 power amp. Black. ED. £2995.
21. Plinius M8 pre amp. Black. ED. £1600.
22. Red Rose Spirit amp. ED. £695.
23. Red Rose Rosette amp. ED. Brilliant - especially partnered with R3 speakers. £1250.
24. Red Rose R3 speakers. Maple. SH. £1750.
25. Red Rose R3 speakers. Maple. ED. £1995.
26. Red Rose Rosebud 11 speakers. Piano Rosewood. ED. £2250.
27. Red Rose Spirit speakers. Rosewood. ED. £650.
28. Red Rose Spirit speakers. French Afrosomia. SH. £700.
29. Proac Tablette 2000 speakers. Walnut. ED. £425.
30. Acoustic Energy Reference AE1 speakers. Gloss Black. With stands. ED. Very little use. £1850
31. Musical Fidelity A3CR pre amp. Silver/Gold. ED. £650
32. Musical Fidelity A300CR power amp. All Silver. ED (unused) £1500.
33. Musical Fidelity A3.2 Integrated amp (last model) Unused. £650.
34. Consonance J5000 Plus 300B integrated valve amp. ED. £1095.
35. Consonance M100 Plus 300B integrated valve amp. ED. £1150.
36. Wadia 301 Mk 1 cd player. Variable output. Silver. ED. £2250.
37. Audio Synthesis Transcend Decade cd transport. Still up there with the best. ED. £2000.
38. Audio Synthesis Desire Decade power amp with Black Gate capacitor upgrade. ED. £2250.
39. Avid Diva turntable. No arm. ED. £975.
40. Audio Analogue Maestro. An absolute monster of an integrated amp. ED. £1995.
41. Audinote Meishu Line 300B valve amp. New 300Bs. One of my all time favourite amps!! ED. £1800.
42. DNM 3B Twin 2 box pre amp. SH (Cost new £3000) £1350.
43. Exposure XX111 pre amp. New. £995.
44. Exposure XXV111 power amp. New. £995.
45. Exposure XX11 CD player. New. £995.
46. Exposure 2010S CD player. New. £350.
47. Exposure 2010 (Not "S") power amp. New. £275.
48. Exposure 2010 (Not "S") integrated amp. New. £325.
49. Consonance Cyber 50 valve line pre amp. Mahogany top. ED. £725.
50. Consonance Cyber 40 valve phono stage for m/m and m/c. Cherry top. ED. £650.
51. Living Voice Auditorium speakers. Cherry. Black plinths. ED. £1250.
52. Audio Synthesis Passion phono m/c phono stage. £795.
53. Audia CD One cd player. Black/Silver. ED. £2750.
54. Audia Flight pre amp. Black/Silver. ED. £2750.
55. Audia Flight 50 power amp. Black/Silver. ED. £3000.
56. Vienna Acoustics Haydn speakers. Rosewood. ED. £400.
57. Vienna Acoustics Mozart speakers. Beech (one grille is broken) ED. £850.
58. Vienna Acoustics. Beethoven speakers. Black Ash. ED. £1500.
59. Anthony Gallo Reference 3 speakers. Black/Silver. ED. £1800.
60. Harbeth HL-Compact 7ES speakers. Birds Eye Maple. ED. £950.
61. Harbeth HL P3E5 '11 speakers. Cherry. ED. £550.
62. Michell Technodek/RB250 turntable. New. £475.
63. Talk Electronics Thunder 3.1B cd player. Fixed output. Silver. ED. £1450.
64. Talk Electronics Hurricane 3.1B pre amp. Black. ED. £1350.
65. Talk Electronics Tornado 3.1B monoblock 200 watt power amps. Black. ED. £2150.
66. Veritas "20" speakers with matching stands. Piano Black. ED. £995.
67. Veritas H3 Floorstanding folded horn speakers. 102db sensitivity Gloss Black. ED. Paul Messenger rated these as one of his products of the year when he reviewed them (cost new £5995) £3500. No boxes.
68. Totem Model 1 speakers (not Signature version) Cherry. SH. £750.
69. Chord Co Signature interconnect cable (RCA) 1m. ED. £300.
70. Chord Co Signature interconnect cable (RCA) 1m. New. £350.
71. Alon 1 speakers. Light Oak (cost new £1695) ED. £650.
72. Alon Petite loudspeakers. Walnut (cost new £1295) ED. £600.
73. Origin Live Encounter tonearm. Little use. ED. £650.
74. Proac CC1 Centre channel speaker. Mahogany. Slightly marked. ED. £350.
75. PS Audio P600 Multiwave mains regenerator. ED. £1995.
76. Audionote ANE/SpX speakers. Light Oak. ED. With dedicated MAF stands. £1500 Incl stands.
77. Audionote ANK/SpX speakers. Walnut. SH. £550.
78. Audionote P Zero 8 watt push-pull valve mono block power amps. Never used!! £400.
79. Audionote AZOne speakers (the original design) Never used. £250.
80. Proac Response 1.5 speakers. Black Ash. ED. No boxes. £750.
81. Meadowlark Swift speakers. Light Oak. ED. £550.
82. Philosophy Audio Gold Series speaker cable. 5m Bi Wire terminated with banana plugs. This cable is one of the very very best. ED (Cost new £1875) £1200.
83. Audionote AN-Vx Interconnect terminated with AN-P Silver phono plugs. 2m set. ED (cost new £1024) £650.
84. Musical Fidelity X-80. New. £275.
85. Musical Fidelity X-150. New. £495.
86. Musical Fidelity X-PreV3. New. £495.
87. Musical Fidelity X-150. ED. Never used - displayed only. £450.
88. Musical Fidelity X-80. ED. Never used - displayed only. £250.
89. Wheaton Triplanar MkV11 tonearm. With fly lead terminated with RCA phono plugs. Brand new and unused. Complete with manual and gauges. £2750.
90. Pathos Logos hybrid valve amp. ED. £2150.
91. Shanling DDT100 valve cd player. ED. £1250.
92. Isol-8 Powerstation 200 mains regenerator. 2 mains outlets. Perfect for cd players, phono stages and pre amps. Not for big power amps. ED. £995.
93. Quad ESL 63 electrostatics. Still a world class speaker. This pair are in Walnut, 25 years old but served by Quad within the last two years and in perfect working order. No boxes. SH. £750.

Lehmann LFD Living Voice Lyra McIntosh Merlin Michell Monopulse Musical Fidelity Music Maker



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## Ex-demo and second hand items

	Was	Now		
<b>Digital</b>				
Audio Synthesis DAX Decade 22 Bit Balanced S/H	3500	1799	JM lab Chorus 714s Style x-demo	479 349
Audio Synthesis DAX Decade 22 Bit Single ended S/H	2999	1499	JM lab Electra 927 be Anniversary last pair! New	2800 2400
Densen Beat400 XS x demo	2600	1749	JM Lab Sib XL x5 Grey S/H	1000 499
Densen Beat 400 + x demo	1400	879	Martin Logan Aeon Oak S/H	3189 1749
Krell SACD Standard x-demo	3998	2995	Martin Logan Aeon I Oak BNIB	3189 2400
Meridian 206 CD Player S/H	N/A	379	Martin Logan Clarity Cherry 4 months old S/H	2498 1899
Meridian 200/203 Transport-DAC S/H	N/A	499	PMC FB1+ Black new tweeter upgrade	1900 899
Musical Fidelity Nu Vista CR 3D Player S/H	2999	1699	Pen Audio Rebel 2 x-demo	995 699
Orpheus labs One DAC with anagram x-demo	3150	1799	Pen Audio Charm Active Subwoofer x-demo	1995 999
Orpheus labs Zero CD player x demo	4600	2999	Sonus faber Ironwood Stands S/H	498 279
Primare V10 CD/DVD Player x-demo	795	499	Sonus Faber Leather Stands, fixed height, x-demo	310 199
Rega planet CD player x-demo	498	379	Spendor S3 Cherry S/H	599 379
Sugden masterclass CD x demo	2700	1999		
Sony CDP X940 SACD Player S/H	549	249	<b>Cables and Accessories</b>	
Theta Generation V Balanced S/H	6290	1299	Atacama 50cm Sand filled stands S/H	179 69
Theta Pro Basic II DAC with Oscom/Balanced S/H	2990	695	Audio Note 2x5ft bi wired AN Spa Speaker cable S/H	599 299
Wadia 861B x-demo	6500	4999	Audio Note 1m ANVx AES/EBU balanced Digital S/H	165 99
			Cogan Hall Intermezzo EMD 0.75m RCA S/H	N/A 99
<b>Analogue</b>			JPS AC+ Power Cord 2.0m UK S/H	429 199
Crown Jewel Ltd Edition MC Cartridge 100hrs	2650	1499	Kimber Illuminations DV75 1.5m dgital 75ohm S/H	165 79
Clearaudio Emotion TT package x-demo	655	499	Kimber Monocle X 2x8Ft WBT Spades Speaker cables S/H	587 295
Conrad Johnson EV1 Phono stage x demo	1650	995	Kimber Select KS1121 0.5m RCA Interconnects S/H	596 299
Dynavector DV10X5 MC S/H	299	169	Madrigal MDC1 1m AES/EBU 110ohm Digital Cable new boxed	420 249
EAR The Head Transformer S/H	N/A	299	NBS Pro Balanced 4ft interconnect S/H	1799 499
Graham Slee Elevator EXP MC step up S/H	510	320	Nordost Shiva 2m mains cable x-demo	220 175
Kuzma Stabi/Stogi S Turntable New & Boxed	N/A	1999	Siltech FT12 G3 2x0.8m Silver Speaker cable x-demo	540 275
Rega P25 Maple S/H	649	399	Siltech LS188 Classic 2x3m Silver & Gold Speaker cable BNIB	3950 2995
Rega P2/Bias Turntable S/H	270	179	Siltech Signature G5 0.75m AES/EBU Balanced Digital Cable S/H	530 249
Roksan Xerxes Alphason Xenon XPSII S/H	N/A	549	Siltech SPX20 1m IEC-Shuko Mains cable x-demo	199 95
Trichord Dino+ MM/MC 2 box S/H	580	399	Sound Organisation Record Rack with CD insert S/H	N/A 40
			Spectral MI330 2m RCA BNIB	580 349
<b>Preamplifiers</b>			Spectral MI-350 20ft Interconnect RCA-RCA x-demo	1400 799
Audio Analogue Bellini Remote Preamplifier X-demo	625	399	Spectral Z Chord III 2m mains cable x-demo	999 499
ATC CA2 Preamplifier S/H	749	399	Transparent Music Link Ultra 1m RCA-RCA S/H	998 499
Audio research LS11 Hybrid Preamplifier S/H	1798	649	Transparent Music Wave Super 2x 4.62m x-demo	2479 1499
Audio Research LS16 Valve balanced preamplifier S/H	2999	1799	VDH CS-122 HYBRID 2x3m pair Speaker cable ex-demo	172 85
Conrad Johnson PV10BL valve Preamplifier x-demo	1299	799	Western Electric 300b Valves 1Pair NEW	650 549
Conrad Johnson PV14L Remote controlled valve x-demo	2399	1750		
Conrad Johnson Premier 18LS x-demo	4000	1999	<b>Tuners &amp; Tape decks, power supplies</b>	
Convergent Audio CAT SL 1 Signature Black S/H	6000	2299	Densen Beat 800 AM/FM Tuner x demo	850 599
Krell KRC HR preamplifier S/H	6898	2499	Magnum Dynalab FT101A Etude FM Tuner S/H	1250 599
Orpheus Two Preamplifier x-demo	3200	1999	Magnum Dynalab FTR remote/Tuner for Etude S/H	395 199
Sugden masterclass Preamplifier x-demo	2300	1599	Marantz DVD400 DVD Player S/H	299 99
Spectral DMC 30s Reference Preamplifier S/H	7600	4999	PS Audio Powerplant 300 with multiwave x-demo	1650 899
			Rega radio 3 Silver X-demo	398 249
<b>Amplifiers</b>			Rotel RT 950BX Am/FM Tuner S/H	N/A 99
Audio Analogue Donizetti Mono Power Amplifiers X-demo	1050	599	Sony MDS JB890QS Mini disc S/H	299 99
Audio Research CL60 Re Built S/H	N/A	1299	Sugden R21 AM/FM Tuner x-demo	875 599
Audio Research VM220 Valve mono Amplifiers x-demo	9000	7499		
Audio research VT100MKIII Valve Power Amplifier S/H	6400	3999	<i>Suppliers and installers of High Quality Audio Systems</i>	
Bel canto EVO2 GenII x-demo	2899	1899		
Conrad Johnson MV60 SE Valve Amplifier S/H	2500	1895	47 Laboratory • Living Voice	
Conrad Johnson Premier 350SA x demo	8000	5999	ATC • Lyra	
Cyrus2 / PSX Amplifier PSU S/H	N/A	229	Audio Research • Magnum Dynlab	
Cyrus 8vs Silver Integrated S/H	850	579	Cardas • Mark Levinson	
Cyrus Q Power Silver S/H	499	275	Clearaudio • Martin Logan	
Densen Beat 340 x-demo	1800	999	Conrad Johnson • Mimetism	
Densen beat 350 monos x-demo	5200	3999	Copeland • Nordost	
Densen beat300xs x-demo	1800	999	Crystal Cables • Primaluna	
ECS EA1 Mono Amplifiers (pair) S/H	6500	2999	Dartzeel • Primare	
Electrocompaniet AW120 Dmb Stereo Power Amplifier S/H	2499	1399	dCS • ProAc	
Electrocompaniet AW120 Dmb Stereo Power Amplifier S/H	2499	1099	Densen • Rega	
Electrocompaniet AW220 Stereo Power Amplifier S/H	1499	749	DNM/Reson • Siltech	
Krell FPB700cx Class A Power Amplifier x-demo	15989	9995	Electrocompaniet • Sonus Faber	
Orpheus Three power amplifier x-demo	2995	1799	Finite Elemente • Sugden	
Pathos Logos valve Hybrid X-demo	2750	1799	Jadis • Transparent Audio	
Pathos Model One Version II x-demo	1299	879	Koetsu • VPI	
Spectral DMA100s Amplifier x-demo	4850	2250	Krell • Wadia	
Sugden masterclass monos x demo	6600	4999	Kuzma • Wegg 3	
			Lavardin • Wilson Audio	
<b>Loudspeakers</b>				
ATC Active SCM10A 2 x-demo	1650	1199		
ATC SCM12 Cherry S/H	1000	649		
Audio Physic Yara Floorstander x-demo	999	749		
Audio Physic Yara Monitor Cherry x-demo	549	399		
Audio Physic Spark 2 maple X-demo	1699	1199		
Dynaudio Crafft 2 way Monitors Rosewood S/H	2750	1295		
JM Lab Micro Utopia Classic x-demo	4700	3750		

Midland Audio X-change are looking for Audio Research, Krell, Mark Levinson, Naim Audio, SME, Wadia.

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CD: Accuphase, Audio Synthesis, Bel Canto, dCS, Resolution Audio, Wadia. Vinyl: Basis, Clearaudio, DNM, Graham, Michell, Sumiko, Transfiguration.

Amps: Advantage, CAT, DNM, Gamut, Spectral.

Speakers: Audio Physic, NEAT, Verity Audio. Tuners: Magnum Dynalab. (Credit Cards Accepted).

### V AUDIO

HiFi Consultants: 36 Druid Hill, Stoke Bishop, Bristol. BS9 1EJ. Tel: 0117 968 6005. ATC, AVI, Alon, ALR Jordan, Audio Analogue, Avid, Black Rhodium, Electrocompaniet, Eslab Digital Amps, Harman Kardon, Infinity, Jamo, Lyra, Origin Live, Opera, Ortofon, PS Audio, Ruark, Michell, REL, SME, Sugden, Townshend, Triangle, Unison Research Valve Amps, VPI. Specialists in Video Projectors by SIM2, Infocus, Sanyo; screens by Stewart, Draper, Da-Lite, Owl, and Amps/DVD's by Harman Kardon etc. Demos by appointment only. Home trial facilities. We are not a shop.

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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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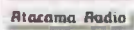
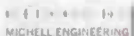
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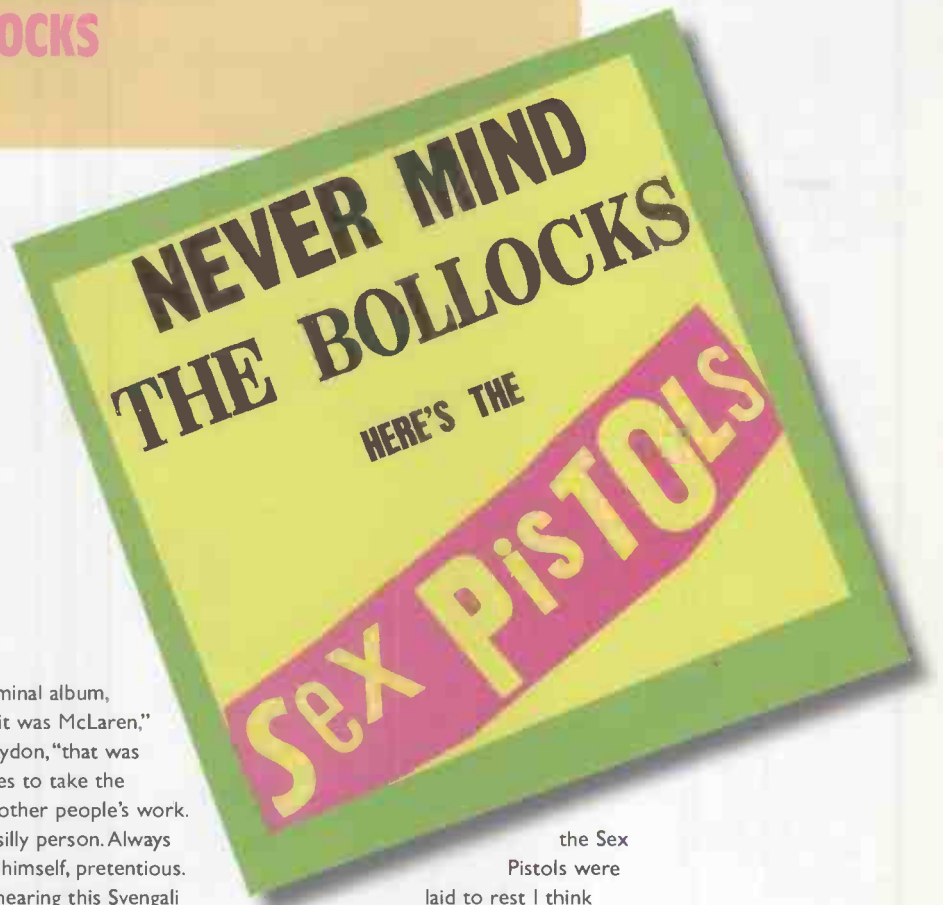
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# THE SEX PISTOLS

## NEVER MIND THE BOLLOCKS

### 1977



**T**he first incarnation of the band, without Johnny Rotten, was The Strand (in appreciation of Roxy Music and their 1973 hit of the same name), then The Swankers and, after meeting Malcolm McLaren, The Sex Pistols.

"The Sex Pistols happened by virtue of my effete, cavalier methods of being a shop owner and haberdasher on the King's Road and stopping kids stealing trousers out of my shop," said McLaren. "[The shop] was intriguing for a generation of disaffected beings who decided that they couldn't stand the thought of standing in that crowd any more, looking at those arena rock bands. [They wanted] to have a go themselves."

Sex Pistol Glenn Matlock found himself working in McLaren's shop, on occasion, "Even before John was in the band we had a spirit about the band. It mainly came from Steve (Jones) and then hanging out at Malcolm's shop. Even then, before we started the band properly, we thought that we were 'where it was at' – and everyone else was past it."

What was needed, however, was for someone to put that feeling into words – enter John Lydon (aka Johnny Rotten). He met the rest of the band in 1975 after being spotted wearing a 'I Hate Pink Floyd' T-shirt. Lydon was wearing the safety pin get-up even then – a major annoyance to the flappy flair brigade.

"I went out to sell Johnny Rotten – someone who couldn't sing – and a band who couldn't play," declared McLaren. Although, not everyone give Malcolm the credit for the band

or that seminal album, "None of it was McLaren," retorted Lydon, "that was me. He likes to take the credit for other people's work. He was a silly person. Always too full of himself, pretentious. You keep hearing this Svengali nonsense – it annoyed me very, very much." Ah, politics. The band signed to EMI in 1976 and then, in 1977, Virgin, where the album was released.

'Never Mind' is a truly great rock album, even placing the politics and chaos to one side. 'Anarchy In The UK', the band's first single, for example, was explosive, as McLaren explained, "We only might know three chords but we have one fabulous word – and that's Anarchy. It's the attitude and, if you don't like it, run for cover because we're coming to get you."

Matlock revealed that the impetus for Anarchy derived from a Faces 12-bar song called 'Have Me A Real Good Time'. The band started jamming, using that song as a basis, which then metamorphosed into 'Anarchy...'. The lyrics, from Lydon, were inspired by the album's cover artist, Jamie Reid, who had political Situationist Manifesto pamphlets in which words like 'anarchy' were floating around. Lydon picked up on the flavour of the words, moulding them into his own diatribe, "I wrote the words in twenty minutes, straight off the top of my head," said Lydon. "It's not so much what you say but how you say it. That's what matters. We didn't believe in poetry."

The album and the band took the world and music by storm, "When

the Sex Pistols were laid to rest I think people were still recovering from shock," declared McLaren. And boy did the band die – imploded, more like. Touring the USA to publicise the album, now without Matlock but with Sid Vicious, the tour only lasted fourteen days before the band broke-up. The Sex Pistols took just eighteen months to help change the face of music forever. They didn't do it on their own – despite what the music press will have you believe. The Ramones were arguably more influential on a world stage and The Clash broke more social and musical boundaries. Yet, the Pistols were a musical force and highly influential. Above all, they sounded English. The band could only have derived from England unlike their fellow, surrogate, Yankee-Brits, the 'Stadium Bands' – more imitations than the real thing.

As far as finding the 'best' version of the album itself? Well The Sex Pistols and 'audiophile' are oxymoronic. However, if push comes to shove, vinyl junkies need to hunt down the original UK vinyl release. The first edition came with a free fold-out colour poster, and a one sided 7" single featuring 'Submission'. The album was then reissued with 'Submission' which was added to the track listing. It has remained the same ever since. The best CD version, the Virgin edition released in 1985, contains the extra track. **PR**



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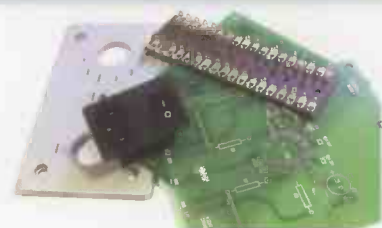
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**FOR SALE. Audiolab 8000C**  
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**WANTED: QED Speaker stands.** Tel: 020 8262 7568 (evenings) (Nov)

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**DNM 3B two box twin power supply pre amp** vgc sounds superb. Replacement model would cost £4500. Sensible offers please. Tel: 01634 307 301 or Email: [trevorguern@blueyonder.co.uk](mailto:trevorguern@blueyonder.co.uk) (Sep)

**TWIN CASSETTE Deck,** Technics M222, £15. Kef K6? baffle in mahogany cabinet, £5. Wharfedale RS10DD speaker, £4. Goldring GL78 turntable, £10. Avo Model 8, £10. Akai X150D tape deck, £25, gwo. Tel: 01462 712 604 (Sep)

**ROKSAN TABRIZ tonearm,** boxed with instructions, £100. Ringmats 330 MkII XLR and Anniversary together £35. Thorens TD160 with arm and cover, £100. Buyer collects. Tel: 020 8590 8530 (Ilford) (Sep)

**UNISON RESEARCH S6** mint condition £875 ono. Klipsch KG 4.5 vinyl black £160 ono. Teac VRDS T1 transport £140 ono. 5 tier Target rack, black, £50 ono. 01226 741 285 or 07734 208 071 (Sep)

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**BRYSTON 4NRB ST power amplifier,** £1195. Bryston BP25 pre amplifier (MC phono stage), £795. XLO Signature AES/EBU interconnects (x2) 1m, £150 (boxed as new condition, 15 years warranty remains). Tel: 01636 830 944 or 07979 536 753 (Sep)

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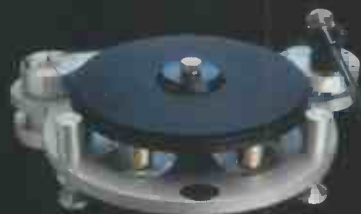
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# NEXT MONTH

## SALE OF THE CENTURY!

After the excess of this month's ultimate loudspeaker issue, October's Hi-Fi World comes back to earth with a bang! Next month is a veritable extravaganza of affordable audiophile kit. Telephone number price tags will not gain entry to the issue – if you're over £1,000, you're not coming in...

Of course, it's nice to surround yourself with lottery-winner systems, but you'd be amazed how good an extremely well honed budget set-up can be. The secret's in the synergy, which is why October's supertest puts three one make budget CD/amp combinations together, and our reviewers show how to get them give their best. We round up a range of budget floorstanding speakers, try bargain DAC and put three cheap and rather weird integrated amps up against one another! Here's just a selection of what we hope to bring you:



plus:

- Q ACOUSTICS 1050, CRYSTAL AUDIO T3 & MONITOR AUDIO RS8 SPEAKERS
- FLYING MOLE, TIMESTER AUDIO T-200 & QINPU A1.0x INTEGRATED AMPS
- ASTINTREW AT3000/1000/5000 CD PLAYER/PRE-POWER SYSTEM
- TANGENT CDP-100/AMP-100 CD PLAYER/INTEGRATED SYSTEM
- REGA APOLLO/BRIO 3 CD PLAYER/INTEGRATED SYSTEM
- PURE ONE vs. PURE EVOKE 3 DAB PORTABLES
- CHANNEL ISLANDS AUDIO VDA-2 DAC
- OLDE WORLDE: PIONEER A-400X
- USHER CD-1 CD PLAYER

**PICK UP THE OCTOBER 2006 ISSUE OF HI-FI WORLD ON SALE AUGUST 31ST  
OR SUBSCRIBE AND GET IT DELIVERED TO YOUR DOOR: p74**



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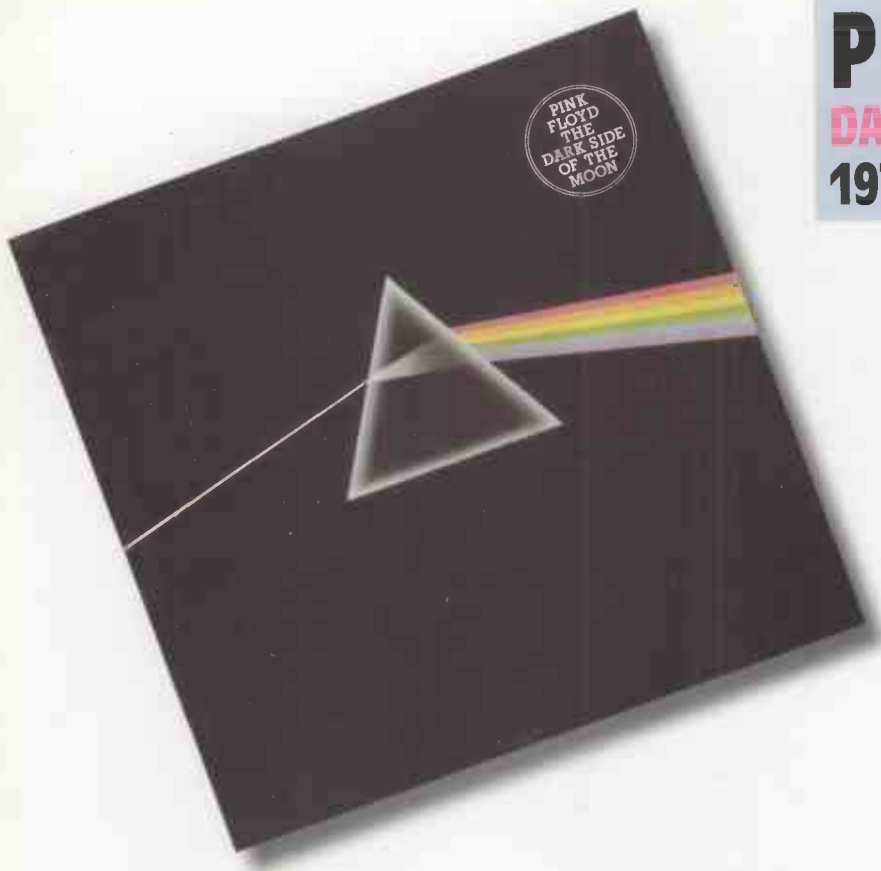
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# PINK FLOYD

## DARK SIDE OF THE MOON

### 1973

It's a phenomenon. It's a landmark album. It has lasted over 1,500 weeks in the charts, and counting. 'Dark Side Of The Moon' (DSOTM) is one of the most well known albums in existence.

Nick Mason explains that, "the concept was originally about the pressures of modern life - travel, money and so on. But then Roger turned it into a meditation on insanity." Waters adds, "When the record was finished I took a reel-to-reel copy home with me and I remember playing it for my wife then, and I remember her bursting into tears when it was finished. And I thought, 'This has obviously struck a chord somewhere,' and I was kinda pleased by that." Rick adds, "We approached that album, I would say, in exactly the same way as any other album we've done. Except that this album was a concept album. It was about madness, it was about one's fear, it was about the business - whereas none of the other albums had been like that."

Perusing the familial background of DSOTM on record is almost like swotting for a BA in 'World Recording History', as you're taken from the heady heights of SACD to CD (standard and gold) and vinyl (standard and audiophile) and the flawed quadraphonic experiments of yore. One almost expects to find the 'DSOTM, Edison Gold Cylinder' edition with added sequins to rear its

magnificent head...

Before recommending particular editions, however, it is well to first list those formats to avoid - such as the standard CD edition. This was transferred, not from the master tape, but from a standard 15ips Dolby copy. The usual retort when discussing most album reissues is to fall back on the original vinyl edition. This album has been re-pressed so many times, in vinyl, that the best version is the original UK EMI/Harvest vinyl pressing, the one with the solid blue pyramid on label and an early stamper code. However, this will cost you around £350 from specialist dealers. Later re-pressings don't cut the mustard. Mobile Fidelity's famed Japanese-pressed half-speed LP did have the benefit of being very quiet. However, its EQ remaster was a little too hot in the upper extremes. Unfortunately, the same can be said of the gold edition CD from the same company which, being CD, is emphasised even more.

The best digital version of DSOTM is the latest SACD release from EMI. Whether you listen to the SACD stereo version or the surround version, this is the best digital reproduction of the album, bar none. The best CD version is the CD layer on the self same disc. There has been talk that this layer has suffered a little from compression but, compared to the other CD versions out there, the latest CD layer on the SACD tops the lot.

As for vinyl? The thirtieth anniversary vinyl edition is the best of the bunch - it even compares well to the original pressing. This edition was mastered, at AcousTech, in the USA, by Doug Sax, overseen by James Guthrie (both experienced Floyd men) with assistance from Alan Parsons - the album's original engineer. This quashes the criticism, which has raged on the Internet, which declared that Parsons had been snubbed on this project. Doug Sax commented that, for the vinyl remaster, "we got early LP test pressings and they were mandatory since the master tape is Dolby and there are no (original) tones. By hunting and pecking we derived that the master tape has a NAB high end and an IEC low end."

NAB is the American standard for tape equalisation and IEC, also called CCIR, is the standard for Europe and most of the world. Some machines have switchable EQ. Very few machines allow switchable top-end and bottom-end EQ. Obviously, Doug's custom machine has this capability, which improved the final vinyl sound reproduction. "After playing the tape correctly," continued Sax, "we then EQ'd the album to sound more open and punchy than the original release ever did."

So, now you have no excuse to, as so many seventies rock disciples once did, turn off the lights, lie on the floor and freak out to the music, man! PR

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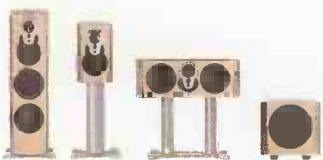
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