



Six all-time greats Top tweaking tips





COMPUTER AUDIO NERO BURNING ROM V6 \* XITEL IN-port

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jbl k2

klimo

korato

Digital has truly come of age

Our old first generation friend, CD, is already looking decidedly like Old Hat. Super Audio CD and DVD Audio are with us, assuming you can find the titles you want (rather than the titles they want you to have) at a record shop near you, or indeed in a record shop anywhere.

Music (and gadget) lovers can revel in the multitude of ways to store and play their (compressed) music, from home or portable hard disk players, hand-held memory card players, or the humble home computer itself.

So why do we fill our adverts (and our shop) with obsolete mechanical machines from a bygone age to spin huge discs at 33.3 and 45rpm with a sharp diamond on the end of a moving arm to read tiny squiggles in the vinyl? How quaint!

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Rose and Korato preamps on demo

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#### Distributed by

Comag Magazine Marketing, Tavistock Road, West Drayton, Middlesex UB7 70E Tel: +44 (0) 1895 444 055

#### Printed by

Southern Print, Dorset Tel: +44 (0) 1202 628 300

#### Our Agents in Malaysia

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david price

ay back when yours truly was wearing flares and riding skateboards (that's the nineteen seventies and not - as some readers have

suggested - last year), every selfrespecting hi-fi magazine was preaching the gospel of loudspeakers. Without serious 'speakers, they said, what

chance does the rest of an audio system have...?

Then, by the early eighties, a new wave of audiophiles was championing the source above all else. Using that old computer adage, "garbage in, garbage out", they insisted that without a serious front end, the rest of the system just couldn't do its stuff.

Well, I'm ticking the box marked 'none of the above'. Loudspeakers are profoundly important to a system's sound, but are also but one part of it. As such, you should find a well-engineered design that fits in with you and your requirements. They're personal things, and while hi-fi hacks can rant 'til their run-out grooves, what matters is what works for you.

As such, this month's Hi-Fi World is devoted to living with loud-speakers. Our supertest of seven bookshelf boxes shows that less can often be more. Noel Keywood, who has been known to design the odd loudspeaker himself (although they weren't all that bad...), explains how they work and how to get them working for you. Then, we test one of the most stunning designs of all time – the Quad ESL-57 rebuild from Classique Sounds - and six members of our team wax lyrical on their own personal 'ultimate loudspeaker', which is proof positive that hi-fi is a subjective pursuit!

One of the few amplifiers I've ever heard that can properly drive the Quads is Audio Research's Vsi55. All the way from America, it's one of the most barrel-chested tube amps I've heard, yet has real subtlety to match its stomp – see p51.

Digi-philes have a treat this month too, as we take an in-depth look at Denon's new DV-2900 on p39. Then there's Arcam's DT-81, Musical Fidelity's new X-LPS v3 phono stage, Orelle's new SA100 amplifier and Ahead's new Nero 6.0 software – not to mention 12 pages of DIY and much, much more – all for your pleasure!

#### how we test the products

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

WORLD VERDICTS: Because we only review products we find interesting, don't expect too many low scores. Likewise, five globe awards will be few and far between because there's only one superlative product of its type. The  $\epsilon$  sign remains, as we often come across flawed gems that are great value for money.





**HI-FI WORLD** 

SUITE G4, ARGO HOUSE KILBURN PARK ROAD LONDON, NW6 5LF

#### October 2003

#### volume 13 No. 8

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#### **DENON DVD-2900**

Dominic Todd tries Denon's first universal DVD spinner, and enjoys sumptuous sound and vision for under £1,000.

#### amplifiers

#### MUSICAL FIDELITY X-LPSV3

Mr Michaelson's latest and greatest phonostage - allegedly? Yes really, says vinyl junkie David Price.

#### **AUDIO RESEARCH VSI55**

This is one of the best valve integrateds we've ever heard - David Price is bowled over!

#### **ORELLE SA100EVO**

Here's an unusual - but accomplished - 'super integrated' from a highly respected British specialist manufacturer. Albert Lee listens in.

#### systems

#### **ONKYO CS-210**

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#### loudspeakers

#### **GROUP TEST**

Noel Keywood finds that several designs from this wide range of bookshelf loudspeakers are 'unputdownable', as he lines up seven baby boxes from Epos, KEF, Mordaunt Short, Mission, Ruark and Tannoy.

#### **CLASSIQUE SOUNDS QUAD ESL 57 REBUILD**

Electrifying – there's no other word for this heavily modded pair of Quad Electrostatics! David Price plugs in...

#### tuners

#### **ARCAM DT-81**

"The best Digital Radio tuner under £2,000", claims Arcam modestly. Noel Keywood thinks so too, but protests that with 128kbps bitrates - it doesn't mean a lot!

### features

#### SPEAK EASY

Pssst - want to know a secret? Not all loudspeakers are created the same! Contain your disbelief - it's true! Noel Keywood explains why, and what to look for when buying your next pair.

#### GENTLEMEN, CHOOSE YOUR WEAPONS...

In which each member of the Hi-Fi World team choose their top transducers - the speakers with the mostest, not the meekest! Opinions are divided, naturally...

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# news

#### **B HERE NOW**

A few months ago we were greatly impressed by Monitor Audio's B4 baby floorstander well now, we bring news of its new big brother, the B6. The new 2.5-way floor-standing flagship of the five-model Bronze range is said to have still wider bandwidth, high power handling, greater efficiency and more effortlessly realised dynamics. Built from 18mm thick MDF, its twin reflex-ported cabinet employs multiple bracing positioned at critical resonance nodes, while the drive unit compliment comprises three 6.5inch MMP units (the two lower ones handling bass only, the other provides upper bass and midband), and a 25mm Gold Dome C-CAM tweeter from 2.6kHz upwards. The Bronze B6 is available Black Ash, Beech and Rosemah vinyl finishes and magnetically shielded for AV use. Price is £499. Click on www.monitor-audio.co.uk for more



KEF's new £499 KHT1005 surround sound loudspeaker system boasts exquisite die-cast aluminium enclosures housing the company's UNI-Q drivers. It comprising four 65x110x78mm satellites, a 107x181x78mm centre channel speaker and a powered 360x320x320mm sub-woofer with 100W amplifier, cinema/music switch, variable frequency, phase and level adjustments. For more details, click on <a href="https://www.kef.com.or.call.">www.kef.com.or.call.</a> 01622 672261.



#### **SUPER SONIC!**

A new audio industry initiative has seen companies throughout Europe come together to exchange information and develop new initiatives aimed at extending the establishment of Super Audio CD. The Super Audio Forum saw more than 70 representatives from consumer and professional equipment manufacturers, record companies, recording studios, producers and engineers come together to discuss new ways of working to promote and establish Super Audio CD. Delegates included senior representatives from Universal Music, Sony Music Entertainment and many of the leading independent record companies. Major studio participation included London-based Metropolis, Strongroom and Galaxy Studios from Belgium. The opinions of professional equipment manufacturers were represented by companies such as Merging Technologies, Sadie and DCS. The forum heard that SACD now has over 900 software titles available in Europe, with disc replication capacity currently standing at 150,000 units per day. There are more than 65 players available from 25 manufacturers with more product launches planned this summer.

#### TAG TAKE A PIT STOP

TAG McLaren Audio Limited has announced that is to cease development of new products and commence a full strategic review of its participation in the audio market. The company's MD, Dr Udo Zucker, says that, "the present world economy has had a significant impact on the market for high quality audio and audio visual products and this has made it increasingly difficult to operate on commercially acceptable margins consistent with the levels of development investment required." As such, existing products will "remain available for the time being" and warranty repair and Helpdesk services will "continue to be available".



#### **C PLUS**

From the champions of 'less is more' hi-fi, comes this brand new £349 integrated amplifier. The C352 integrated amplifier brings a fresh look to the marque, with a restyled front panel and new all metal chassis. As you'd expect from the company, there's little in the way of frills – it's all about sound engineering at a keen price. To wit, you get a meaty 2x80W RMS power amplifier with larger custom-wound toroidal transformer and smoothing capacitors plus Soft Clipping, and upgraded preamp circuitry with revised PCB layouts and better tone controls. An all new System Remote is supplied. If its C350 predecessor is anything to go by, this should be a hoot. Click on <a href="https://www.nod.co.uk">www.nod.co.uk</a> for more information.

#### THE NEW BLACK

NHT's handsome new Super Audio SB2 loudspeaker features a low distortion/high power I" aluminium dome tweeter and high-excursion polypropylene woofer, in a new cabinet sporting rounded edges and eight layers of piano black lacquer for a deep, high-gloss finish. Also available in white, it retails for £399 a pair. More information is available by calling 01327 706560 or clicking on www.nhthifi.com.



#### **DIVA DYNAMICS**

Arcam's new DiVA A80 Stereo Amp and DiVA P80 power amp offer the chance to go 'back to basics'. No-nonsense stereo hi-fi components, they're all about offering high value for money to audiophiles on a budget. Priced at £599 and £419 respectively, this dynamic duo can be augmented by the addition of additional P80 power amps to double system power, bi-amp the speakers and raise the performance. Careful circuit design, novel current feedback power amp topology, liberal use of surface mount components and sorbothane damping are all used, plus a beefy toroidal power transformer with separate power supplies to give the A80 a claimed 65W per side. The A80's six inputs include a high-quality phono input for moving magnet cartridges and a tape/CDR loop for recording.

The new Arcam DiVA CD93 CD player, priced at £949.90, offers 24 bit, 192 kHz upsampling technology, developed for the excellent FMJ CD33 CD player reviewed last month. With four Wolfson WM8740 DACs per channel and 24/192 upsampling, the company says its new CD93 provides a significant leap forward in CD performance at this price point. It boasts a host of designer discrete componentry, including Analog Devices AD797 and Burr Brown OP2134 op-amps, audiophile grade decoupling capacitors from Stargate and Oscon and low dissipation factor polypropylene capacitors from Wima. Arcam says that all previous DiVA series CD spinners (except the CD62) can be upgraded to the new CD93 specification. As per the A80 and P80, it's comes in any colour you like as long as it's black – or silver! Call 0/223 203203 or click on www.grcam.co.uk for more information.

#### IT'S GOOD TO TALK...

AV:Talk is a new online forum dedicated to home cinema, intended to provide an ideal arena for enthusiasts, industry experts and manufacturers to come together and discuss all aspects of their hobby. It features power-buys, exclusive competitions and charity auctions to foster a friendly and "happy to help" environment. Registration is simple and free, with all members having unlimited access to all areas of the forum. Click on <a href="https://www.ovtalk.co.uk">www.ovtalk.co.uk</a>.



#### **BOWIE ON SACD!**

On September 29th, EMI is releasing three classic David Bowie albums on SACD, with 5.1 DSD multi-channel mixes together with PCM and DSD stereo remasters. The titles are 'The Rise and Fall of Ziggy Stardust and The Spiders from Mars', 'Scary Monsters (and Super Creeps)' and 'Let's Dance'.

#### PM DAWN

PM Components is proud to announce the release of a new range of cables purely designed for tube amplification. Believing that traditional cables detract from the performance of valve amplifiers, the company commissioned a small UK cable manufacturer to design and produce cables to complement the unique attributes of valve equipment. The result is the 'Dragons Tails' range. Red Dragon Tails is the entry level cable retailing for £49.95 per one metre pair, Black Dragon Tails retails at £174.95 for the same length, and Silver Dragon Tails sells for a lofty £599.95 per metre. Call 0870 9220404 or

click on <u>www.pmcomponents.co.uk</u> for more information.

#### **OBITUARY**

Jason Bloom, co-founder of Apogee Acoustics, died in a fall at his New York home on June 15th, 2003. Famous for his no-compromise attitude, he was best known as the driving force behind the technically advanced and radically different planar-magnetic loudspeaker designs. Even as Apogee grew, he was the man who would give technical support and advice to clients. As flamboyant as his loudspeakers, Jason worked in the New York art scene after leaving Apogee in 1997. He is survived by two daughters.



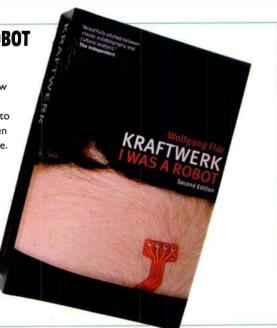
#### SIGHT AND SOUND

Denon's AVR-1803 is an AV receiver with a formidable variety of facilities in a handsome package, for just £399. All the latest 6.1 channel Dolby and DTS formats come as standard – hitherto the province of far more expensive designs – and the Pro Logic II mode will synthesise multichannel surround from stereo sources like vinyl or VHS tape. It boasts 6x80W RMS, 24 bit DSP digital decoding, DTS-ES Discrete, DTS Neo:6, Dolby Digital and Dolby Digital EX. Dolby ProLogic II, Multi Zone Output, AM/FM tuner with RDS EON, and there's a choice of understated black or lavish gold brushed aluminium finishes. Click on www.denon.co.uk for details.

#### **KRAFTWERK: I WAS A ROBOT**

Wolfgang Flur ISBN 1-86074-417-6

Given that electronic dance music is now almost ubiquitous, Kraftwerk could be justifiably argued to be more influential to the great scheme of pop music than even The Beatles – as they invented the genre. This 416 page tome traces the development of the German techno pioneers from the eyes of drummer Wolfgang Flur. His tale of four teetotal, ice-cream eating, car-obsessed classically trained musicians is hardly your average rock'n'roll story – making it all the more compelling.Unusual, but unputdownable...



#### next issue

November is a veritable valve fest, with a range of tube amplifiers from Classique Sounds' Leak retro rebuild to Unison Research's latest and greatest. Also look out for:

#### DYNAVOX'S DYNASTATION VALVE CD PLAYER

the most eccentric silver disc spinner you've ever seen! (Yes, really).

#### MUSICAL FIDELITY'S BRAND NEW X-CANS V3

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#### IS IT LIVE OR IS IT HI-FI?

LJK Setright ponders the eternal dilemma - whether to choose transparency above all else...?

next issue

## Performance: get it out of your system.



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# Shelf Life

Just a few years back, it seemed like the only loudspeakers worth having were floorstanders. Their larger cabinets, better able to move air, give more 'impressive' bass and obvious efficiency gains, while the sleek styling saved money by obviating the need for stands. Why then even consider bookshelf loudspeakers at all? Well, the fact is that the small boxes flex, boom and resonate less, and work far more synergistically in many rooms. In truth, there's little to touch a well designed and built bookshelf box. So in this month's supertest, Noel Keywood brings you the latest and greatest...

eviewing bad loudspeakers is a depressing business, especially when there's always someone who'll swear that a peaky aluminium tweeter that sounds like an accident in a saucepan factory is singing like an angel! It does illustrate, however, how easily folk become attuned to a sound and then rely on it as a subconscious reference, for better or for worse...

In this look at small 'speakers, the emphasis is on good, rather than bad or even mediocre, ones. You're about to see the most rewarding listens in the category of bookshelf, nee small standmount, loudspeakers.

Listening isn't such a straightforward business, and needs real
thought and care. It is possible to
tune a loudspeaker to achieve
certain effects that many people,
including reviewers unfortunately,
commonly gravitate to. Broadly
speaking these are subtle variations
of boom and ting - euphonically
damped bass (that won't go low) and
lively treble (that hurts with bright
recordings). Such loudspeakers are
entertaining rather than accurate.
Wrought carefully, though, they are
fun to listen to, and arguably a good
buy.

Importantly however, if you want to listen to music rather than the loudspeaker itself, then don't be fooled. A clean, well balanced and accurate design able to reproduce classical as well as rock will not sound as immediately gripping on rock alone, but will likely give greater long term pleasure across a wide spectrum of musical styles and types. The best loudspeakers, therefore, are not necessarily the most immediately impressive – the Quad electrostatic being a prime example. So when choosing your next boxes, make sure you listen at length and with care using a variety of music!

All of this raises the issue of what you are looking for and personal taste - and the possible disparity between that and any recommendation made by us. Rock, jazz, folk and country are overwhelmingly popular musical genres - so why do we bother with classical? One very good reason is that violin, horns and nearly all other instruments are found in rock too, and the violin in particular is a very testing instrument for a loudspeaker. Our recommendations are for a clean, neutral and revealing loudspeaker that works well across all categories of music, meaning it must handle violin as well bass guitar. We're not averse to a good rocker, but there are usually limitations.

DVD-A and SACD have further complicated the issue. DVD-A in particular usually comes with sizzling

high frequency energy levels, harmonics stretching right up to 30kHz. Check out the re-mastered, re-issued Fleetwood Mac 'Rumours' album or even B.B. King's 'Riding with the King'. A loudspeaker that sounds perhaps okay with almost all else can hiss and spit viciously with DVD-A like this; it could swing you away from a KEF to a Tannoy and its softer wideband sound, for example.

SACD offers an easier listen, thankfully, but it is open and dynamic all the same and a loudspeaker needs to be able to reveal this rather than stifle it. If you are going to be using these formats you need not just a wideband loudspeaker – but one you can listen to sitting on the settee, rather than behind it.

Today's albums are pretty upfront, which is why I always spin something like the Christina Aguilera's 'Stripped' CD. Yet a 'speaker that sounds superb with this can sound dreadful with classical. Be sure about what you want before you get it, and listen long and hard! The good news is that for a few hundred pounds or so you can get a great loudspeaker nowadays. Unlike the bad old days of the seventies and eighties, there's just no reason to suffer a lemon anymore. So here's a bunch of the best small loudspeakers on the market, from just £200 up to £1000!



KEF XQ1



Tannoy Sensys DC1



Epos ELS3



KEF Q1



Mordaunt Short MS912



Mission 780SE



Ruark Etude

#### EPOS ELS3 £200

VERDICT 0000

Superb entry-level rock loudspeaker, with fine timing and real scale.

POS ELS3 £200
son Acoustics
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he babies of the group, in physical size as well as price, these new Eposes have a small 130mm polymer cone bass/mid unit mounted on a die-cast aluminium chassis allied to an aluminium dome tweeter with corrective front phase plate. Although a true shelf mounter in size. Epos has elected to put the port on the rear so a little rear clearance is needed for it to breathe, but only a few inches. Connection is through single wire terminals that will accept either 4mm plugs are bare wire.

In line with their measured performance the little ELS3s were immediately very correct sounding, giving a rich yet seemingly accurately balanced sound right across the audio band. Eleanor McEvoy's voice sounded rich, detailed and delightfully natural. She was projected well from these boxes but then again, small speakers tend to do this - and had a delightfully real presence in the room. Unlike so many modern loudspeakers, the metal dome tweeter of this one displays little obvious brightness or colour; there's no clatter or rasp when cymbals are struck hard, a feature I welcomed. Although modestly priced, they sound very wide range, delivering properly and without constriction right up through the audio band. The result is a broad frequency palette and great poise with female vocals.



On stands a little into the room, bass was too light, so the 3s were pushed back to within a few inches of a rear wall. Able to excite the lowest modes of a 17ft room they sounded light but fast and supple in their bass delivery. In truth only upper harmonics reached full level, but lower fundamentals were still there, since the speaker does reach down to 60Hz and I managed a surprisingly large sound from them. They really are for smaller rooms though, 12ft-14ft long or so. Loudspeakers this small also lack sensitivity, so I had to turn up volume a little.

With fast, rhythmic rock, the ELS3s pulled out another engaging property: they are both tight and fast in the time domain - as small, well damped loudspeakers can be. Christina Aquilera's 'Can't Hold Us Down' brought a grin to my face,

these speakers were so grippy and clean. It was amusing to hear such a small cabinet produce such a large sound, making rivals seem a tad bloated and slow by way of contrast. Bass had speed and punch, if not the power of a larger speaker. Such a well balanced loudspeaker can handle classical well enough, but here the small Eposes started to show weaknesses. Plucked basses revealed some box 'boof' and strings sounded a little coarse and coloured. Whilst the 3s were playing percussive rock that relies on timing they were fine, but presented with classical they started to err away from neutral

The Epos ELS3s are a fun loudspeaker that sounds entertaining with rock.
Fundamentally accurate, they offer a surprisingly large sound at a low price.

#### MEASURED PERFORMANCE

The ELS-3's frequency response displays good flatness from AGHz right up to 20kHz, with no rall down at high frequencies at all. However, its output has been palled down slightly to be -2dB or so helow that of the bass/midraega unit, to prevent the leadannable sconding too breaks.

The bass driver works into a small employers with a narrow port that appears to be over-slamped. Buss rolls off smoothly as a result and the loudspeaker is tikely to sound dry and tight at the borton end, rather than fulsome and large. All this suggests the ESL-3 has been tailored for near-wall mounting, even bookshulf are.

The part damps well, our impedance plot shows. being

controd at SSRs. The pink onise test signal showed deep hass wallie was obsent

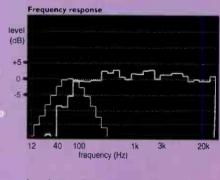
Egios have made this an Bahm londapeaker.

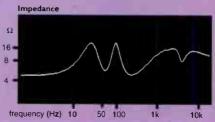
Innustrument showed.

Although the ELS-3 is easy to drive as a result, it is also inconstrue, producing put 24d8 SPI from one wattingut. It needs amps of 60watts minimus.

The Epos measures well and will give good results, but it needs power, NK

Dimensions (mm) - H270, W174, D195; weight 4.5kg





#### KEF Q1 £250

his is the baby of KEF's Uni-Q range. It puts a 19mm aluminium dome tweeter at the centre of a 165mm woofer to give a point-source drive unit that offers great image focus (see also Tannoy's DCI). The bass unit is reflex loaded by a front panel port and on the rear there are bridged bi-wire terminals that accept 4mm plugs or bare wires. Construction and finish are first rate. This is a fairly large 'small' speaker for shelves, but the front port allows it to be pushed up against a rear wall, which is some compensation. The benefit of cabinet volume is deeper bass.

Even though the QI is a little larger than minis like the Mission 780se and Epos ELS3, there's a disproportionate improvement in bass depth and quality. The Q1 has real bass power, and goes low too. The opening drum strike of Angelique Kidjo's 'Agolo' came across well, sounding clean and bouncy, if with slightly muted level against a floorstander. Otherwise the Q1 has plenty of tight and punchy low frequency oomph that underpins modern rock recordings, like Aquilera's 'Can't Hold Us Down', very well.

This mini also has spectacular image focus and midrange clarity, cross-panned effects zipping from left to right with riveting power and speed. The Q1 delivers audio fireworks with a degree of



projection that can't be ignored, yet it has fine basic tonal balance, superb clarity and seemingly fantastic dynamics for a 'speaker of the size.

However, there are some caveats. Cymbals crashes in the opening of Steve Earle's 'Justice in Ontario' were fiercely emphasised and the tweeter jangled badly in this particular circumstance. For most of the time it simply imparts a sheen. Occasionally though, when excited, it could really clatter hard, becoming over-prominent.

Yet the same tweeter was also responsible for some pretty spectacular imaging; Nora Jones was so alive and vivid, centre stage through the QIs that even the most critical listeners would be taken aback I feel. KEF have wrought a balance that gives vocalists both body and timbral

variety; this is a loudspeaker that conveys what's in the music.

Orff's Carmina Burana opened with an entertainingly large and resonant sounding kettle drum. I was pleased to hear fine resolution of the choir and a gloriously expansive ability with dynamic contrasts, from soft to loud, with no problems of muffling at low levels or harshness at high levels – lovely! I only note one small effect, and that is hard left or right images tend to sink back into the box a bit; this may be due to a little box colouration from the port.

The Q1 is literally spectacular. It is clear, clean and very dynamic.
Being sensitive it goes very loud at low volume settings. Imaging is focussed and vivid. It can get clattery when presented with strong treble though. Great for the price all the same.

VERDICT 0000

Strong, powerful and musically engaging, only its sharp tweeter robs it of greatness.

KEF Q1 £25 KEF Audia (UK) Ltd (1+44 (0) 1622 672261 www.kef.com

#### MEASURED PERFORMANCE

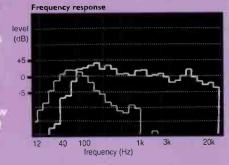
The balance KEF have struck for the Q1 favours low frequencies, wills highs falling away pently. This sort of characteristic gives a loudspeaker a tall sound. There's a little peaking in the troble unit, a sign that it will likely display some characteristic metal done brightness, and is may just be KEF have kept twenter output down a bit to deflect attention from this. Since Uni-Q drivers usually sound quite lively and dynamic the Q1 should have pench.

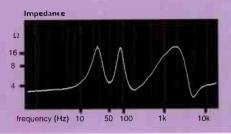
metal done brightness, and it may just be REF have kept twenter output down a bit to deflect attention from this. Since Uni-Q drivers usually sound quite fively and dynamic the Q1 should have peach. Base output from the driver reaches down to 45Hz and below this the port takes over it has a bread well demped characteristic centred at 48Hz, to give has some bounce. The impedance curve shows it is symmetrically tuned for

bost damping of the bass driver. Kelf use a 3 Bolom bass criver though and this does draw current - more so than most. Voltage sonsitivity was high at 8866, but this is to be expected in view of the low overall impedance value of Soloms.

The Q1 will likely sound full bodied and dynamic. There may be a little character to the troble. As a load it is demanding, NK

Dimunuious (mm) – H355, W222, D326: waight 6.4kg





#### **MORDAUNT SHORT MS912**

£200

VERDICT OOOO C

Brilliantly sweet, smooth and even, these are the most beguiling listen at or anywhere near the price.

MORDAUNT SHORT

fordwull Short Audio Partnership) | +44 (0)20 7940 2200 viv mordisent-short co ek

he 912 is on the large side as small loudspeakers go. but it has more bass as a result. Mordaunt Short uses its own, distinctive. Continuous Profile Cone (CPC) aluminium bass/mid-range unit, matched to an aluminium dome tweeter. Bridged bi-wire terminals are fitted to the rear panel, as well as a port which reflex loads the bass unit. A contoured front panel acoustically integrates the tweeter to the bass/mid unit and this in practice has quite some effect.

The MS912 sounded as smooth this time around as it did some time ago when I first reviewed it as a new model. It has a sense of cohesion that eludes most loudspeakers, even improving on the KEFs in this area, since it lacks their slightly obvious treble. With further exposure to them and taking on my most critical stance, they do perhaps sound a little generally soft, almost warm at times. Asked to reproduce Ashkenazy playing Rachmaninov's Piano Concerto No2, I thought initially that against KEF's Q1s the 912s seemed dull, but as the music progressed these speakers slowly revealed just how unusual they are in the scheme of things. Better able to resolve the tonality of individual instruments than most rivals, they brought a sweet, delicate air to violins, yet revealed their vibrance and life with a grace beyond others in this report.

Brass sounded like brass.



possessing a good metallic rasp quite different in colouring to that of the string sections, as you'd expect of course - but most often it still isn't so. Ashkenazy's piano had a deliciously open sound, full bodied and large in the performance and notes issued from it in a beautifully modulated flow that was entrancing. The 912s were able to reproduce the scale of the piano, from soft to loud. I felt there was a little metallic colouration in the mid-band somewhere, but it was small. There was less projection than the other speakers perhaps, with a slightly flatter sound stage, but that these loudspeakers can handle classical instruments with fluency and resolution isn't in doubt. They have an ease, warmth and delicacy that is impressive, if not immediately

With rock the MSs were equally accomplished. Christina Aquilera's

vocals were delightfully clear and smooth, bass tight and rhythmic and transients fast but without fizz. Similarly, Norah Jones hung between the loudspeakers beautifully, sounding smooth, clean and clear. The slight downward trend in this 'speakers response is heard as a smoothness almost warmth - but there is a small lift higher up the band that keeps treble sounding fast and puts plenty of air into highs. The 912s deliver a lot of filigree detail whilst never sounding hard or clanky. They were able to handle demanding rock like Steve Earle's 'Esmeralda's Hollywood' with a sense of ease yet appropriate drama that the others could not manage.

This loudspeaker offers levels of tonal resolution and detail retrieval ahead of its rivals, It is smooth and easy to listen to, whilst also sounding dramatic.

#### MEASURED PERFORMANCE

ensurement shows the 912 has a all damped has a output, there's no bass peaking to give the sound extra weight. The part operates around 40-50Hz, high muthe hand relatively works and the data relatively apenking, and over the same range as forward output. The part exerts atrong damping over a potentially large fundamental coast resonance and I suspect this will investate into tight but enthinsissic sounding bass. Like others, Mardanit Short use

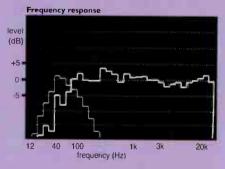
unnativity with notid-state amplifiers and the 912 produces a healthy BlidB SPL from one nominal watt o mark mere from professionals (from) or louder at any particular volume outpot antion as a result. With or mpedance corve like a camel's buck

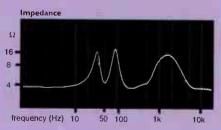
the MSS12 is very mactive and this may well sesset some amplifiers

one named money feature HON Troquencias Descr

coming back up above
10kHz. This gives the 912 a
slightly warm halmor with
a little top end employer.
The MS912 measures
well. It is a difficult load
which in practice means it
will interect with amplifiers and highlight differences.

W205, B300, verbjie #6-





#### MISSION 780SE £350

his baby box is as small as they come, but it still showcases a host of interesting design features. The bass unit has a rigid but light 130mm cone with ceramic matrix cone (fibrous cone with ceramic filler baked in), reflex loaded by the ported cabinet. This is allied to a Microfibre dome treble unit. The cabinet is solid, veneered MDF with audiophile grade crossover componentry, says Mission. The port exhausts at the rear, and connection is through bridged bi-wire terminals that accept 4mm plugs or bare wire.

This loudspeaker has a conspicuous clarity and a smooth, almost polished sound about it, for a host of good reasons I suspect. It lacks the zing and saucepan clatter of a metal dome tweeter, instead offering smooth and shiny treble from a tweeter that is a little forward. So Christina Aquilera's vocals were clean and well rendered in 'Can't Hold Us Down', but there was some top end emphasis that brought a sheen to the sound that emphasised sibilance, although without degeneration to spitch. I would have liked a bit more body to Aquilera's voice; it was a little back in the mix and lacked the force of some of rivals in this particular group, from Ruark, Tannoy and Epos in

For a small loudspeaker the 780SEs make a valiant attempt at



producing low frequencies, the stabbing bass line on Can't Hold Us Down producing a plausible amount of acoustic power in the room. The 780SEs - like the Epos ESL3s - had to be pushed back close to the rear wall to energise the main room mode and so take full advantage of room gain to get reasonably solid and believable bass lines. However, this is a very small loudspeaker and it produces more bass than rivals of a similar size, which by and large miss the lowest 40Hz-80Hz octave completely. Very small loudspeakers carry this penalty.

With wideband DVD-A from the Corrs, the 780SEs did not open up as much as the wideband Tannoys and KEFs, giving a limited view of what was available. All the same, they were delightfully clean and revealing, punchy enough and always silky smooth. A lack of

abrasion gave massed strings of the London Symphony Orchestra a sweet tone; they were also strongly lit, vivacious and well separated too; horns had a fruity rasp and plenty of verve. Ashkenazy's piano sounded a little light in Piano Concerto No2, but the 780SEs were both sufficiently refined and projective to handle classical programme well. As with most Missions, imaging was superb at all times. Turning volume up with classical put an orchestra in front of me, with a broad panorama of instruments well embodied and sharply in focus.

The 780SEs are a clean and sweet loudspeaker that at times come across as dramatic. They lack some cohesion across the upper midrange and could usefully have put a little more body into vocals, but all the same as miniatures go they are first rate.

#### VERDICT



Lean and smooth, these major on focus and lack of colouration. Truly accomplished given their diminutive dimensions.

USSION TAUSE +44 (0)1480 \$23700

#### **MEASURED PERFORMANCE**

off believe EGHz, gunta = high frequency. The higger cabinets within this group get so ectave became but had all deep book ato Contration of small hardeshall Hispeakers. The port is funde Hz, so in a room 12ft or so to an gain well boast the low er ally to give spendy bass, usin all shelf mounting

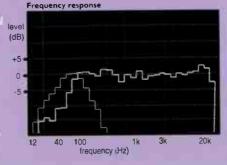
save lins requiring dispu mus amanany na na maz mi set a little to poak by - sain of Setz. This is responsible for the center's appropriate pricionals tweeter's apparent brightness. There will be pleaty of dutall though, allow upper midrange output in

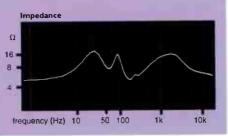
Small londspeakers are usually

hem. producing a love ORDINATION OF THE PARTY.

sound clean and last. It is quite abviously "modern" throughout in dusign, NK

W165, D263, Wolght 5 Sk





#### RUARK ETUDE £650

VERDICT

Rich, muscular and engaging, this distinctive design nonetheless lacks smoothness and clarity.

AUARK ETUDE

Brank Accuration Ltd

C + 44 (6)1702 601410

Www.reark.co.uk

n truth, this is a small stand-mounter rather than a book-shelf design, but it still fills the latter role capably, hence its inclusion. Ruarks use a textile dome tweeter, rather than a metal dome, allied to a fibre cone woofer. The latter is reflex loaded by a rear mounted port. Bi-wire terminals are fitted at rear, with bridging links.

These loudspeakers boast a somewhat different presentation to the others, sounding rich and full bodied. They can seemingly invest life and soul into what otherwise seemed, by way of contrast, a sterile sound. B.B. King's tones were engagingly natural, it seemed, and his guitar had more intrinsic character than I heard through all the other speakers. Whilst there certainly was some slight sharpness to upper treble, indicative of a high end peak, there was none of the metallic brightness heard with the KEFs for example. The Etudes were tonally even, fulsome and alluring, without doubt. There was some mild fuzziness to images and general lack of purity in the sound though. A small degree of muddle and coarseness affected the sound that wasn't present with the metal dome/ synthetic cone models.

The Etudes have bandwidth and dynamics too. Eleanor McEvoy's 'Yola' SACD sounded forceful enough, largely due to strong, deep bass from the Etudes. They produce



quite a strong bottom end rumble with plentiful energy behind it. Bass lines weren't as bouncy and defined as those of rivals, but the Etudes did seem to go low and sound a little more even.

Rock recordings like Christina Aquilera's 'Can't Hold Us Down', with its rap timing, was sharply timed and powerful. However, the Etudes were a bit over-heavy in the bass, booming a little here. They added weight, but also some bass colour. She was well established centre-stage, full bodied and natural, with plenty of tonal colour to her voice. There wasn't the focus of the co-axial KEFs or Tannoys but images were strong all the same.

With classical programme the Etudes moved from the right side of euphony to the wrong side I felt. Violins seemingly had a more natural colour to them than was revealed

by rivals, but then the Philharmonia's brass also had more colour in the Reinzi overture — and it was the same colour! Strings sounded coarse too, but brass had visceral blare that was quite striking. Plucked basses grumbled and so did the Etude's box. Classical instruments present a challenge to loudspeakers they are still barely able to cope with, unless they are called Quad Electrostatics, and whilst the Etudes were quite entertaining they were neither accurate nor refined with orchestra.

The Etudes sound tonally far richer than the other loudspeakers within this group and have quite a different presentation. With plentiful bass and a good deal of projection they offer a dramatic sound with rock and a fulsome one with classical material, if not the last word in refinement.

#### MEASURED PERFORMANCE

The Etnife displays a small but stoody upward trond in its output with rising frequency. High frequency level is raised and at 16kHz is effectively +3dB above the midrange out analysis above. This will give the Etnife a bright but clear sound, and airs enforce detail.

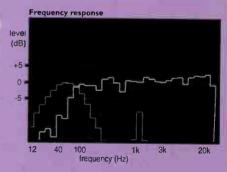
Bass output is well damped, forward output rolling away below 60Hz - high for the calmet nize. The port takes over below this frequency, It's tuned to 50Hz, which will give the bass same bounce. The port isn't at the centre of the retionance peak though, which might explain why damping isn't apparently quite as good as same in subjective terms.

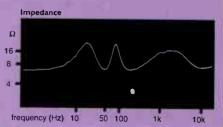
The Etodo is very considere and

afficient. It produces a load 87d8 from just one watt and is aimost a roustive load of 9 Sohms. A feather could drive it! Sensitive loaded lively and the Euce fits this category. As a load is is exceptionally easy and will get the best form neutifier.

get the best form swillfers.
The Etaile is a fine loudspeaker for low power translator amps and unive amps as well. It has a good blend of strengths, some outstanding, FIK

Dimensions (mm) - H24C, W210, D27C; weight 7.5kg





Smooth yet engaging, this charismatic

music, but is too coloured for classical.

'speaker works superbly with rock

+ 44 (0)1236 420199

VERDICT

#### TANNOY SENSYS DC1

annoy has resurrected its famous dual-concentric driver to take on KEF's Uni-Q and it reaches an affordable level in the new Sensys DC1. Dual concentrics have in the past been confined to expensive studio monitors. In the DCI though Tannoy supplement the dual with a pod-mounted super tweeter that extends response well past 20kHz - up to 51kHz they claim. This is aimed at DVD-A and SACD, giving improved airiness to upper treble and even tightened bass. It seemingly makes the DC1 a competitor to KEF's XQ-I, although it is half the price and, in practice a lot different in character. Tannoy fit bridged bi-wire terminals to the rear panel and an earth terminal too, to earth the driver chassis, used during the review. The bass unit is loaded by a port on the front panel.

The DCIs have the same sort of image focus and coherence as the KEF Uni-Q units in the QI and XQ-I. However, subjectively the DC-I is quite a different animal. Where both KEF loudspeakers have 'obvious' treble, the DCI follows the Sensys I in having a laid back top-end delivery. This influences the DC1 strongly, differentiating it from so many other 'bright' sounding rivals. Given forward rock from DVD-A, like 'Riding With the King', the DCIs really fly, with clean, smooth and noticeably airy treble imparting a lovely sense of openness to cymbals



and rim shots. Guitars sound big, powerful and dramatic and King's voice on 'Ten Long Years' is not just gravely but open and atmospheric. Given strenuous rock like this the DCIs come across as focussed, clear and smooth, with none of the edginess or treble sheen imparted by prominent metal dome tweeters. The 'speakers also convey the extra bandwidth afforded by DVD-A, delivering tight, reasonably tuneful bass held at a sensible level against the rest of the performance.

The DCIs are flyers with rock from DVD-A and they do a good job with CD also. There is some slight opaqueness though and a little colour from the cones or horn throat, and possibly the front port, that is an intrinsic part of the DCI's character. This pulls a performance back a bit, as does that softer treble no doubt, and makes it a little boxy. I also felt there was some cuppiness to be heard from the tweeter firing out through the woofer. But the DCIs deliver vocals with real body and were revealing of both modulation and phrasing from Renee Fleming and Norah Jones, with none of the hardness or sheen of their rivals in this group.

Massed strings of the Philharmonia playing the overture of Wagner's Rienzi possessed a small degree of metallic colouration about them. There was also some slight cuppiness here. Although smooth and quite airy the DCIs are nevertheless a bit exposed by classical instruments, sounding boxy. a little edgy and coloured in contrast to quality rivals.

The Sensys DCIs are a little more characterful than some rivals, but fundamentally entertaining all the same.

MEASURED PERFORMANCE

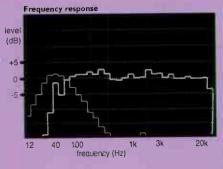
Under measurement the DC1 sounds unusually smooth and warm and its response is always ruler flat, our enalysis shows. There is some evidence, close in to the dual-concentric that trable is below the mid-hand in level; there is also some mid-hand in level; there is also lift at low frequencials, around 200Hz, probably related to our fullness of its sound and some colour Roweyer, the DC1 is colour However, the DC1 is unusuable flat and amnoth from 40Hz to 20kHz and doubtless above. It o zuenz and bollonesa e courute, but lacks brightnesa e is occurate, but lacks brightness of hardness in its sound – unusual. This is an unusually accurate loodspeaker all the same. The port is tuned to 40Hz and works down to 25Hz or as. It doesn't apply as much damping as most

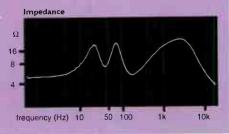
through the impedance curve

suggests.
Sensitivity was high at
87dB year floogh impedance organism out in comme Stall S'Atable La Company difference at high remundate

erideband loadspeaker with an assurably amount delivery. It also goes load from little power, so measures well in

Dimensions (ntm) – H405; W210, D292; weight 8.5kg





#### KEF XQ1 £1,000

#### VERDICT COOC S

Flawed gems - near electrostatic levels of clarity, but the over-vivid treble makes careful partnering essential. Tremendously capable, even at their high price.

XQ1 Audia (UIQ Ltd +44 (0)1622 572251

he XQIs are a small(ish) loudspeaker with a big price, yet I feel they justify their price tag. The cabinet is a little larger than most small ones, but still meant for close-to-wall use since it has a front mounted port. The 165mm Uni-Q unit has a 19mm centrally mounted aluminium dome tweeter in its throat, much like that of the Q1. KEF adds a super tweeter, seen in a pod on top and this extends frequency response out to a claimed 55kHz to take advantage of the extra bandwidth of DVD-A and SACD. The rear panel carries a bridged bi-wire terminal panel that will accept 4mm plugs or bare wire. Cabinet finish is superb, but perhaps it should be at the price.

I found this little loudspeaker dramatic the last time I heard it and even in the company of strong new arrivals it remains so. Most immediately stunning is its sense of sheer clarity and cohesiveness. Vocals in particular have a vivid centre stage presence unhampered by colouration, and it brings real drama to the sultry tones of Norah Jones, for example. Here the XOIs almost reach electrostatic levels of neutrality, and were it not for the occasional intrusion of the aluminium tweeter I would almost rate them at such a level.

The XQIs remain deeply impressive in this respect with most stereo material - Steve Earle



excepted. By this I mean that when music with a lot of treble energy is played the XQIs do sound overbright and a little too enthusiastic at high frequencies - and this impacts on DVD-A in particular.

A classic example was the unfortunately poor re-balance of Fleetwood Mac's 'Rumours' album, with emphasised treble. The first cymbal crash of 'Dreams' fired from the XQIs like a rifle shot; they can be a little overpowering at times. However, with music free of such fierce high frequency energy - as most is - the XQIs are just superbly clear, open, revealing and detailed. With nicely balanced wideband like Eleanor McEvoy's 'Yola' SACD they have tightly timed bass with a nice sense of depth and a bouncy dynamic. Of course, just like the QIs the XQIs have unmatched image focus from the

Uni-Q unit and this also helps toward their overall cohesiveness.

The XQIs are as projective as the QIs, bringing a vibrancy to classical that is all but unmatched by rivals. Strings were deliciously detailed, vibrant and clear. There was perhaps just a slight sense of added sheen and colour, an intensity not quite real that may raise a little scepticism in critical listeners. Like the Q1s also, the XQIs are very sensitive and revealing of dynamic contrasts, bringing a liveliness to orchestral works that's thoroughly entertaining.

The XQI is simply a very advanced and dramatic speaker especially for its size. A has a large, cohesive sound, spectacular clarity and superbly alive bass, plus dramatic stereo imaging - all great strengths.

#### MEASURED PERFORMANCE

The XQ1 shows very little variation from frequency response flateeus. noward output reaches down to and the part reaches 30Hz. KEF tune it high, to around 45Hz our impedance plot shows. This should make the XQ One sound weighty but

fast.

At high frequencies there's no creanwar suckent and troble extends flat to 20kHz, so the speaker will sound guite bright and certainly well detailed. The Uni-Q driver images wall and strong trable reinforces this property.

KEE like their rivals, use a 40km hass and to maximise sensitivity, perceived as loadness at a particular

perceived as loudness at a particula volume control setting — and the XO One is loud, producing a high 8808

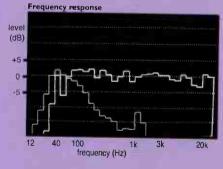
aw Suhms, partly because his tweeter section of the crossover dives to 4ohins. All Delucing Michigan change out the онандел он анаухи. Shows: Мести инстит Little state and an parties at least

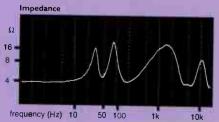
the XG One is not easy.

This is a quality stans

poentiar, but if needs a
good amplifier, NK

W231, D30III weight 9.2kg





# conclusion







KEF Q1



Mordaunt Short MS912



Mission 780SE



KEF XQ1

Il the loudspeakers sound quite different from one another, and each strikes a slightly different balance to its neighbour. Let's take the KEF XQ Is and Tannoy DCIs first to illustrate this. Both have a super tweeter claiming to reach 50kHz - an octave above conventional units - yet they sound very different. In the recent Sensys range, Tannoy has opted for a softer sound, justified I feel with formats that in themselves are challenging at high frequencies. DVD-A's harmonics extend well past 20kHz, and energy levels above 10kHz are often frightening! Tweeters are assailed by this and current metal domes don't manage too

Tannoy have tried to tame the problem, so although the DCI's super tweeter reaches up above 50kHz, the 'speaker still has a soft, easy sound in general - quite unlike the XQ1. The DCI puts air around cymbals and strings all the same and it offers an amenable balance with bright DVD-A material. It also has focus and a good way with vocals. Put all this together you get a great loudspeaker with DVD-A based rock, if one not quite so crystal clean and uncoloured as the XQI. The DCI is a rocker; it goes loud from little power, so all in all it's a strong package.

well.

KEF's XQI is one impressively clear, cohesive and revealing loudspeaker, but can get challenging with DVD-A. It is a totally different proposition to the DCI in sound quality even though, technically, both are wideband point-source designs. The XQI is a great listen though—it's breathtakingly open and clear. If

you can live with the treble energy it delivers then there's little like it. Expensive perhaps, but dramatic too!

The eagle eyed will see that there's more than a passing similarity between the budget Q1 and the expensive XQ1. Whilst the XQ1 is smoother, more cohesive and accurate than the Q1, no one could accuse the Q1 of being anything other than great fun to listen to. It is one of my favourites in many senses, but there are times when (engineer speaking) the tweeter needs a notch filter to take out its peak, since subjectively it is obvious.

Epos has tried to get monitor quality from a small box at a very low price with the diminutive ELS3. It's really a student's starter 'speaker and a good one at that. It doesn't have the obvious sheen of KEF's Q1 and is tidy and accurate in basic balance. However, it is bass light and needs all the help it can get from 'room gain' to sound fast and dynamic, then it manages well. It does, however, have serious competition from KEF's Q1 and Mordaunt Short's 912. If you are really short on space though, it's one of the best.

Ruark's Etude offers another take on things completely. The Etudes put colour and body into vocals and instruments. They make the other loudspeakers in this report sound tonally sterile. They also come across as basically well balanced – which they are. Put these properties together and you have quite a convincing sound, rich but right you could say. I feel there's actually a little too much colour and would like a smoother presentation but, according

to what you are used to and might prefer, the Etudes can have much appeal. They have some unusual and interesting properties.

Mission's tiny 780SE has to be the loudspeaker of the group if you want a really small one for the bookshelf and don't mind the price. It's also one of the most detailed and uncoloured here, if you ignore a little box boof when pressed hard by heavy bass, and a little tweeter sheen. Otherwise, Mission have given this tiddler a warm balance, just like the Mordaunt Short MS912, which makes it delightfully easy to listen to. Like any good loudspeaker it's basically agnostic, playing classical and rock with equal ability. With a clean, modern sound and delightful detailing the tiny 780SE is superb. It does need to be used close to a rear wall though and benefits from the support of room gain; the small cabinet just cannot generate strong low bass unaided.

Mordaunt Short's larger MS912 overcomes this problem by delivering more low frequency output, and by any standards it has a plentiful supply of good quality bass. It also has a tweeter with abilities beyond those of its rivals in this group, which becomes obvious with strings in particular. It is finely detailed. The 912 has a warm but smooth balance and is both fast yet revealing. There is a little aluminium colouration I fancy, but from the bass/mid unit rather than the tweeter. It is only a smidgen though and largely unnoticeable. Not perhaps quite as uncoloured as Mission's 780SE or as lively as KEF's QI, it is still the best all-rounder - at a ridiculously low price.



Tannoy Sensys DC1



Ruark Etude







Introducing the latest addition to the Series 5, the Naim AV2 (Audio Video) processor. It not only enhances anything you listen to, it makes everything you watch come to life. People talk about 'Surround Sound', at Naim we immerse you.





# Speak Easy...

There's so much more to loudspeakers than meets the eye! While they may look similar on the outside, there's a wealth of subtle but significant differences inside which dramatically affect the sound. Noel Keywood explains what to look out for, to make choosing your next 'boom box' a breeze...

anufacturers have alighted on a good enough compromise design in the modern, two-way, reflex loud-speaker. A majority of loudspeakers available rely on this arrangement where a bass/mid-range unit is loaded by a cabinet with a port and, above it, sits a small tweeter to handle high frequencies.

This sort of loudspeaker goes low for its size. Some complain about bass quality, which can be a bit soft or vague perhaps, depending upon the effectiveness of the port (its If you're a violinist and would like to hear strings, only a ribbon or electrostatic will get close...

with tips on choosing the right one, as well as setting it up for the best results.

Small reflex loudspeakers intended for shelf or wall mounting commonly have a front port, so they can be placed hard up against a rear

wall. The drawback here is that internal box colourations issue from the port. Rear ports lessen its audibility but need space – a few inches behind the speaker - to breathe. At high volumes small ports can chuff and again rear positioning reduces audibility. For bass quality and impact look for the largest

and impact look for the largest bass unit possible. Small ones work hard and produce large quantities of distortion as a result. It doesn't sound nasty, lightening timbre a little and reducing

apparent bass

power. But at the end of the day you just won't get bass impact from a small hard-pushed driver.

Cone materials have a large

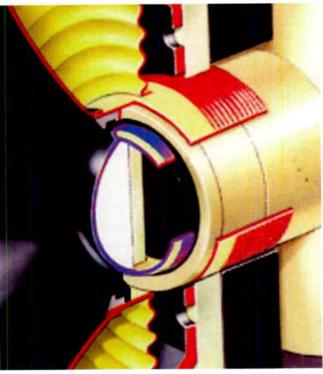
impact upon sound quality and it's here most advances are being made.
Traditional paper and fibre cones are light and can sound fast, but they also sound coarse,

coloured and edgy or even nasty at high volumes as the cone starts to break up. Such drivers are cheap and efficient, but have audible limitations.

Through the seventies and eighties plastic cones, like Bextrene, were used to improve upon paper. They offered more consistency, better damping and control. However, they were also heavy, slow and often quacky. A generation of rather bland loudspeakers emerged.

Nowadays, new synthetic materials, often woven composites, are popular. Kevlar and glass fibre are two; both give a fairly hard, bright sound, especially when married to a metal dome tweeter. Mission are using a ceramic composite and others, like Castle and Wilson Benesch, use carbon fibre. These materials all have their own intrinsic characteristics, although design implementation affects sound quality too. Ceramic composite is super clean and carbon fibre quite dark but very relaxed in its sound; it's well damped. Since these characteristics arise from cone 'break up' don't be frightened to put on closely miked vocals when auditioning a loudspeaker and turn volume up, perhaps standing back a bit to compensate. Paper cones in particular can get nasty at high volume. Avoid heavy bass lines; they'll confuse this issue of cone colour and high level break up.

Mordaunt Short and Monitor Audio both use metal cones. Modern ones work well enough, sounding



KEF's clever Uni-Q unit places an aluminium dome tweeter (blue outline) at the base of the woofer cone...

tuning and damping), but a closed box (i.e. no port) must be bigger to offer equally deep bass. Here's a guide to the modern loudspeaker,



At the lowest resonant mode of a room, high pressure exists against the walls (light pink). The loudspeaker best drives a room from a wall position and bass sounds loudest here too, so these positions give strongest bass from a loudspeaker

clean and detailed, as well as fast, but there's usually a little residual colouration. Metal cones have a bright, apparently open sound and are seemingly very clean. Mediocre ones will ring and sound coloured though, so audition carefully, especially with vocals and violin.

Tweeters fall into two basic categories: metal and fabric. Poor metal domes sound sharp and fizzy, adding sibilance and spitch to vocals in particular. They can also make violins sound both bright and coarse. When choosing a loudspeaker it's a good idea to take along a few bright sounding CDs to check this. Good metal domes can sound insightful and detailed — even delicate, but there aren't so many around.

Fabric (textile) domes usually provide a smoother sound and almost always one with less sheen. Again, there are good and bad ones and only listening can tell one from t'other. A poor fabric dome sounds coarse and peaky ones edgy.

Companies like German Elac make ribbon tweeters and these generally offer better results than domes; differences can be pronounced. A ribbon sounds very smooth and natural, airy and often sweet. Ribbon drivers are expensive however, reflected in the final assembled loudspeaker price. But if, say, you are a violinist and would like to hear rosin on a string, only a ribbon (or electrostatic) will get close.

A small loudspeaker unable to shift enough air to generate power within low notes will sound lightweight and even undynamic. However, given some assistance from room gain they work well enough providing you don't expect really strong bass. The Mission 780se and Epos els3 are perfect examples in this month's group test. Put in the right sized, meaning 12ft-14ft long

approximately, they'll sound balanced.

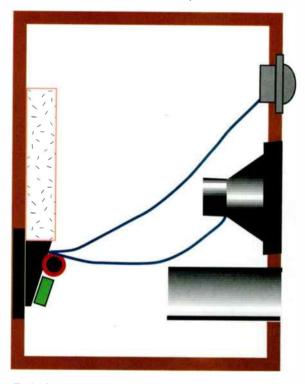
If you insist on using a loudspeaker so small and want deep bass then a subwoofer is a solution. Unfortunately, too many subwoofers are boom boxes that don't go especially low, measurement shows; in fact, most are like this and they

sound terrible, giving a loose, booming sound with little resolution of pitch. A good one from REL costs money, but it is worth it. Such a subwoofer needs careful tuning, otherwise you still won't get good results. But a subwoofer working well can shake the place quite nicely and it does provide extra drama, especially with movies. Recording engineers sometimes play tricks too and it will reveal them. such as the 25Hz heartbeats on Dark Side of the Moon.

Anchoring a loudspeaker so it doesn't vibrate helps give the sound definition and attack. You can do this by using rigid stands with floor and

cabinet spikes, wall brackets (not to be sniffed at) or a firm, non-resonant shelf. This assumes you are using a small bookshelf design. Floorstanders like the Mordaunt Short's 914 can be sand filled to improve stability and harden their sense of attack, as well as damp the box. This is well worth doing if you don't mind ending up with a cabinet so heavy it is almost unmovable. Kiln dried silver sand from a builder's yard is the stuff to go for.

Large bookshelf loudspeakers like the Kef Q1s or Mordaunt Short 912s reach down to 40Hz these days, which is as low as most instruments go and a sensible lower limit. If you want to go lower or produce lots of bass power then you'll need more cone area to shift air and this means getting a floorstander with an additional bass unit. This will not only produce more acoustic power, it will be able to accept more amplifier power, since there are two voice coils to share the load. Large floorstanders with prodigious bass output don't always suit small rooms though, overexciting room modes around 60Hz to produce a boomy sound. It's a



Today's reflex loudspeaker uses a bass/ midrange unit which is loaded by a cabinet with a port. It works from 40Hz up to 3kHz. The port damps cone movement at resonance, around 50Hz, and extends output downward a little. Above lies a tweeter that extends response right up to 20kHz. Both are fed from the crossover network, usually attached to the input terminal panel

pretty approximate affair, all this, and sometimes the match will work. Normally though, big floorstanders are for bigger rooms, where they can generate enough volume and can excite the room's lowest mode to



Elac's JET ribbon tweeter uses the Heil air motion transformer principle to 'squeeze' air. Seen here are the folds in the ribbon

produce bass with real depth.

Bass quality is always an issue. Deep bass decays slowly and makes for a subjectively slow sound if there's lots of it. Big loudspeakers in 18ft rooms don't give the same fast sound as a small box tuned to around 50Hz in a medium sized room. Also, recording engineers commonly add boost at 60Hz to give bass a bit more life and impact. Hi-fi buffs into a speedy sound from rock are best served by a compact loudspeaker where there's plenty of output across the 40Hz-80Hz octave, but less below this. Tuning the port high, rather than low is a useful trick at a designer's disposal, adding to the perception of speed at the expense of depth.

Another trick is to vent a loudspeaker on the floor, so driving the vertical room mode effectively, Since most rooms are 8ft-9ft high this will give some extra oomph at 65Hz or so, adding some zip to the sound. Castle use floor venting.

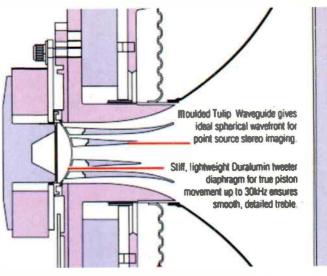
A small loudspeaker will struggle

to fill a big room and, much past 18ft long, a floorstander is needed to generate reasonably high volume. As a room gets larger so its main modes become better damped. An 18ft room will have a length mode at 30Hz where it won't provide much gain to support bass output from a small loudspeaker. Rooms at or above this size will have well damped, deep bass if adequately driven, but room gain will have moved down to a region below the operating range of a typical loudspeaker, giving altogether flatter sounding, less enthusiastic bass. It's a reasonably good size for a listening room all the same,

having the floor area and volume to accept loudspeakers and a hi-fi rack.

To optimise sound quality most modern hi-fi loudspeakers are biwirable. With bi-wiring the crossover is split into high pass (treble) and low pass (bass) sections by removing external links. This means two cables per loudspeaker are required, one for bass and the other for treble. Although each cable would appear to carry the whole frequency range, almost no current flows over the rejection band, so the split is real and does work. Bi-wiring lessens muddle and improves clarity. These days dedicated four-core cables are available. Tannoy provide an earth terminal on their loudspeakers as well, bringing the terminal count to five.

It's worthwhile locating a loudspeaker firmly, in a suitable



Tannoy's Dual-Concentric loudspeaker places a Duralumin tweeter at the base of a moulded waveguide that can be seen protruding through the centre of the bass cone

position and then connecting it up with a decent bi-wire cable to get the best from it. Small loudspeakers might be inexpensive these days but there's quite a lot of technology in them. Care with placement and setup will help get the best from them.

Here's the lowest frequency a room will support fully, related to its length. Bass guitar reaches down to 41Hz, piano to 27.5Hz and Organ to 16Hz.

and to 27.3nz and Organ to Tonz.		
Length	Frequency	
10ft	54Hz	
12ft	42Hz	
14ft	39Hz	
16ft	34Hz	
18ft	30Hz	
20ft	27Hz	



#### STANDS THAT DELIVER

As their name suggests, bookshelf 'speakers work well sitting next to your irreplaceable collection of Readers Digests. They're also very effective Blu-tacked to windowsills, if yours are deep enough. However, larger bookshelf designs will need a serious set of stands, such as these superb Apollo AZ10s. At just over £100, you get a very rigid and neutral platform for your baby boxes, raised to the correct twenty four inches off the floor. Optional top plate spikes are available to match the supplied base spikes, but again, Blu-tac works very well indeed. The finish is superb and they can be mass loaded should you feel the need. Recommended.

# Gentlemen, Choose Your Weapons...

Loudspeakers are the most personal of passions. While many may agree on the best source or amplification, few audiophiles concur about the best 'speaker. Here, each member of the *Hi-Fi World* team nominates their favourite design. Couldn't disagree more? Then write in and tell us all about your own top transducer!



#### YAMAHA NS1000M

he problem with most oudspeakers can be easily identified - they don't make you think, "wow!" Spend a pleasant afternoon with a pair of top B&Ws, and you'll be impressed by their couthness, clarity and colour. Strap yourself in before a pair of big JBLs and you'll love the way they follow a tune. The Yamaha NS1000Ms don't give you time to distil your thoughts on their respective strengths and weaknesses - rather, you find yourself gripped, transfixed, hypnotised and enraptured. Your jaw is on the floor.

Given that all 'speakers strive to fulfil a commonly agreed purpose — that of reproducing music as 'naturally' as possible — it is amazing that they sound so different. The fact that expensive, high end designs.

which presumably throw more resources at the problem, don't converge any more than cheap ones, is all the more baffling. The Yamaha NS1000Ms sound quite unlike any 'speaker you've ever heard - you can spot them at fifty paces, playing in another room behind a closed door.

They're so easy to identify because they sound amazingly, uncannily, unerringly 'live'. That's 'live' as in 'alive'. As in real music being played by real instruments in real time. It's the sound you expect whenever you got to a live concert — be it Van Morrison or Ludwig Van...

How so? Well, timing is of the essence. First, the treble and midrange drivers are both phasecoherent domes (a small one and a very big one, respectively). Critically, they're fashioned from Beryllium which is the lightest metal in the Periodic Table - giving ultra fast responses, ultra high sensitivity and incredibly low distortion. The midrange dome runs right down low, whereupon it turns to a lightweight carbon/paper cone to move air. Crucially, a bass port is nowhere to be seen, and for my money, no ported loudspeaker can ever sound right or true. A massive 50kg cabinet completes the picture.

The result is 'thunder and lightning'. The Beryllium drivers, which – JM Labs Utopia notwithstanding – are quite unlike anything ever used on any other design, give

an unmistakably clear and open sound with razor-sharp transients. The good old fashioned, unreconstructed 12 inch woofer duly obliges with dizzying amounts of low frequencies, right on time thanks to that closed baffle cabinet. What a 'speaker - wow! DAVID PRICE

#### LINN ISOBARIK



"I like small speakers, I like tall speakers, I like wall speakers," declared Cliff Richard in Wired for Sound, "but most of all I like loud speakers" – and unfortunately most people agreed with him. Not Setright: I dislike all speakers. They are the most treacherous elements in the entire hi-fi panoply, and I especially dislike those which have to be turned up loud if there is to be any semblance of balanced response

over the full frequency range. If only headphones did not tie me to my seat and make the world spin whenever I move my head, I might not bother with loudspeakers at all.

Making the best of a bad job proved easy. The Linn Isobarik (no longer made, alas!) suited my approach to listening. I do not care a tuppeny dam for what some people worship as soundstaging, but I do want to hear all the music correctly balanced. It may be that the Isobarik, with its forward-facing treble and mid-range drivers duplicated by another set facing upwards, is naturally poor at soundstaging. It can be made good at it by wiring the two boxes out of phase; I do not care.

What matters is that the Isobarik presents in effect two sets of Kans, one upright and the other supine, supplemented by a stereo pair of sub-woofers — and those depth chargers are particularly precise because of the matching pair placed behind them to seal their hindchambers and ensure that the ones I hear do not have to fight against changing pressures behind them. That is what the name meant.

The result is taut, fast, accurate, and admirably distributed: I can sit where I hear the speakers, or where I hear the room, and either way it's satisfying. The active versions - Aktiv in Linn-speak - are even better, improving the balance between drivers and extending the low-loss frequency range even further. There are organ parts, in some pieces of which I am fond (Holst, Elgar and Respighi occur to me at once), that I do not hear through anything else. In the end, there is one thing that makes the Isobarik special. It is the only speaker I have heard that does not sound like a speaker.

#### LJK SETRIGHT

#### **LOWTHER ACOUSTA**

Loudspeakers are funny things never perfect, and always the last and therefore most insignificant part of



the chain! My friends rib me like mad about my long-term love affair with full range paper cone loudspeakers, and one of the finest remains the classic 1964 Lowther Acousta (not the earlier version), fitted with a single PM7a drive unit. Response is ragged (Noel, I beg your forgiveness!) and the constant width folded rear horn does nothing to help the odd standing wave...

The drive unit itself is a real blast from the past. Based on Paul Voigt's original 1927 loudspeaker, Lowther used parchment paper to fold the cones! The voice coil is formed on paper also, and is strangely wound on the inside as well as the outside, and is thus incredibly vulnerable to overload. The PM7a features a very strong alnico magnet, and uses cobalt steel pole pieces.

Driven by the wrong amplifier (anything transistor, and anything non-linear in the valve department) or placed in the wrong location (they need to be used hard in corners) these things can sound downright nasty, thin and shrill with zero bass and a kind of 'take your head off' midband and treble! These 'speakers are incredibly efficient, around the 103 dB per watt rating, and despite Lowther's ridiculous claims, power handling is no more than about 20 watts, but with that kind of efficiency, it can easily play in excess of 111 dB, which is very loud (we're talking eleven out of ten, here)! Despite that ultra high sensitivity, Lowthers do not really suit single-ended zero feedback triode designs - rather, a good push-pull unit with some negative feedback (Quad II, Radford STA15, EAR 509) really suits these 'speakers.

Set up correctly, the Acousta remains a dazzlingly dynamic and fast performer. It has the kind of bass speed that you can only get from an electrostatic, but the dynamics and sheer volume levels only available from moving coil 'speakers. Treble is clean and fast, and devoid of any ringing or sibilance. There is a slightly boxy quality to the sound, but it is mild, and your ears do tune out from it! They are a simply great loudspeaker, with more charisma than any room full of modern boom boxes...

#### **HADEN BOARDMAN**

#### BBC LS3/5A

As a certain salubrious soap commercial once said, "one instinctively knows when something is right". This could not be more true of the LS3/5A. I've had my pair for a great many years, and prize them



above all else. Just as the best literature is 'unputdownable', so my diminutive dynamos remain connected all the time, and I have no intention of replacing them.

Without a doubt, it is the prototypical, archetypal near-field monitor. Designed many years ago, the LS3/5A was originally built for use in outside broadcast vans, and most definitely not intended for the home! But such was the unusual brilliance of their sound, that public pressure resulted in the BBC granting licenses to manufacturers to build them to an incredibly tight specification, so every loudspeaker sounded precisely the same.

The drive units are KEF's famous B110 midrange and T27 tweeter, which together with an extremely comprehensive crossover unit and the (then) radically small, taut and rigid infinite baffie enclosure, makes one of the finest loudspeakers. Speech is so naturally reproduced that it is almost chilling. Spatial detailing and image projection is remarkably vivid and explicit. Cabinet size seems to have no bearing on the sound that fills the listening room bass is cleanly reproduced in spite of the frequency tailoring and the premature 70Hz roll of. The sound is seamless with a little warmth in the upper bass point and a smooth, if slightly curtailed treble. The key to the LS3/5A is naturalness and neutrality, and in these respects, the loudspeaker is literally peerless.

It's not all greatness and wonder, however. They demand careful placement on a solid, non-resonant support approximately twenty eight inches high, clear of sidewalls and at least eighteen inches from the rear wall. Oh, and they also require the highest quality signal possible from an amplifier that can drive their 1 Lohm or 150hm loads. Even with all the right things in place, you'll still not get high sound pressure levels from them, however — so subwoofers can be usefully deployed, such as Rogers'

bespoke ABI.

Designed, assembled, tested and calibrated in the United Kingdom, with the reputation of the BBC's best engineering boys behind it, this is unquestionably the finest loudspeaker ever built.

#### **ALBERT LEE**

#### **OUAD ESL-988**

I went to an ordinary boy's school in London that was extraordinary when it came to music. It had a literally world famous school choir that accompanied the likes of Pavarotti and Placido Domingo, and sung under the authoritative baton of legends



like Haitink and Giulini. The Royal Festival Hall was our second home and Benjamin Britten was the choir's patron - he composed pieces especially for the outfit. Needless to say, we had a good stereo in the music department.

It consisted of a Garrard 301, Quad II valve amps and a pair of large, brown cheese graters which I later learnt to be a pair of Quad ESL57s. (This loudspeaker's musical merit was further confirmed when I spied a pair in Brittan's library in Aldeburgh!) When I first heard it firing on all cylinders it didn't really impress. I remember distinctly thinking "that ain't hi-fi, where's the bass?" Well, we were all young once...

Years later, as editor of this august journal, I had the chance to review the (then) brand new ESL

988. I was smitten, and soon ended up with a pair. From when first powered up, they sound atrocious. But after about two hours they really sing. Bass extends (yes, really) to make drum'n'bass sound superb, and they have an immediate sound that kicks ass with the best. Orchestras have wonderful width and pin-point imaging. For even more space and depth, the addition of a decent sub will make your jaw drop.

What makes the Quad 988? Well, there's simply nothing else like it. This 'speaker is used by many classical producers and engineers as professional monitors. A couple of hours trawling through your collection will soon have you forgetting all your previous prejudices. Absolutely nothing touches them when it comes to choral music. Stick on Tallis's 40-part motet 'Spem In Alium' and let that glorious sound wash over you! The sense of 'being there' cannot be bettered. And that's coming from someone who was there in a choir (with varied success) virtually every day for fifteen years. Are they my only 'speakers? No, but when I wheel them out (which is more often than my wife would like) they often stay there for weeks.SIMON POPE

#### **OUAD ESL-63**

The most sensational loudspeaker I've used comprised a pair of stripped down Quad ESL-63s sitting atop Celestion SL6000 open dipole subwoofers. Initially I used Celestion's crossover, but this was just too basic and got replaced by my own design in an attempt to overcome problems. This not-so-little combo worked from 20kHz right down to 5Hz or so, combining all the strengths for which the electrostatics are renowned, together with earth shaking bass from open dipoles. Everything was on its limits and all limits could be reached; endless bandwidth and almost endless power seemed available. Yet at the same time the Quads were as open, smooth, neutral and revealing as ever. giving astonishing results with everything from Led Zeppelin the Richard Wagner.

After the off-on affair one always has with Quads, money was exchanged. Pieces were removed from the speakers in a slow striptease, as I tried to get past the outer dressing to the inner body. First the top plate and then the sock. This reveals – horror – a metal grille designed to stop little Johnny sliding a metal knitting needle in and electrocuting himself!

With no kids at that time, the grilles were duly removed. "It's not the polarising volts that will kill you," Peter Walker once confided, "it's the stepped up audio...", just going to prove that Led Zeppelin through Quads could be a terminal pleasure!

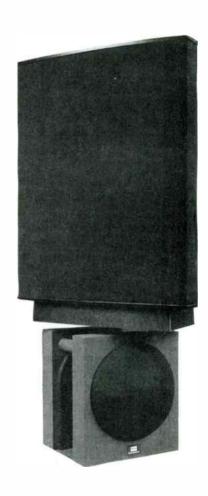
This left the dust covers over the stators, which I left on, and the overload circuits were upgraded to Quad's secondary diodes to prevent the progressive compression and muddying of the sound imposed by the primary circuit.

You could hear a pin drop through these loudspeakers - they had enormous resolution, lacking the stiction and inertia of a motor assembly and coil. Unlike the '57, the ESL-63 was full range and totally coherent. With no crossover and no phase anomalies, nothing could match it with violin. I learned how flawed conventional loudspeakers were in this area. All vocals were sublime; nothing can match good electrostatics here either. Bass went down endlessly, but fiendish amounts of power were needed to drive the SL6000s!

This set up had no rivals.

However, it was vast — too big for my lounge — and immovable so it was time to dismantle and call it a day. As Arnie said though, "I'll be back!"

#### NOEL KEYWOOD



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#### **AHAMAY**



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New MusicCAST Wireless System

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#### **PRO-JECT**

RPM4 Turntable **£349.95** 

**Turntables & Tuners** 

Arcam DiVA T61 Tuner ... Cyrus FM X Tuner. £499.95 Denon TU260L MKII Tuner... £119.95 Marantz ST4000 Tuner.. £109.95 Michell Gyro SE/RB300 Turntable ..... £1049.95 Michell TecnoDec Turntable... £599.95 Project Debut Phono SB Turntable. £169 95 Project Debut II Turntable (Black)...... £119.95 Project Debut II Turntable (Colours)..... £134.95 Project 1 Xpression Turntable...... £209.95 Pure Evoke 1 DAB Radio .. £99.95 Pure DRX-702ES Analogue/DAB Tuner..... £329.95 Sony ST-D777ES FM/DAB Tuner .. £549.95

If you want severe turntable styling on a budget, you need look no further than this. The shape of the main plinth here follows the outline of the record platter and arm to give a cut away look to the deck, and while it looks a bit like a cakestand with the dustcover in place, in use the RPM4 looks

The RPM4 soon impresses with the quality feel of its arm and the screw-down clamp to hold and flatten records, and as soon as the stylus settles into the groove it's clear this is a superior player. There's much less surface noise than with the Debut, and the music has much greater scale and power, allied to closer detailing. That lovely organic feel you only seem to get from great vinyl

playback is apparant... This is a very grown-up record player for reasonable CD player money: it's well worth exploring. August 2002

Selected outlets are Project Turntable Centres. Colour Options are available at additional cost



Michell Gyro SE/RB300 £1049.95

roduct

#### STARTER SYSTEM

#### marantz.

CD4000 (Black) CD Player PM4200 (Black) Amplifier

m71i Speakers

List Price £420

£299.95 • SAVE £120

Includes Speaker Cable Worth £20 FOC

#### PURE DRX-701ES Digital Tuner £229.95

"This new tuner from the recently renamed Pure is based on the 2001 Award winning Videologic DRX-501ES, but under the lid is an all-new third-generation digital radio engine, in the form of Frontier Silicon's Chorus FS1010.

The tuner uses 24bit/192kHz conversion with 4x upsampling and data interpolation, and is

much more the business

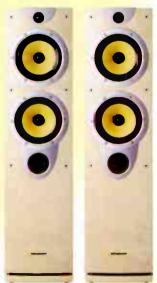
powered by a low-noise toroidal transformer - such attention to

sonic detail pays off. Digital outputs are provided on electrical and optical feed, but most people will use the analogue out, and these sound very good indeed. As usual the tuner is subject to the signal quality off-air, but when it's fed from a highquality outdoor aerial and a good signal it's capable of a crisp, powerful and detailed presentation. Even more populist music stations like Radio 6 benefit from the mix of a neutral balance and fine weight, while speech is also neutral and easy to follow... If you want a quality home tuner for digital radio, you need look no further." \*\*\*\* \*\* October 2002

#### SAVE £20

#### Wharfedale

#### Pacific Evolution 30 £649.95



"Evolution? This is more like a revolution: Wharfedale's new range is more than just an upgrade of its Pacific series. The changes are radical, but the most obvious transformation is the removal of the original's unattractive tweeter module, which was situated on top of the speaker. The tweeter housing is now sunk into the Evo 30 cabinet, the intention being to improve dispersion and benefit from the improved rigidity of the strongest point of the cabinet.

Listen to the Evolution 30s and the sonic changes leap out at you. Sitting on their chunky spikes and situated in free space, the speakers sound wonderful: low frequencies delve deep and delivery is punchy and fast.

You'll have gathered by now that we love these speakers. They're beautifully made and are great all-rounders." ★★★★ March 2003



Also Available Monitor Audio Silver S6 • £599.95

#### **SPEAKER CABLE\* WORTH £65** WHEN YOU PURCHASE

**EVOLUTION 30 SPEAKERS** 

#### CD Players

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Arcam DiVA CD73T	£399.95
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Arcam DiVA CD93T	£949.95
Arcam FMJ CD33T	£1299.95
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Denon DCD485	
Linn Genki	£994.95
Linn Ikemi	£1949.95
Marantz CD4000	£99.95
Marantz CD5400	£149.95
Marantz CD17/II M	£799.95
Meridian 507	£1194.95
Musical Fidelity A308 P	£1999.95
Musical Fidelity Tri-Vista SACD	£3994.95
Quad 99 CD-P	£999.95
Roksan Kandy KD1 MKIII	£544.95
Roksan Caspian	£994.95
Rotel RCD1072	£594.95
Sony CDPXE570	£99.95
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experience more









#### **Amplifier** Selection

Arcam DiVA A65 Plus Amplifier	£369.95
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Arcam DiVA A85 Amplifier	£799.95
Arcam FMJ A32 Amplifier	
Cyrus 6 Amplifier	
Cyrus 8 Amplifier	£799.95
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Denon PMA355 Amplifier	£199.95
Harman Kardon HK670	£299.95
Linn Kolector Pre Amplifier	£494.95
Linn LK85 Power Amplifier	£494.95
Marantz PM4200 Amplifier (Black)	£149.95
Marantz PM7200 Amplifier (Black)	£329.95
Musical Fidelity A3.2 Pre Amplifier	£999.95
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Musical Fidelity A308 Amplifier	£1999.95
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Rotel RA-1062 Amplifier	
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ARCAM

INTERCONNECT CABLE\* WORTH £60

DiVA CD82T CD Payer **DiVA A85** Integrated Amplifier

£599.95 £799.95

DWA CD82T "Arcam's lastest sounds like a more mature version of its little brother. On an initial listen the increased solidity and refinement are obvious, but over time the subtler dynamic shading and more assured handling of transients come to the fore... The Arcam CD82T is one of the best CD players available at this price point."

DiVA A85 "You'll have realised by now that we rather like this amp. It took us completely by surprise, and further strengthens Arcam's already impressive product range. The A85 is superb, and we can't wait to put it up against its peer in a group test." 

★★★★ March 2001



### **B&W** Bowers & Wilkins DM602S3 Speakers £299.95



#### SPEAKER CABLE\* WORTH 10% OF THE SPEAKER VALUE WITH ANY 603 83 OR COM NT SERIES SPEAKERS

"But the B&W 602 S3 are our winners. They're big and not particularly beautiful, yet if it were our money they're what we would buy. No rival can match the wide ranging dynamics or low frequency performance of these not so compact standmounters. Add all-round sonic excellence and the choice is easy. Give them sufficient space to breathe, then sit back and enjoy the music."

Supertest Winner August 2002

B&W CDM NT Series • Prices start from £749.95



## ROTEL

#### RCD-02 CD Player £379.95 **RA-02** Amplifier £349.95

INTERCONNECT CABLE\* WORTH £60

RCD-02 CD Player "Whether it's the raw, and sometimes just plain barking vocals of Tom Waits, or the stinging guitar stabs of Pete Townsend on some old Who tracks, the Rotel is one of those players that can't he p but bring a smile to the face - it's a breath of fresh air." ★★★★ Sept 2002

RA-02 Amplifier "The amp has a fast, detailed and yet satisfyingly full presentation. That allows it to make a fine job of the beats of Groove Armada's Goodbye Century set without losing sight of the fine details of the mix, and also husking out Marianne Faithfull's deliciously smutty vocals on

Kissing Time with real relish. Add in decent levels of equipment - and the convenience of remote control, and we reckon Rotel has a winner on its hands \*\*\* August 2002









#### CD8 CD Player 8 Integrated Amplifier £799.95

£999.95

Cyrus has been developing high performance hi-fi systems for nearly 20 years. Today their upgradeable, modular product range includes multi-room systems, home cinema and some of the world's finest hi-fi systems. Cyrus products are hand finished, half size die-cast enclosures and include a hidden digital command system that allows simple operation of any size system.

Joining the new Cyrus 8 amplifier is the stunning new high performance, upgradeable CD player, the CD8. Other new models in the 8 series include the AV8 digital AV processor and a new disc player, DVD8, featuring specially tuned video and audio circuitry.

Cyrus 8 Amplifier "The 8 is a large step forward from older generations of Cyrus amplifiers, and takes the company back into the leading pack in the sub-£1000 integrated amp sector... The Cyrus 8 is a must-audition product."

\*\*\* January 2003



#### Also Available DVD8 • £1199.95

INTERCONNECT CABLE\* WORTH £60 WHEN KANDY CO & AMPLIFIER PURCHASED TOGETHER

### ROKSAN

#### Kandy KA1 MKIII Amplifier £544.95

"When we last reviewed Roksan's Kandy integrated amp in February it fought off serious competition to come top in a Supertest. This is its replacement, the MkI Internal changes include an uprated power supply for the preamp section and identical mono modules for the left and right power amp sections. Roksan also

**Best Buy** 2002

claims 50 percent lower distortion on line-level inputs and a whopping 150 percent less on the phono input. The rated power output is an impressive 120 watts per channel into 8 ohms, and this amp has a confident, muscular way with music that bears this out. But don't be fooled into thinking this amp is raw but unrefined. With Van Morrison's Down the

Road the Kandy has the guts to render the performance exciting and dynamic, but also the guile to deliver subtle details.



The upgraded Kandy MkIII is an excellent amp; the MkII version was impressive, but MkIII is a stunner. It betters all the amps here in the timing department, and has a wonderfully robust character that works well with all types of music. It manages to retain the good points of the MkII while adding extra resolution and subtlety. All the amps here have a place in the market. It's just that at £550 the Kandy really does set the pace. ★★★★★ October 2002

#### 11L Speakers £379.95

"Quad is best known for its superlative electrostatic designs, which start at £3500. So any £379 pair of speakers that carries the company's name has to be going some to avoid tarnishing the family reputation. The first surprise is that the

11Ls come in real-wood veneers covered with piano-gloss lacquer. This type of finish is almost unheard of at the £1000 mark, let alone at this price. Has anything been sacrificed for such a luxury finish? Here's the second surprise: apparently not.

The final surprise? Well, saving the best for the last, the sound quality of the 11Ls is phenomenally good. These are small speakers at just

33cm tall, but the scale and authority of





Kef Q1 • £249.95

bass extension limitations, but thanks to a clever dual rear firing port arrangement the 11Ls plumb the depths with the determination of a rottweiler, even when placed in free space

If you're in the market for a pair of top quality standmounters these Quads are a must listen. Quite simply, they're good enough to scare the competition bia time. \*\*\*\* August 2002

#### Speaker Selection

Speaker ociec	UOII
Acoustic Energy Aegis Evo One	£179.95
Acoustic Energy Aegis Evo Three	£349.95
Acoustic Energy AE1 MKIII (From)	£1699.95
B&W CDM 1NT	£749.95
B&W CDM 7NT	£1249.95
<b>B&amp;W</b> DM303	£179.95
B&W DM601 S3	£249.95
B&W DM602 S3	
KEF Q1	
KEF Q3	£399.95
KEF XQ1	£999.95
Linn Katan (Cherry/Maple)	
Linn Ninka (Cherry/Maple)	
Mission m31	£129.95
Mission 780SE	£349.95
Mission 782SE	
Monitor Audio Bronze B2	
Monitor Audio Silver S1	
Monitor Audio Gold Reference 10	
Monitor Audio Gold Reference 20	
Quad 22L	
Ruark Epilogue II	
Wharfedale Pacific Evolution 30	
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#### MUSICAL FIDELITY A3.2 Series

A3.2 CD Player A3.2 Amplifier

£999.95 £979.95

#### FREE INTERCONNECT CABLE\* WORTH £100 WHEN ANY MF CO & AMPLIFIER PURCHASED TOGETHER

Replacing the WHAT HI-FI? SOUND AND VISION Award Wirning A3 CD and Amplifier, the new A3.2 models have been further refined and re-styled. The A3.2 CD Player now incorporates the same DAC, filter assembly and control mechanism as the highly-acclaimed Nu-Vista CD Player. The A3.2 Amplifier draws on experience gained through the development of the Nu-Vista M3 amplifier and as such has inherited many of its qualities, producing a sense of ease and flexibility that is normally only associated with far more expensive designs





To celebrate twenty five years of high performance loudspeaker design and manufacture, Mission is proud to present special edition models of its highly acclaimed 780 and 782 loudspeakers. The 'SE' is more than just a 'go-faster' suffix. A selected version of Mission's unique microfibre treble unit is fitted and audiophile grade crossover components have been used. To reflect the special status of the 780se and 782se, these models in are finished in finely grained, Alder wood veneer,

#### 782 SE Speakers (Pictured Left) £899.95

"Well, with the exception of the alderwood-veneer finish, these floorstanders look identical to the standard model, although there's a new tweeter and crossover design. One of the advantages of the three-way configuration is that each driver deals with only a narrow section of the frequency range, and the designers optimise each unit to perform its respective task. Mission's engineers have excelled in this area: these elegant floorstanders sound beautifully balanced and few rivals under £1000 can match their wonderful levels of clarity. The 'special edition' tag is overused but these talented floorstanders are bona fide sonic stars." ★★★★ April 2003

### 780 SE Speakers £349.95

"The revamped Mission 780s are hugely enjoyable: anyone with up to £400 to spend should consider these standmounters. Mission's clever ► ★★★★★ February 2003

SPEAKER CABLE\* WORTH 10% OF THE SPEAKER VALUE WITH ANY MISSION SE SPEAKER



]|{{|[

### Pioneer

#### PDR609 CD-RW Recorder £169.95



While it looks simple, the Pioneer has an impressive array of features, including the handy double-speed disc finalization and CD-Text compatibility. Internally, the PDR609 is a big step up from the Award-winning PDR-509 it replaced: the DAC is now a 24-bit/96kHz number, aided and abetted by Proneer's Legato Link conversion technology, and it has 24-bit A-to-D conversion, which is ideal for copying your vinyl onto CD. If this is your plan, you'll appreciate that the Pioneer makes it easy to create first-rate copies from any source, helped by the manual recording-level controls. It was hard to tell our copy of Jim White's No Such Place from the original.

While the Pioneer's replay quality can't match the Marantz, it costs £120 less, which would buy you a lot of blank discs. If you've already got

a dedicated CD player, we'd go with this recorder." ★★★★ August 2001

#### **Recorder** Selection

Harman Kardon CD-R30 CD-RW	£499.95
Sony RCDW3 CD-RW	£219.95
Yamaha KX393 Cassette Deck	£119.95
Yamaha KX580SE Cassette Deck	£199.95
Yamaha CDR-HD1300 CD-RW	£529.95





**Pricing**We always try to ensure our prices are highly competitive. In the event you can find the same products and excellent service at a lower price, please bring it to our store managers' attention.



## DENON

DVD-2900 Universal DVD

Region 2 Multi Region £799.95 £849.95

Marking one of most significant product introductions in the company's history, Denon has introduced the DVD-2900 player, the company's first-ever all-format universal disc player. Offering both DVD-Audio and Super Audio Compact Disc playback, it includes a host of leading-edge technologies and features to offer ultimate-performance multichannel audio and PAL progressive scan video playback.

Consistent with Denon's philosophy that a DVD player is a high-end audio component as much as it is a video playback device, the DVD-2900 is designed for unsurpassed sound quality. It incorporates leading edge Burr-Brown 24-bit, 192kHz audio D/A converters for the highest possible resolution and fidelity along with maximum surround sound separation and dynamic range. The DVD-2900 also offers full digital bass management for DVD-Audio and Super Audio CD, with selectable crossover slopes to optimise sonic performance with any loudspeakers and room environment. In addition, the player includes built-in Dolby Digital and DTS decoding with 5.1-channel outputs, plus built-in MP3 decoding that provides up to 10 hours of music playback from a single MP3-encoded CD-R or CD-RW disc. The video performance of the DVD-2900 is equally exceptional. The player



incorporates precision Analogue Devices 12-bit, 108MHz video D/A converters, and Denon's PureProgressive Scan™ technology featuring the Silicon Image Sil504 decoding engine. The processor is capable of real-time computation at more than 6 billion operations per secondmassive computing power that assures seamless, artifact-free image quality.



#### XQ One

Speakers **£999.95** 



By combining technologies from its Reference and Q Series, KEF has introduced the new XQ speaker range. Featuring KEF Uni-Q 'point source' arrays for unrivalled off-axis performance and 'super audio' Hypertweeters™, the XQ

range fully exploits the wide bandwidth of digital formats like SACD and DVD-A. The range comprises the XQ One and Three stand mounters, the XQ Five floorstanders and XQ Two c centre speaker. All XQ models are available in a variety of finishes.

When tested in a group test, the XQ Ones received top honours - "KEF's new XQ Ones really are in a class of their own, With a depth of insight that is unmatched, plus a sense of cohesion that is rare - the XQ Ones are startling" concludes Hi-Fi World - April 2003 Please Note Price Excludes Stands



#### 19mm Titanium Dome Hypertweeter

Developed directly from the Reference Series and time-aligned with the main array in its own low diffraction steel pod, KEF's new 19mm titanium dome Hypertweeter™ has the same wide dispersion characteristics at 'super audio' frequencies. With a flat response to 55kHz, it provides the high frequency extension needed to take full advantage of SACD and DVD Audio.

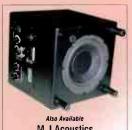


S INTERCONNECT CABLE\* WORTH £100

#### Strata III Subwoofer (Wood) £699.95

REL is an audiophile company who take great pride in designing and building their highly acclaimed subwoofers. Because of their total commitment to performance, REL sometimes adopt unusual solutions

to otherwise straight-forward problems.



**M J Acoustics** Pro 50 (Black) £299.95

The aggression of Rage Against The Machine's Take The Power Back is near-tangible, the midrange a spitting, spiteful companion for the tight, deep, air-agitating bassline. As for the more deft creations of Chick Corea, the REL's articulate nature serves subtly to underpin basslines, rather than swamp them. The adaptability makes the Strata III a highly recommended subwoofer - it's a very versatile, musical piece of kit, and it doesn't cost the earth."

\_\_\_\_ ★★★★★ July 1999

PLEASE NOTE: Some products may not be available at all outlets. Please call before travelling.

















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Please call to verify hours of business.

Contact our outlets via E-Mail outlet@sevenoakssoundandvision.co.uk

Each Sevenoaks Sound & Vision outlet stocks a wide range of quality products, covering all categories of specialist home entertainment, from Hi-Fi Separates to Widescreen Plasma Televisions and Projection Systems, all at highly competitive prices.

Friendly staff are available in all stores to advise, demonstrate and guide you through the home entertainment jungle.

Subject to legal completion, we are opening new stores in the following locations: Ealing (North London), Staines (Middlesex) and Wilmslow (Cheshire).

Sevenoaks Sound & Vision's Custom Installation Service enables the integration of a home cinema or hi-fi system into your home as neatly and seamlessly as possible. All electronics can be hidden away, speakers discreetly mounted either in the wall or ceiling and the complete system operated via remote control





Our installation experts are fully trained to the highest standards in all areas and provide a prompt, reliable and professional service. Whether you're looking for a multi-room system, a dedicated home cinema installation with a retractable screen and built-in speakers or an integrated control or lighting system, Sevenoaks Sound & Vision has a diverse range of products available to cater for all your requirements.

### sevenoaks onlir

The Sevenoaks Sound & Vision website has news and information on the Sevenoaks group and its outlets nationwide. The website is designed to provide you with answers to the questions you may have when buying new equipment.

For impartial advice and information, just click on sevenoakssoundandvision.co.uk

#### earance

With 48 outlets nationwide, the Sevenoaks Sound & Vision group stock and display a wide range of products. As individual models and product ranges are changed or superseded, the preceding models are made available at a reduced price, for clearance. Visit our Website for an up-to-date list of the clearance stock, listed by outlet, within the Sevenoaks Sound and Vision group.

Spread the cost of buying. 0% finance option is available on the vast majority of products we stock. Written details on request. Licensed credit brokers. Minimum balance £400. Subject to status.

An outstanding selection of products are on display and available for demonstration at all Sevenoaks Sound & Vision stores. However, some products may not be available in all outlets. Please call to check availability before travelling.

Whilst we do not claim always to be the cheapest, we try to ensure our prices are highly competitive. Take into account the expert advice, unrivalled product selection, demonstration facilities and excellent pre, during and after sales service and the lower price might not look such good value.

In the event you can find the same products and excellent service at a lower price, please bring it to our store managers' attention. We will always endeayour to offer you the best deal.

# HIP TO SOU

Just like London Buses, you wait for ages for a decent 'affordable' phono stage and then suddenly three of them come along... Musical Fidelity's new X-LPSv3 is the latest entrant into the fray, and it's a real big hitter as David Price found out. Going from round to square hasn't hurt it one bit!

n altogether larger and weightier affair than the preceding X-LPS, the new phono stage from Music Fidelity measures 180x88x208mm, Whereas the X-LP and subsequent X-LPS tipped the scales at 1.3kg, this box hits 2.5kg. It feels more substantial and better finished, cute as the tubular belles were. The package comprises a chunky I2V AC (500mA) power supply, which although rated the same as the old wall-wart looks far beefier, plus the X-LPSv3 itself.

Round the back lurk two sets of phono inputs (one for MM, one for

> MC - useful!), an MM/MC switch, an earth terminal and the line outs. All use good, strong, gold plated RCA phonos. The v3 boasts a 2dB better 'A weighted' signal to noise ratio on MC, and 3dB on MM and an input overload margin improved by 3dB - this

aside, it retains its predecessors measurements, including the 3mV (claimed) MM sensitivity and 350uV MC sensitivity.

Michell Orbe turntable Origin Live Illustrious tonearm Ortofon Kontrapunkt B cartridge Audio Research Vsi55 amplifier Yamaha NS1000M loudspeakers

REFERENCE SYSTEM

Impressive! Musical Fidelity now has its scooters on Creek's and Trichord's respective lawns, and is revving them up with a vengeance. Let's set the scene -Creek's OBH-

21SE is a brilliantly capable little thing all power and punch and energy and vim. but not the most finessed. If it's 'punk rock', then Trichord's Dino is 'classical'. Richer, smoother and better proportioned, it is altogether more demure. This new Musical Fidelity lands bang in-between the two - it's 'jazz', baby!

I kicked off my listening with Guns'n'Roses 'Sweet Child of Mine'. The X-LPSv3 showed real space and grace. Whereas the Creek throws everything at you, the Mu Fi stands back a row or two - it's not as direct, but you do get an altogether more panoramic view of the stadium, so to speak. There's more bass too, and it's not flabby or slow, but surprisingly grippy and engaging. The Dino has more still, although it seems just a little lackadaisical by comparison.

Moving up the scale, again the Creek's midband forces itself at you. The effect is most engaging, whereas the MF sits down on its seat in great repose. The band seems a little more stadium rock, and less heavy metal. There's a truly smooth and even midband which gives a nicely widescreen feel. Accurately located images inhabit an acoustic with fine depth perspective.

Cue up Kate Bush's 'Wow' and

the X-LPSv3 romps ahead. There's a greater sense of what the song is about - it has a dreamy, contemplative quality, whereas the Creek just wants to bash it out. Move to the more expensive Dino and this is further evident, with extra spatial clues and low level detailing. The treble of this phono stage is superb for a budget design - as with all MF products it's very couth, smooth and slightly sepia-tinged, just what you need at this price!

X-LPS va

MUSICAL FIDELITY

0

Overall then, you have a very couth and cultured sounding product that simply allows you to enjoy music without it being foisted upon you. It fits into the market as the great allrounder at the price. Although comfortably superior to the already fine Creek, it's not up to the Dino but then again is usefully cheaper.

Satisfyingly smooth and open sound makes this the best at the price.

VERDICT ••••• £

MF X-LPSV3 £249.00 **Musical Fidelity Ltd** C + 44 (0) 208 900 2866 www.musical-fidelity.co.uk

#### **SOUND QUALITY**

SPECIFICATIONS (MANUFACTURER'S DATA) MM Sensitivity 3mV Input impedance 47k ohms 30dB Input overload margin Signal / Noise ratio >75dB unweighted >80dB 'A' weighted

Sensitivity Input impedance Input overload margin S/N ratio

>65dB unweighted >72dB 'A' weighted

350µV

30dB

100 ohms

**RIAA** accuracy

# EX-STATIC!



No 'speaker special would be complete without a listen to what many audiophiles regard as the very best transducer ever made - Quad's original ESL57. When he heard it was available from Classique Sounds in rebuilt form - complete with One Thing Audio's brand new OTEC panels and stands - David Price just couldn't say no...

s every loudspeaker appraisal is invariably personal, let me begin with an anecdote. I heard a (somewhat well campaigned) pair of original ESL57s some years back, and was bowled over. Although I could hear a lot that wasn't quite right, I could also hear much that was spot bloody on - if you'll pardon my French! I was left intrigued, but ultimately unfulfilled. I came away from the experience thinking that I'd never heard classical - or indeed electronic - music sound so good, but rock music was an altogether far too cerebral occasion.

The trouble was that it proved a defining audio experience. Properly done electrostatics — and the Quads are nothing if not this — throw a million watt spotlight on what's wrong with moving coil 'speakers. In this respect they're unpleasantly vengeful — it's as if they're saying, 'Okay, if you don't like me then I'm not going to let you love another'! They refocus your finely aligned auditory powers to hear everything that's going wrong with your pair of boomy, quacky, phase-incoherent.

boxes sitting either side of your fireplace. Previously unheard bass cone break-up, tweeter spit, cabinet resonance and port chuffing suddenly sound ten times louder, and now you can barely hear the music — damn!

And the Quads are quite right, of course. With the exception of a handful of moving coil loudspeakers, some of which you can read about on p24, there are few conventional boxes that come anywhere close to what real music sounds like. The sad fact is that we condition ourselves to what we're used to hearing, and begin to fool ourselves into thinking that it sounds like real music.

The bitterest pill, however, is that

Quad's ESL57s – for all their inspired genius – are also far from perfect. Electrostatics have lightning-fast transient response, making for a

brilliantly natural and airy sound, but all the associated electronics create their own problems. Their input stepup transformer is a big thing to put bang in the path of the signal (they often have variable performance at the frequency extremes and hysteretic distortion in the midband). The design is also highly capacitive, which screws most solid state amps with their low damping factor and high negative feedback - into knots. 'Statics are also prone to arcing at high levels, which means the panel starts to fry itself. In practice, this has meant the ESL57 is simply not capable of high volume levels, or indeed of faithfully conveying truly wide dynamic range. The ultra fast low and medium level transients fool you into thinking this is a brilliant rock loudspeaker, but crank up the

volume and it sits on transients and starts to compress things.

They're also prima donnas when it comes to positioning. In an ideal world, there would be just as

much space behind the '57 as in front of it. They should never be put flat against a wall.

As far as amplifier matching is

concerned, a medium-power, pushpull valve amp is ideal. Tubes don't mind the nasty capacitive load of an electrostatic, and don't get too upset by their vicious impedance curve which swings from as low as I 0.8ohms to over 60ohms! When serviced by Quad, 'clamp' circuits are fitted which prevent input voltages exceeding the 33volts which Quad quote as a maximum before damage occurs. These are necessary with big transistor amps, but moderately powered valve amp users would do well to remove them for superior sound.

#### **MOD YOUR QUADS**

Haden Boardman talks you through five serious upgrades to stock ESL 57s...
[1] get them off the floor with I8-24" stands
[2] located inside the back of the ESL panels is a covering of 'sack-cloth', and the tweeter panel has an even thicker chunk of felt remove them! WARNING: the very high voltages inside these speakers can kill – only open them up when the power has been switched off for several hours!

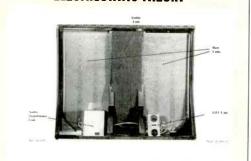
[3] buy an additional pair and stack them. Extra efficiency, higher SPLs and better bass are the rewards. This requires a properly rigid frame most people build one which screws into the sides of the '57s in place of the wooden end cheeks.

[4] re-frame them - the original wooden carcass is not solid, and major gains can be had by building a stiffer frame.

[5] use a supertweeter to improve treble.

Adding a Decca-Kelly or an ATD ribbon can bring more spaciousness. Wire in a single 6dB/octave high pass filter - most people prefer a 2uF cap, although there's invariably room for experiment.

#### **ELECTROSTATIC THEORY**



An electrostatic comprises a moving Mylar film diaphragm set between two fixed, perforated, electrodes through which sound can pass. The film receives a fixed charge, whilst the electrodes receive the varying music signal, stepped up to a very high voltage. As power from the amplifier energises the fixed plates, the statically charged film vibrates in sympathy under electrostatic forces, pushing soundwaves through the perforated electrodes.

#### **BORN AGAIN**

Back in 1999, we tested a rebuilt pair of Quad ESL57s from One Thing Audio. Since then, the company has introduced its very own OTEC electrostatic treble panel, designed to be substituted in place of the Quad part. The loudspeakers you see before you boast this very panel (at £150 each), plus reconditioned bass panels (at £130 a pop), plus One Thing's own rebuilt audio transformers (£45 each) and rectifier board (£50), rebuilt electronics and rewiring, plus the 'Rupert' loudspeaker stands at £175. The total cost as a package is £1000 per pair plus your own loudspeakers of course - and it takes between six and eight weeks for the work to be done. One Thing also does a standard Quad ESL 57 service for

£375, which does not include any work on the panels; it takes between two and three weeks.

The OTEC treble panel is the obvious point of interest. Screw or solder- tag terminations have been abandoned in favour of quality leads soldered directly to the electrodes. with due attention paid to the elimination of any shunt capacitance. Panel matching is within 0.5 dB. The panel is compatible, and therefore interchangeable, with any original Quad panel but the OTEC's tonal signature is such that changing in pairs is highly desirable. Unlike the original Quad panel, where the wooden frame is little more than a support for the dust cover, the OTEC frame is an integral part of its design and on no account should the panel be used with its frame or dust

covers removed. The curiously named 'Rupert' loudspeaker stands are an excellent design, bringing the Quads just far enough off the floor.

#### **SOUND QUALITY**

Dynamite. I can happily report that this re-panelled and rebuilt pair of Quad electrostatics is one of the very best loudspeakers I've heard in my life. Regular readers will know I am still in awe of the Yamaha NS1000Ms (which use ultra-light and stiff Beryllium domes - instead of electrostatic panels - to give incredible transparency), and the Quads haven't quite managed to wean me off. However, I can confidently say that in some ways they surpass the Yamahas, and in most others they're frighteningly close. Now, this is the first pair of loudspeakers I've come across about which this can be said - and believe me I've been looking long and hard!

If you've heard an old pair of ESL 57s, you'll remember them as being very clean and crisp, but somewhat veiled in the treble, soft in the bass and dynamically limited. Your most powerful impression will doubtless be of the disappointingly low volume levels they're capable of.

Forget all this - it simply doesn't apply with these. Positioned correctly and properly aspirated by a decent valve amplifier and a serious source (preferably vinyl, due to its higher resolution than CD), you'll hear a gobsmackingly large and powerful sound with masses in reserve. There's a bass response so deep and rumbling that you'll wonder why anyone needed a subwoofer, a nervetingling midband which will have you taking a sharp intake of breath, and a deliciously finely etched treble response with wonderful filigree detailing. Above all is a massively expansive and open sound with incredible cohesion and smoothness from bottom to top.

I started my listening with The Crusaders' 'Street Life', complete with that sublime vocal performance from Randy Crawford. I've been using this as a review tool a lot of late, and was beginning to tire of it despite the song's brilliance. The Quads made it sound shiny and new - freshly minted and straight out of the bag! In the first couple of bars, the stunning, glass-clear midband imparted the sound of the instruments themselves. rather than any combination of plastic or doped paper drive units. The Fender Rhodes keyboards sounded precisely thus, the hi-hat cymbals were disarmingly natural, and Randy's voice was just as I remember



The Hi-Fi World listening panel...

hearing it in a Tokyo nightclub, back in 1992! Sheer, unabashed transparency — with no quacks, warbles, sponginess, squeaks, squawks, booms or tizzes. This is why people love electrostatics — it takes you to a higher plane. You feel privy to a secret that even most audiophiles don't know. It's an amazing sensation of sheer luxury and indulgence, yet it seems so natural and so right. You think to yourself, 'why did I bother with anything else for so long?'

Firecracker attack transients allied to amazing neutrality and real power handling equals real fun with classical music, so I cued up my DG pressing of Beethoven's Pastoral Symphony (Karajan) and sat back waiting to be amazed. And I was. The first bar - no. scratch that - the first note of the first bar showed how stunning these things are. Have you ever had a symphony orchestra in your living room? You've doubtless had a clanky, nasal, catarrh riddled approximation of one, but unless you've had the privilege of owning electrostatics, then you'll not know how it feels. The tone and timbre of strings through these is utterly entrancing - it's like being there. Most impressive though was the way these Quads - unlike the original ESL 57s I remember - just got louder and louder along with the music, so that crescendos with the orchestra at full tilt were powerful enough to pin me to my seat. They were moving massive amounts of air, yet sounding so couth and unperturbed.

Okay, now for that famed ESL 57 nemesis – rock music. The originals simply can't get it on and boogie with likes of the NS1000M, and while this rebuilt pair is oh-so-very-much-better, they still don't quite match the Yamahas' combination of massively high SPLs and ultra low distortion. These 'speakers go amazingly loud, unbelievably cleanly – and with their massively heavy and highly damped closed boxes show no

signs of stress as that twelve inch carbon fibre coated paper bass unit punches out like an iron fist. Cue up Saxon's '747 - Strangers in the Night' and the NS1000Ms pin you against the rear wall, but never once assault your ears despite the immense, immutable, visceral thwack.

The Quads simply can't do this — but with a great valve amp like the Audio Research, they get surprisingly close. Yes, really! Indeed, I've never heard any electrostatics sound as powerful and articulate at high levels. Serious amounts of bass emerge from within, and it's deliciously tight and taut and lithe — more so even than the Yams. They drive rooms brilliantly, given the equipment to do the job. I've heard less convincing rock music emerging from vast, horn loaded JBL studio monitors...

What then is wrong with them? While they can go from quiet to loud at the drop of a hat, they can't impart the full dynamic shading that either the NS1000Ms or the Perigee FK-ILs (reviewed a few months back) can. With either of the latter two, a drum stick thwacked onto a snare kicks you in the back of the

chest, but with the Quads at the same volume, it just about reaches the front. This, plus a lack of low, low bass (we're talking around 40-60Hz here), and the absence of a small amount of high treble information (nee 'atmosphere') compared to the Yam's Beryllium dome or Perigee's ribbon, is the only thing I can find to churl about!

To give you an illustration of how disarmingly different Quads at their best can sound, I put on my old vinyl copy of Kraftwerk's 'Computer Welt' on the turntable and sat down. I heard rhythmic patterns - interplay between two sequenced synthesiser tracks in the mix - that I've never heard before, despite playing this song literally thousands of times before, on a dizzying variety of hi-fi (including £125,000 esoterica). I thought my days of upgrades 'that will give you a new music collection' were long gone, as I'd got my own system sounding so darned good. But then you put these, the ultimate ESL 57s on, and discover what you've been missing. Sorry to have to launch into superlative-drenched purple prose, but a good pair of secondhand Quad ESL 57s fully rebuilt by One Thing Audio is the best loudspeaker value I've ever come across. For around £1,500 you'll have one of the greatest ways of hearing music yet devised. Recommended, then ...

VERDICT ••••£

Turns a great design into a truly stellar one — result: the best loudspeaker value around.

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Rupert loudspeaker stands

£150 £130 £50 £29.50 £35 pr £45 £1000 pr £175 pr

### MEASURED PERFORMANCE

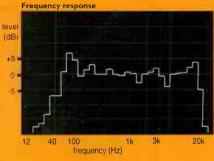
Frequency response of this ESU-57 is essentially that across the audio band. The treble gamel peaks up at 12kHz by +4dB, it x a narrow peak autput is that to 0kHz so only on occasion will be audible. Treble from Clingfilm sounds a lot nicer than treble from a resonant metal dome.

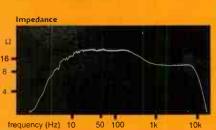
At low frequencies the bass panels peak at SOHz, as they always did. But the 57 is preducing usaful energy down to SOHz and is the right room it can crive a usain mode to give good low bass. Otherwise it is best used with a subwoofer.

This ESC-57 measures out at Eliohans imperiance and across the autio hand it is resistive. Unfortenately, at spectrum extremes impedance plummats to almost zero! All the same, this Good is more resistive than any coil loudspeaker and perfect for vale amps: plus transies with protection.

Senzitivity is low at just 82dB.

This ESL-57
measures vary well. It
is a little idioxynoratic
as always, but
fundamentally accurate
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# Universal Soldier



As prices of basic DVD video players crash through the floor, manufacturers are scrabbling to offer 'added value'. DVD-Audio and SACD are obvious attractions, but present the buyer with a dilemma over which format to invest in. The result is the new breed of 'universal' machine, as evinced by Pioneer's original DV-747 some two years back. With its new DVD-2900, Denon believes it can bring serious sonics to the sub-£1000 party. Dominic Todd takes it into battle...

ere's a tricky one. At £850. Denon would like us to believe that its new DVD-2900 is a better machine than the excellent, similarly priced Pioneer DV757i universal DVD player. It also hopes to wrest sales from British manufacturers of 'audiophile' DVD video machines such as Myriad, not to mention bespoke DVD-Audio and SACD players from the likes of Arcam and Sony respectively. Oh, and then there are the serious mid-price CD players it's gunning for, such as Cyrus's CD8...

With this in mind, the Denon has to be a jack of all trades and master of – at least – some. It has to be extremely well designed, specified and built - and by and large, it is.

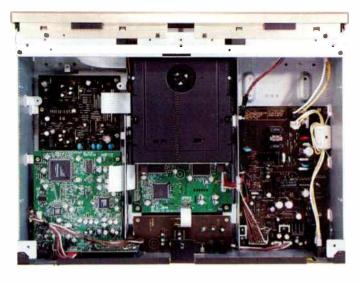
It would frankly be easier to mention what this machine doesn't

do, but here goes anyway! It will play DVD video, SACD and DVD-Audio discs, plus of course plain old CD. Furthermore, it also does DVD-R and MP3 CD playback, and even JPEG discs for showing digital pictures on TV. Significantly, it is the first Approved PAL Progressive Scan player from Japan. This works in conjunction with a component output to create a more stable picture. The offect is rather like switching from a 50 to 100Hz TV, although the technology is very different.

Also included is a built-in Dolby Digital/DTS decoder, and every type of connection needed including a SCART for those who must use this compromised connection. Finally there's also an RS-232 port for what we are told is "future system expansion".

The internals show real promise. It's good to see such a solid chassis for a DVD player, with a quality of finish which really is beyond reproach. The three shielded box, five block internal layout is designed to isolate analogue, digital and video circuits from each other. Audiophile quality Silmic capacitors are used in the audio chain. The disc loader features a special hybrid construction of moulded plastic and metal that further absorbs vibration for stable disc playback. Audiophile grade Burr-Brown 24-bit, 192-kHz DSD 1790 Audio DACs are used, and there's a Pure Direct QUIET mode that switches off all non-essential circuits and displays during music playback.

Full Digital Bass Management for DVD-Audio/ SACD is provided by an Analog Devices 32-bit processor – which offers an 80Hz crossover with



### VISION ON

Hooked up to a Panasonic 42" plasma TV, the Denon proved seriously impressive! Progressive Scan brought a picture that stood up to scrutiny even when only a couple of feet from the screen. It wasn't quite High Definition, but it's the closest you're likely to find in this country, at least at this sort of price. Switching off the Progressive Scan brought a slight blurring and loss of sharpness. Skin tone appeared more "digitised", like a cheap digital camera, than it had before. Overall, though, the resolution was still excellent with good colour contrast and a natural tonal palette. Indeed, I haven't seen any other sub-£1000 DVD player that could improve upon the Denon's impressive balance of resolution and realism. Still, without the progressive scan, there really isn't much between it and the finest £400 players in terms of picture quality. So if you're considering a new TV, check that it's got the necessary Component Video inputs to get the best from this player.

12dB high and 24dB low pass slopes and adjustable delay time (from 0-15ms). There's even a unique SACD set-up from front panel. What's not so hot is the tacky remote, that would shame a machine at half its price.

### **SOUND QUALITY**

Beginning the format marathon was David Bridie's, 'Malaria' on SACD. Even in two-channel mode this had a wonderful sense of depth, but what impressed most was the bass. This had a solidity to it that vinyl owners will be familiar with (it reminded me of my old Roksan Xerxes!), but will be a revelation to most CD users. In surround mode, the song became truly captivating, with effects swirling around the listener, encircling them within a web of music. Of course this

is the last thing certain types of music really need, but for this particular track, the surround mode worked extremely well indeed. It managed to acquire the fine balance between dynamic prowess and subtly that only the very finest of CD players can achieve.

I next switched to a DVD-Audio pressing of Bach's Adagio from Double Concerto for Oboe and Violin.The most striking element of should please classical connoisseurs. Instruments also had plenty of space around them in which to breathe and allow the listener to admire each performer, without compression of sound stage or excessive cross over from other instruments. The timing of the piece was gentle, yet it proceeded well, without becoming bogged down by an over bearing double bass. Because the bass wasn't overblown, the track had cohesion and realism, which, again, showcased the new technology in an impressive light. That old reviewer cliché of being able to even hear the performers breathing came to light too, although in the typical manner of the Denon this was subtly presented to the listener rather than highlighted in Technicolor.

With such an adroit performance on the so-called 'high resolution' formats, there's a good chance that many considering the DVD-2900 will be contemplating replacing their existing CD player with it. Therefore, part of Denon's remit must be for the '2900 to sound at least as good with existing Compact Discs. With Annie Lennox's 'Bitter Pill', it appears that the company has succeeded - mostly. I'm

pleased to report that conventional sixteen bit reproduction wasn't the let down after SACD and DVD-A that I'd feared. It's quite a brightly recorded album, and a little mechanical at times, yet it suited the Denon well. Vocals that can sound a

little to

- Advanced Silicon Image Sil504 PureProgressive Scan for PAL
- Twin 12bit 108MHz Video DACs with Noise Shaped Video
- Audiophile grade Burr-Brown 24-bit, 192-kHz DSD 1790 Audio DACs
- Two Pure Direct modes for music replay
- Built-in high-grade DTS and Dolby Digital decoders
- Dedicated multi-channel DSD/SACD decoder
- Dedicated multi-channel MLP/DVD-Audio decoder
- Full Digital Bass Management for DVD-Audio/ SACD; 80Hz crossover with 12dB high and 24dB low pass slopes
- standard 24/96 digital outputs; optical and coaxial
- SRS True Surround

**SPECIFICATIONS** 

- Variable Black Level (Set-up): 0 and 7.5 IRE
- Below-black (PLUGE) on both progressive and interlace outputs
- 5 Picture Memories, with adjustable tint, brightness, contrast, sharpness and gamma
- Super Sub Alias Filter on Progressive and Interlace for Luminance and Chrominance signals
- 5.1 and Stereo analogue outputs
- Glo-Key remote control

the sound quality here was the sweetness of string tone. It was perhaps a touch too smooth, in the manner of many Denon silver disc players that have gone before it. yet one couldn't argue with the improvement over CD it brought. Again, the oboe was presented in a refined and polished manner, with a seemingly accurate timbre that





money for one component, yet I can think of few better ways to invest it than Denon's DVD-2900 - if you're after a do-it-all machine that still doesn't give too much away when asked to address the specifics of two channel CD playback. Recommended.

came across more naturally than expected, yet still had plenty of projection. The strong, punchy beat was also every bit as full bodied as one would hope for. It's rather a matter of personal taste, but I could foresee some feeling the 2900 lacked a degree of bite. Most listeners wouldn't really notice this, but come straight from a demo of an Arcam Diva DVD spinner and you might just wish for a little more clarity and sharper timing. As an example, there's a part of the song where the mix stops suddenly, with the pause filled by a single note from a triangle. The Denon doesn't quite have the dynamic thrust to pull this off with total conviction. In short, the mix simply doesn't stop swiftly enough.

Where the Denon can seem a little overly polite is with something a little grittier such as The White Stripes, 'Black Math'. It should be a melange of a head banging, foot stomping classic, yet I got the impression that the Denon didn't really approve. It went through the motions, but never really let rip. That smoothness that had suited Annie Lennox was more of a hindrance to the fizzing guitar and percussion here. Furthermore, the timing seemed a little too slow, which didn't help the Denon's cause either. On the plus side, the vocal rendition was engaging and the bass response its usual unobtrusive yet deceptively powerful self. If only the midrange had a little more bite it would have been more impressive still. As a CD player I would say that it couldn't quite compete with the best £400 players, but isn't that far off. From a £850 DVD player that, believe it or not, is high praise indeed!

### CONCLUSION

Indeed, 'high praise' is a suitable phrase for the Denon's performance in general. For straight DVD replay, it easily matched the best from Rotel, Sony and Pioneer price for price. Its picture is perhaps not the most vivid, yet it is all the better for it in the longer term, when viewers simply have had enough tomato red where there should be terracotta, and flushed faces when they should be

drained.

Progressive Scan is a real bonus and I would strongly advise its use. Without it, and the partnering component output, you'd only be accessing 80% of what the Denon is truly capable of.

Much the same is true of the SACD and DVD-A processors. If you neglect these, you really would be missing out on the finest sound quality a digital format has yet to offer. Both can provide a level of fluidity to the sound that would take a CD player costing far into four figures to match. Interestingly, of these two rival high resolution formats, I couldn't really pick one over the other. The beauty of the Denon is that you're covered for whichever format wins out commercially. Then you've still got the pretty good CD player. If you're replacing a machine that costs under £400 then you should be pretty pleased with the results. It's only the likes of Arcam, Exposure and Rotel above this price point that can show an improvement, and what they can't do, of course, is play DVDs!

Of course, £850 is a lot of

### THE EDITOR SAYS

This is not the equal of Cyrus's identically priced CD8 with CD, but nor is it supposed to be. It's a superb do-it-all machine with a welter of facilities, and the emphasis on video and DVD-A/SACD playback. It isn't the equal of bespoke **DVD-A** or **SACD** machines at a higher price (such as those from Meridian or Marantz respectively), but the Denon does rather better than you'd expect considering its £850 price tag.

Blistering value as the likes of Pioneer's DV-656 is at £400 or thereabouts, I'd personally save my pennies and go for the Denon. It guarantees a good starting point. You'll enjoy CD replay and will experience genuinely high fidelity from the 'advanced resolution' audio formats. Furthermore, unless the i-Link of Pioneer's fine DV-757i is important to you (i.e. you already own a VSA-AX10 amplifier to link it to), this is one to have at the price right now, as far as sonics are concerned. Oh and it's a pretty picture,



£850

A superbly designed and built do-it-all player that delivers both fine sound and

great vision - right now, class of the

**DENON DVD-2900 Denon UK** 

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### MEASURED PERFORMANCE

Both DVD-A and SACD give full bandwidth of 2Hz to 100kHz on this player, SACD being -8dB down at the upper limit – better than usual. With vanishingly low distortion levels around 0.002% from both high resolution formats the DVD-2900 is engineered to get the best from them.

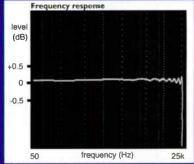
With CD it managed well too. Shown is the convolved impulse response, which is perfectly flat, apart from some filter ringing.

Distortion levels with CD were as low as possible with the format's resolution, and channel separation wide at 114dB in the mid-band. Output was a normal 2.2V and EIAJ dynamic range very high at 111dB.

The DVD-2900 measured well with all formats, CD, DVD-A and SACD. NK

Frequency response CD SACD and DVD-A

4Hz 21Hz 4Hz 100kHz Distortion left right -6dB 0.006 0.005 -30dB 0.005 0.005 -60dB 0.33 0.3 3.8 -90 Separation left right 1kHz 114 112 20kHz 94 92 -113dB Noise (IEC A) Dynamic range 111dB Output 2.2V



### mail

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### Letter of the Month

### **AGONISING OVER AUNTIE**

I take issue with the BBC's response to "Mono Stereo Radio - Oh!" in the latest letters section of the August edition of Hi-Fi World. BBC Reception's Kevin Joiner avoids explaining the proliferation of mono broadcasting on DAB by focusing on, and playing down, a single issue affecting Radio 4 listeners. Radio Five Live (and Sports Extra), the World Service, the Asian Network and BBC 7 are all broadcast in mono on DAB. When Five Live Sports Extra is on air then either the R3 bit-rate is cut to 160kbps or R4 is reduced to 80kbps mono. How this can be reconciled with previous BBC statements that R3's bitrate would not drop below 192kbbs is beyond me, but I digress!

By referring to the Sports Extra schedule it can seen that a reduced service on R3 or R4 occurs almost on a daily basis. Currently R4 is also broadcast in mono from the early hours of the morning until 9am. The reasons for this escape me as the unused multiplex capacity is rarely allocated to another station. The argument often used, when DAB R4 is in mono, is that there is no significant impact as all the programmes broadcast are in mono anyway. This may coincidentally be true for programmes such as PM or the News but, as any comparison with FM will show, it is not true for all programmes.

Kevin Joiner's response states that "we therefore manage this capacity in a way which balances the technical quality requirements of different types of programme with the provision of services of sufficient range to meet the diverse interests of our audience. However, the extreme demand on capacity which leads to mono broadcasting of some programmes is rare." With the above in mind, can the BBC explain why, when considering the programme content, BBC7, unlike R4, is never broadcast in stereo and exactly how "mono broadcasting of some programmes is rare"?

The BBC promotes DAB as "digital quality sound" but omits to mention that a significant proportion of the "digital quality" stations are broadcast in mono and thus fails to ensure that

listeners can make an informed choice about DAB. Cynics might think that this is deliberate because, given the BBC's pioneering role in the DAB standard, a public association of AM sound quality with DAB would not do much for either DAB's adoption or the BBC's reputation. The BBC response goes on to say that "if we had limited our aims on DAB to the provision of existing services without providing new ones this challenge (of managing capacity) would have been eased. However such an approach would have failed to meet our objective in serving audiences beyond the editorial range of the services already available, and would certainly have presented a less attractive proposition for those listeners considering the adoption of digital radio." The "challenge" of managing the "extreme demand" of multiplex capacity is entirely of the BBC's own making because it was their decision to overpopulate the multiplex. The BBC's management could have justifiably claimed to have met their objective, without compromising audio quality to the degree they have, simply by a more measured approach.

The decline in audio quality since the launch of DAB runs completely counter to the trend set by other new digital technologies and, if the DAB sales figures are to be believed, the "quantity over quality" approach is not resulting in the wide scale adoption of DAB. With the BBC's position as premier UK and world broadcaster. their approach of "quantity over quality" is significant and has resulted in there being little prospect of DAB being used for serious listening for the foreseeable future. Those informed about digital radio are now either using higher quality delivery channels such as digital satellite/ cable/ Freeview or opting to stay with FM and, almost without exception, the UK hi-fi magazines are expressing serious reservations about DAB. I was enthusiastic about DAB when it first launch but it has since been relegated to the position of being the digital radio equivalent of AM radio.

Rob Hatcher Northampton, England I was horrified to hear a BBC spokesman on Radio Five Live talking about the 'CD quality digital sound' of Digital Radio. It's cynical and downright misleading. I think it's great to have the new networks, but does the Beeb really have to pretend that there's no appreciable loss of sound quality? The only way to get serious sound from DAB is from Arcam's DT81 - which at £600 isn't the most accessible tuner ever made! It can't make a silk's purse out of a sonic sow's ear, but at least makes it more amenable! DP



Radio 3 on Digital Radio – sonically, no great shakes!

### **FRONT END SHUNT?**

I've been a reader of your magazine and its predecessor now for years, and have been through a lot of kit in this time. Now I've reached a point where I could use your advice. After several short term house moves I've finally set up my proper system after 18 months in storage, and feel again something is lacking. I'm watching more TV! At the moment I run an LP12, with OL DC motor, Ittok, Goldring Elite MC into a Hart audio phono stage, driving a Rothwell Indus passive pre, Trichord Alecto monoblocks to Roksan Darius speakers and an old REL Stentor. Cable is Kimber. CD is an afterthought, a NAD 5200 and Cambridge DACmagic 2. The LP12 has been around since '85. the Darius since 1990. The bits inbetween are more recent, the Alectos being the best yet at driving the Darius and the Rothwell revealing, or rather not obscuring, detail I hadn't known

was there before. This is a mish mash but on CD sounds surprisingly good, much better than with the active preamp I was using.

My gripe is the vinyl front end. The music is all there, clear and pure and on quiet simple pieces beautiful. But on heavier stuff, driving rock, symphonies or opera choruses it lacks body and presence. I want to feel the stick hitting the drum skin again, put the unmuffled timps back in the pit. Do I change the cartridge, now seven years old though in use for only five, and if so to what around £500 to £1000, and I or sell the lttok and buy an OL Encounter or Illustrious?

Is the phono stage struggling to drive the Alectos through the passive and affecting the sound (the volume is round at 4pm even for moderate listening)? Could this be remedied by more sensitive speakers like Klipsch La Scala or Heresy, reducing the volume setting needed and thereby increasing the impedance the phono stage faces, or do I just change the phono stage? How would your WAD Phono II work in this situation? My budget is around £1500 and could be stretched a little and added to by the second-hand value of discarded items. This has me head scratching and I'd appreciate your advice,

### Charles

In my experience, Charles, phono stages in general hate running passive preamps - you end up with the dynamic presentation of two rather damp towels being placed over your precious 'speakers. The one exception which may work is the Music First Audio passive reviewed by David Price a month or so back (and HB still chomping at the bit to 'have a play with it'...) [Is that a hint, Haden, or has a ten tonne truck just fallen on my head? - Ed] I have only heard the Heart Audio preamp once, and it did not strike me as the most dynamic thing in the world, neither is the Goldring Elite...

Changing 'speakers will make no difference, and frankly running the Klipsch off a transistor amp will just increase your local chemist's sales of Aspirin! I would see if the Music First passive may work in your system, which blows away your budget, straight off.

An alternative may be to use separate preamps, try the EAR 834PMC direct to your power amps (it has a volume control). It's getting expensive and long in the tooth, but still offers good fidelity. Oh, and go for a Ortofon Kontrapunkt b cartridge. That is your £1500 gone again! This would work fine, but

mean swapping phono leads at the power amps when swapping between vinyl and CD, but I guess you are more into vinyl anyhow? No doubt the impressive Illustrious would give a big improvement, but your phono stage and passive pre need sorting out first. HB

The Goldring Elite isn't the punchiest or most advanced MC around. Also, cartridges do wear out and five years is enough with consistent use. The music will just go dull on you.

For real drama get our WAD Pre Il all-valve phono stage and run a Shure V15 VxMR into it. This little lot will paste you against the wall and is well within your budget. MM cartridges like the Shure inevitably don't have the see through clarity of a high quality MC, but then they don't have the high price either. Of MCs, the Ortofon MC20 Supreme is a not-too-expensive model with some clout and again within your budget. And should the urge to upgrade hit you try soldering some special components into the Pre II, like Black Gates. This will open your eyes to a new world where timbral colour and variety exists! NK

### **MORE THAN THIS?**

Could you help me with a dilemma I have at the moment with my record deck? I am at the moment using a Townshend Avalon with a RB 250 with OL counterweight mod, but I would like to improve on its performance. I was thinking of fitting the OL DC motor upgrade and having the arm cable upgraded, so which is the best arm cable to have fitted? But then I thought should I sell the Avalon and buy the OL record-deck kit and build my own. Is the Avalon worth the upgrade, or would I be better off spending my money on something else? The Avalon does sound quite good and was a good upgrade from my Rega 3. What is the history of the Townshend as I know very little about it and have never seen another one? I bought mine locally for £280, did I get a bargain? I have around £500 to spend plus any profit from the sale of the Avalon. Your comments would be very welcome.

### Alan Collingburn

I'd suggest you save your pennies and go for a Michell GyroDec SE – at under £1,000 it's still the best vinyl value around and the new DC motor makes it even better still. The Avalon is a fine deck and a real bargain for under three hundred pounds, but if you're after your 'final' high end deck, the Michell is the one. It will exhibit greater incision and control than the

Avalon, and is much more upgradeable (it can be taken right up to Orbe spec), should you feel the need. Townshend is most famous for its Rock turntable, which is a charismatic design that has (like most turntables) undergone significant evolutionary changes over the course of its life. It's excellent even by today's standards, and I've heard rumours that there's a new version out soon — so watch this space, as they say... DP

### **BRIGHT SIZE LIFE**

I'm having some issues with the CD end of my hi-fi system. It consists of a Marantz PM6010 KI, Marantz CD6000 OSE, Thorens TD160BI SME 3009SIIII Ortofon 510III, Wharfedale Emerald 95 loudspeakers, vdH D102 III interconnects and QED Silver Anniversary bi-wire 'speaker cables.

Having recently discovered the musical sound of vinyl, my listening tastes have suddenly changed, and so has the way that I appreciate the sound that my CD player produces. I've been dabbling in a bit of Pink Floyd, Led Zep, Beatles, and some heavy metal on vinyl, and found that my CD player sounds really bright in comparison.

I know that this is general rule of thumb, and when I saw an Arcam Albha Black Box for sale at £25, I jumped at the chance to possibly change the way my system sounded. I believe that the Black Box I bought is the original model from 1989, and it only has one coax output on the rear panel. Hearing from somebody that the Arcam sounded pretty smooth, I thought that it may help tame my CD's harsh top end. After plugging the Arcam in and letting it warm up, it does seem to sound a bit smoother, but I can't help thinking that there's some discrepancy between the quality of the CD player's internal DAC and the quality of the Arcam. After all, it is about 10 years or so older than the CD6000. So, do you think that my system will benefit from the Arcam DAC? Or should I condemn it to 'doorstop' status? Also, have you ever heard a pair of Wharfedale Emerald 95s, as I can't find a professional review on them anywhere!

Dan Lovely West Sussex.

Hi Dan. First off, I've never heard of your Emeralds. If any readers have seen such a beast before, please email in and let me know. Second, your Black Box. I don't think it will be a massive upgrade to your CD6000 OSE, if at all. It's likely that the presentation will change when you switch over to the Black Box, but not really improve. This is

because the Marantz is an excellent machine already, and the Black Box was never a high-end product, but sold as an upgrade to budget/midprice eighties CD spinners. If you want to improve your CD sound, I think your only real option is to go for one of the £1,000 machines. If it's smoothness you seek, then the Meridian 507 is the one, or if you want just a little more power and punch, Arcam's FMJ CD33T is superb DP

graduating from university I used my hard earned cash to get my 'proper' system. I have a Cyrus CD7Q/PSX-R into a NAD C370 (to be upgraded next) and onto some gorgeously wife-friendly Harlech S2s.

Notice something missing? Of course you have - you're the expert! My mid thirties crisis means I need to play my eighties vinyl, so my question is what amp with a good phono stage should I buy, or do I go for a separate one? What should I be looking at in terms of



Marantz upgrade needed? Fifteen year old DACs are not the answer...

### **GOODBYE SEVENTIES**

I am at present using an Audio Analogue Puccini SE, with my main source being a Pioneer DVD717 through 1970s KEF Concertos. Could you suggest a replacement for the KEFs, or would it be better to upgrade them?

Brian Cooper

The '717 is not a bad CD player - a little smooth and lacking in bass impact perhaps, but not half bad at all. I would suggest one of the KEF Q models here, they would work well with your amp and source, and depending on budget / size of room go for either the Q5 or Q7. Again, it may be worth looking at a dedicated CD player in the long run... as good as the '717 is, it has it limitations. HB

### **MOTHER CREATED A MONSTER!**

At last - a magazine with an editor on my wavelength! My hi-fi journey started in my early teens with a tower system courtesy of Amstrad. Don't laugh, if you got real close to the 'speakers, with the right record on the deck you could be almost there! After growing up though, a Sony CD spinner was an unexpected Xmas Persia. Bless my mum - she didn't realise it was a hi-fi separate and she created a monster.

The Amstrad was duly donated to charity, and although I wore out the Sony and the Wharfedale A510.2 speakers, I'm still using the NAD 3225PE along with a Cambridge Audio CD4, a Musical Fidelity X-DAC and some Diamond 8.1s. This is my dining room background music system, as after

budget to show up my CD player? Go on, help a guy stuck on that soul/ new romantic/ goth rose tinted glasses thing rediscover his viny!!

Phil Reid, West Yorkshire

'How much do I have to spend?' is like 'how long is a piece of string?' Frankly, if you want serious sound, you're talking a Rega P3 at the absolute minimum, with a Goldring G1042 and Creek OBH-15 phono stage. This little lot should come in at around £600, and will run your Cyrus CD player very close - in fact, it will probably sound better if set up and sited properly. However, a Michell TecnoDec/TecnoArm at a little under £1,000 would give a dramatically tighter, cleaner and more detailed sound, or if you're really keen you could go for the GyroDec/TecnoArm for around £1,300. You'll need a good amp to exploit this, so either consider a Cyrus 8/PSX-R or Sugden's A21 if you want variously power or passion. A good compromise would be Monrio's MC207 reviewed last month, which has some of both.

The greatest benefit to your new vinyl-enabled system will be that you can play your old copy of Cult's 'Love' at higher volumes than your parents would ever allow. You will also discover that Japan's 'Tin Drum' is masterfully recorded (as well as played, which you knew anyway)... You'll find, however, that even a great vinyl source can't stop Spandau Ballet's 'True' inducing yomit... DP

### 'NUFF RESPECT!

I have now been a reader and subscriber for a number of years, and observe with great interest the correspondence you receive, as well as the progress of the magazine in general. Whilst an admirer of the style, views and opinions of Simon Pope and Noel Keywood (amongst others!) I do believe that with David Price taking over as editor a fresh perspective has (once more) been gained, keeping Hi-Fi World at the forefront of real reading in this area. His willingness to embrace all that is new (e.g. computer audio) along with older key items (classic 70/80s kit. quadraphonic etc.) does - I think demonstrate he is open to all aspects of the business, which surely must be a healthy position!

Gary Francks letter in the August edition suggests that DP is concentrating far too much on computer audio/ nerdy stuff/ the latest and greatest. I cannot agree with him, but consider the editor affords it relevant amounts of space, given its impact on most of us and the industry generally we really cannot ignore it! Computer audio can have some distinct advantages for all of us too, if we are prepared to try something out, like archiving. By the way, the combination of material in the last issue - radio issues and vinyl replay in particular - was in my view excellent, up to date and pertinent.

Is LJK Setright a name that I recall from the distant past in association with motoring? It seems to ring a bell. His contributions in the latest edition were very interesting and thought-provoking, especially the one on the Linn Kremlin. Sadly I could not afford one, even second-hand and have instead a Pekin, which I know is not in the same league.

Regarding reviews: how about allowing or encouraging manufacturers to give their point of view on the outcome and printing this in the same issue? This could be extremely revealing, especially when the conclusions are less favourable, or tempered by matching considerations. This sort of interface with the real world/readers might well provoke greater sympathy and understanding of the needs of listeners, by some manufacturers at least.

Thanks for a monthly read that is always inspiring, please ensure that you keep it up!

### Mark Eley Northumberland

Hmmm... a manufacturer's right to reply, huh? In a sense, it would be a good way to correct any erroneous information that occasionally creeps into reviews (yes, it does, really!), but I fear it could descend into a 'PR puff zone', where the industry's press

people go into purple prose mode about how great their products are... which is the last thing any of us wish to read! For example, "thank you for your comments on the new (insert make and model here) - we feel it offers a winning combination of price and performance, together with sleek modern styling unmatched by any of its rivals..." (repeat ad infinitum...) See what I mean? Still, I'm open to persuasion - let me know your thoughts.

Thanks for the kind words about my editorship Mum - errm, I mean "Mark Eley, Northumberland" - and yes, Setright is a veteran motoring writer (most famously for Car magazine), but he's also a gifted musician with more than a passing interest in hi-fi. Not sure if I'd agree with some of his more outspoken thoughts on Radio Three, but this magazine is nothing if it is not a forum for ideas. See 'The Great Debate' for more on this... DP

### JAMES STRIKES AGAIN...

Those seedy lovers, obsessed with 20Hz to 20kHz miss a few minor points: --- Whilst we may not hear below 20Hz, we certainly experience it - as those "hit" by a bass drum can attest, we can feel down to OHz.

- Music created by real instruments is not about sinusoids, but about transients, attack and decay, the interplay of harmonics, and so on (how exciting, and I thought it was about the emotion of the experience of the performance!)

- For decades it has been known that

- wide bandwidth (i.e. beyond 50kHz) audio recordings sound much more realistic than recordings of 30kHz or, heaven forbid, 20kHz bandwidth. — It is a well known fact that bass quality is improved by extended high frequency resolution - especially obvious with drums. Perhaps this is why drumbeats recorded on CD sound like someone hitting a sack of potatoes? — Music reproduction is about reproducing the experience of the live music, the emotions it produces and
- on hearing and simple models. — High Fidelity is about faithfulness to the source - capturing the source. Using real instruments that means at least 0 to 100kHz, with no phase or amplitude anomalies. One advantage of this is that, in multi-track recording environments, the interaction of those ultrasonic harmonics we can't hear can take place post recording (i.e. during mixing), producing a much more realistic sound and soundstage.

how it makes us feel, not focusing simply

— "Suspension of Disbelief" (remember that?) has been replaced in CD with

"Looking on in Disbelief", whilst music has been superseded by muzak.

--- Whilst in digital audio the mantra 20 to 20 reigns supreme, a minor detail of the temporal resolution of the human auditory system being significantly less than ten microseconds, coupled to the fact that the "brickwall" filters required in CD recording produce an in-band phase response like a corkscrew on heat, are conveniently ignored.

James Morrow Belfast

### **RISING DAMPING?**

I'm wondering if I put the transformer from my REGA Brio 2000 on damping material, will I ban a lot of resonance that comes from the transformer, so that it can't go to the rest of the electronics? Does it make any sense to dampen the Elkos too, like they do with the German high-end Symphonic Line brand?

Huub Derkx Maastricht Holland

Good question. Personally, in my more 'lonely moments' when I've had no friends around, no one to have lunch with and no life. I have ventured inside my hi-fi cases to apply a little bit of Sorbothane in the hope that it will improve the sound, and, on the whole, it has. Essentially, the pressed steel casings used in most hi-fi separates resonate all too easily - allowing sound-destroying vibes to get to your electronic componentry (which, as we all now know, are microphonic). If you line them with rubber, they'll vibrate less, and give a cleaner sound. However, I'd avoid opening up any newish hi-fi separates, lest you void the guarantee. If this is not an issue, and you're experienced enough in electronics to not get yourself an electric shock, and you don't apply damping material anywhere that will cause something to overheat and/or catch fire, then by all means experiment. An old trick is to apply Blu-tack to 'deaden' the capacitor tops, as these are very microphonic devices. This, in conjunction with damping sheets on the insides of the metalwork, should give a stronger and tighter listen. Then, clean all your socketry with pipe cleaners dipped in isopropyl alcohol and you'll have a sharper and more focussed sound too! The only downside to all this is the philosophical possibility that there's more to life than resonance control - tell me Huub, is Maastricht really this boring...? DP Hmmm! I suggest you also connect

an earth wire between transformer

core and chassis, otherwise if the insulation was to go the core would become live. In my experience physical construction of audio products always impacts upon sound to a greater or lesser extent. The lapanese understand this more than the British. But if you want to cut down the effects of vibration remove your loudspeaker's crossover and house it externally in a plastic case. This is a simple but very effective mod. NK



### **LUCA - THE COMEBACK**

I've done some new tests and, now, I think I know where the broblem is. -Test 1:With utmost care, I've moved the PU3B arm along its operative arc, farther the inner grooves, until over the central platter's spindle, then surveyed the presence of the anti-skating effect. It has disappeared! Only when I've replaced the PU3B in its rest, the problem reappears. The opposite movement (over the label) bends the wires temporarily, and for this reason its interference disappears. This fact explains where the problem is. The antiskating effect isn't a constant mechanical matter but due to internal wiring. So I've decided to check if the wiring was overstrained, convoluted or wrapped. I've removed the arm tube and observed that in the wiring there isn't problems. The wire rises inside the centre of the arm pillar, through a fixed spindle. It exits by a very small hole in the side of the spindle, directly into the arm tube. Here is the trouble. This tonearm has some incomprehensible design solutions. The above mentioned hole is too tight and thus produces grave problems: it hampers and binds the wire, prohibiting movement in all directions. Theoretically the only answer is to enlarge the hole by a drill but practically it's impossible. I don't know other solution. Since I've remounted the arm tube the vertical friction seem lightly changed. Perhaps, now, the internal wires binds less?

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now I can listen the PU3B's sound quality by comparison with my absolutely perfect lttok LVII. The systems used in the tests are as follows: Turntable I - Linn Sondek (Cirkus, Valhalla) and Syrinx PU3B/VdH MC ONE special. Turntable 2 - Linn Sondek (Valhalla), Ittok LVII, Sumiko BPS. (Unfortunately, I don't own two identical cartridges but I think that if an arm is damaged then its poor performance is more perceptible to the different characteristics of two good cartridges. Am I wrong?) Amplification: Exposure preamplifier XIV and IX power supply and Exposure XVI mono power amplifier; Naim NAC 72 preamplifier/ HICAP/ NAP 140 power amplifier. Loudspeakers: Rogers LS3/5a, JBL L56, Sonus Faber Amati Homage. Stands: Foundation Designer, Linn, Sonus Faber.

My conclusions are that both arms sound good, but in a different manner. The Ittok/ Sumiko combo is very tuneful and musical with a softer and sweeter midband, and the soundstage is larger and deeper. However there are some other aspect where the PU3B kills the Ittok. It's able to perform with impressive finesse, energy and dynamics, and frequency extremes have more resolution, depth and relief. Musical detail retrieval is more accurate, better focused and more immediately recognisable. Bass is very fast, tight, extensive, without unnatural slownessslackness, heaviness how Ittok does. Overall the PU3B and vdH's sound has more lightness, freshness, clearness, liquidity and freedom. I don't think that all these differences are produced by virtue of a better cartridge only. What do you think about my tests and arguments? Perhaps, there is something haven't I verified? What other checking must I try? I should like to know it. Luca Berselli

For those who missed last month's issue - this is the story of one man's battle with an ageing Syrinx PU3 tonearm, in a quest to boldly better his existing Ittok LVII. Luca obviously has a lot of time on his hands perhaps he should hook up with Huub from Maastricht? Anyway, last month he bravely embarked on an odyssey to bring his Syrinx - which he initially suspected to be damaged - back to life. By the sound of it, he has succeeded. Actually, Luca, your listening bears out my own experiences with this arm. While it's not a good idea to compare two arms with two different cartridges, I too would agree than the Syrinx is a grippier and more focussed performer. It's a little closer to the SMEV school of tonearm design, which goes for relentless resolution

rather than tuneful musicality a la Tik Tok. Obviously, your Syrinx is working at least nine-tenths of its ability, or it wouldn't be able to better the lttok in any respect. My suggestion now would be to sit down, have a glass of wine and listen to some music! DP

### THE GREAT DEBATE - 1

Around forty years ago, when I was just a lad, the Third Programme broadcast a live performance by Saddlers Wells Opera of Brett and Weill's "Rise and Fall of the City of Mahagonny". The Opera was a brave choice for Sadlers Wells, since by then Bertold Brecht was a senior figure in the cultural establishment of East Germany and Kurt Weill a major contributor to American popular music, and the score owed a great deal to early jazz. So in Cold War Britain it raised political and cultural controversy about the content of the Third Programme. My father, who used to enjoy the live broadcasts of nineteenth century symphonic music, left muttering after the overture, but I remained captivated, locked to the stereo radiogram and its FM radio.

For me this performance opened many doors, through Brecht's plays to theatre and, for a while to communism! Through Brecht and Weill's other collaboration the Threepenny Opera to John Gay and the Beggars Opera and hence to baroque and early music (both popular and aristocratic). Through the interval talk on Berlin in the 1920s and 1930s I found Christopher Isherwood and Mr Norris Changing Trains. Finally, through Kurt Weill, an opening towards an appreciation of jazz and a much more considered approach to contemporary pop, leading ultimately to the Doors themselves and their rendition of the Alabama song.

What this illustrates is that the Reithian mission to educate functions best when it is not simply to the standards of a particular cultural or intellectual elite, but to an exploration of contemporary cultural diversity. This is where LKI Setright is misleading in his chronology of the third radio channel. The transition to Radio 3 as a largely music programme was a disaster as it largely divorced symphonic and chamber music from the other manifestations of contemporary culture, theatre, the arts, spoken word and jazz. Throughout the 1970s and 1980s Radio 3 was in the hands of a particularly partisan elite with an extraordinarily selective approach to 20th century music. As a result Radio 3 largely lost its audience and the advent of Classic FM showed that the audience for the inherited symphonic and chamber repertoire wanted a different approach.

This competition has animated Radio 3, once it was realised that it had to provide a better, but no less diverse response to Classic FM. Over the last fifteen years there has been a greater openness to baroque and early music, to contemporary music that people were actually listening to such as minimalism, to jazz and latterly to international popular music (not necessarily pop which is now largely a globalised American product, Mr Setright). Had we had a programme such as Late Junction in the 1960s and 70s we might have heard the popular music of black South Africa and gained an earlier exposure to Abdullah Ibrahim (then Dollar Brand), Hugh Massekala, Miriam Makeba not to mention the white musicians Chris MacGregor and Harry Miller. Amongst this list are arguably some of the greatest exponents of late 20th century jazz. Because there was no place for them on the radio we did not hear their music. Now with greater diversity we can, and also hear new currents in bobular and serious music across the world. Closer to home, and made possible by the current diversity of Radio 3, we have access at last to one of the greatest of British contemporary composers, Mike Westbrook, who was shamefully excluded in earlier years.

Whilst this diversification is occurring we can still enjoy the great educative strands of the station,
Composer of the Week, Building a
Record Library and Record Review. I am also delighted to see the re-introduction of more discussion and spoken word programming and the better coverage of the other arts, which begins to restore the original mission of the Third Programme. More than at any time in the 1970s and 1980s Radio 3 is a place where intelligent people of all classes and wide cultural interests can congregate.

As a regular listener to radios Four, Three and Two I would wish to celebrate the quality of the BBC output. At the moment that competition is fiercest the BBC is producing some of its best output across these networks. Of course not everything is perfect. Mr Setright correctly singles out the arch and patronising afternoon children's programme, but this reflects a problem with all current BBC radio children's programming which talks not to, but down to them. This is however the exception, not the generality. Much as I admire the elegance of Mr Setright's motoring journalism, on this matter the gentleman is simply wrong.

Dr John Hurley

### THE GREAT DEBATE - 2

I was delighted recently to discover Hi-Fi World and to find in its contributors that doyen of the written word LJK
Setright, whose articles for Car
magazine I recall with pleasure.
Concerning Radio 3, I have to say I have
much sympathy with LJKS's comments for me, Radio 3 was the last bastion of
beautifully crafted and played music,
introduced in its entirety by scholarly
people with little or no populism. This is
what I want from that station: if I want
rock or pop I can find it elsewhere, in
spades, and if I want excerpts presented
in artificially sweetened tones I can find
them on Classic FM (as long as I can
stand the adverts).

That said, perhaps one must also sympathise with those responsible for Radio 3, who presumably have to be able to point to increasing audience figures in order to justify continued expenditure on equipment and transmission. Because of reception difficulties encountered across most of the south of England, I suspect that Radio 3 does not qualify in the minds of the powers at the Beeb for much transmitter power, and for that reason alone perhaps one should welcome any measure which will rectify that situation. Maybe those lured to listen by Late Junction will begin to demand music from the centuries up to about 1800, powerfully transmitted in FM stereo without compression! I would support any move to maintain or secure this. Keith Aburrow

### THE GREAT DEBATE - 3

I have to side with Simon Pope on this issue. LJK Setright seems to be suffering from what a friend of mine calls "nausea-stalgia" when it comes to modern music. Does he really need to be reminded that many composers we take for granted as part of the mainstream were, in their time, extremely controversial; at the first performance of Stravinsky's 'Rite of Spring' the audience rioted! Late Junction is hardly populist, but it certainly conforms to Lord Reith's dictum of "educating and informing". My musical life has been enriched immensely by exposure to music that wouldn't otherwise get any radio exposure. Something Simon didn't mention is the sense of "ownership" that Late Junction listeners have. There's a tremendous element of interactivity, not just in the message boards, but the fact that you can e-mail the programme with a question, a suggestion or piece of information and get a response while it is on air. Listening to Late Junction is like visiting a friend with an encyclopaedic knowledge of music and an album collection to match. **Bob Meyrick** 

Thanks for all your letters on this 'heated debate' - Mrs Merton would be jealous! LJKS voiced the sentiment that Radio 3 shouldn't be dumbed down - and FR Leavis himself would have been surprised at the number of readers who agreed (I've printed but a small selection). 'Swinging Simon Pope' (aka The Popemeister) argued it should be made 'more accessible' to those who'd otherwise be chilling to night time Radio 1. Speaking as one who came to the station via this route (i.e. listening to Late Junction), I'd have to agree. DP

### REFERENCE REQUIRED

I had a pair of Acoustic Energy
Reference 22s paired up with a NAD
304 integrated amplifier. I threw a little
party which blew my tweeters —
they've been thrown out AE tells me
they don't make these tweeters
anymore, and I'm thinking that the price
of repairing them may amount to the
price of a new, and possibly better, pair.
In your review of the NAD 304, you
suggested they be carefully paired up
with the right selection of speakers. Can
you suggest some which would work
well with jazz, blues and reggae?
"WS"

Tweeters are fried when an amplifier runs into 'clipping', which in simple terms means you have played the little 304 louder than it was designed to go! It is a good solid little amplifier; but the problem will repeat if you crank it up to high levels again. If you are in a biggish room and like decently high levels, then if sticking with the NAD try the new Mission M34 or M35 - both are large, efficient floor standing designs. They are not the last word in subtlety I admit, but they will play appropriately loud! If more budget is available, look to change the amplifier for the much larger NAD C370, but remember everything has its limits! HB

### IS IT LIVE OR IS IT HI-FI?

I am writing - as a seemingly lifelong Car magazine reader - to say how pleased I was to read the contribution of Mr Setright ('LIKS'). If I recall correctly from his motoring articles, LIKS plays the flute (if not, something that you blow into...) in orchestras, and it would be interesting if he could give us some thoughts and wisdom from the music making perspective. It is also interesting with regard to the attitude of musicians to reproduction equipment, as others I have spoken to seem to put up with pretty basic stuff - perhaps because they know the music and automatically fill in or correct what is missing or wrong. Or perhaps the musicians I have spoken with were not very musical.

Whatever, we need to know!

Alon Frov

No sooner said than done – Setright is writing a piece to address precisely this point! DP

### STATIC POWER

There are surprisingly few articles in hifi magazines on matching amplifiers to loudspeakers. Let me discuss my own case: my equipment includes Quad ESL63 'speakers, Quad 405 II and Quad 77 preamplifier. I suspect the 405 Il to be a 'lazy and boring" machine (very reliable, however). I would like to acquire another power amp, and when I inquire I am told that, "Quad Electrostatics are very specific loudspeakers which require a Quad power amp". So, nobody uses different power amps? What about Arcam, YBA and many more? Your comments please? Anon

As we have mentioned several times before on these pages, the Quad ESL63 is one of the finest loudspeakers ever produced, but like any other loudspeaker, it is only as good as what it is fed. The 405 is still a fine amp, but yes, the speakers are



When the going gets tough, the tough get a NAD C370.

capable of much more. In today's money, ESL63s would sell for around £5,000. A perfect match would be the stunning Sugden Masterclass Integrated amp, or if funds are tight, and lower replay levels acceptable, the A21a. There no amps under £1000 capable of driving the '63s really well. HB

Quad ESL63s are a very reactive load. Furthermore, they have a bizarre protection circuit that first compresses peaks, making the sound dull and muddled, and then crowbars the amp. One irate U.S. customer sued Quad for damages when a 63 blew up his amp. Quad told me he should have been using a decent amplifier! I used ESL-63s (now retired to the loft) for years and found simple, low feedback, medium power solid-state amps generally best. A Cyrus 6 has limited power and would withstand the 63's crowbar, should it swing, and it is also has an appropriate tonal quality (the 63s sound a bit soft). Of course, valve amps match well and KT88/6550 designs swinging 40watts or so, with the shiny modern sound you get from 1950s power beam tetrodes are a lovely match also. Forget the 405; it was dull and flat in its day, let alone now. Sugden amps are the ideal choice, if you have the money, but lesser designs can give reasonably decent results. NK

Dear Simon, sometimes there is only one real course of action left. If the sub platter is this bad, what condition the main bearing / motor and arm? I would suggest its time for the great turntable scrap yard in the sky, buy yourself something like Project's excellent little RPM4 and enjoy...DP

### **TUBE-TASTIC!**

After a few years of listening to a variety of systems, I found myself consistently drawn back to valvelvinyl set-ups, so I bought a WAD starter kit (KEL 84) to put a cautiously inexpensive toe in the water. Bingo!

So, now I am working up the path to 300B land, having already built the WAD PRE-II (initially to control a QUAD 405-2, then as my next money-saving step converting my KEL 84 to a power amp). And now to the point. My daughter's university fees are delaying the 300B part of the project, but when the funds are available, would my ESL 57s work better with the PSE or the PP version of the monoblocks? I listen mostly to classical and jazz, but everything else (except country and western!) finds its way onto my turntable at some time or other.

### **Dave Clewlow**

The parallel single-ended (PSE) amp offers an awesomely real in-the-room sound quite beyond normal experience, because all amps are push-pull. It has the quality, but not the power. You will be able to enjoy

system, beyond compare in many areas, since a good pair of ESL-57s are still world class (or better!).NK

### RIGHT FIRST TIME

I am 19 and am looking to buy my first hi-fi system. I have around £2,000 to spend but am not sure what to buy, but as there are so many choices I bought some copies of your magazine and have been looking at your website. I would like a MiniDisc deck, a CD player and around 200W loudspeakers. I would also, if possible, like the MD and CD decks to link into the PC like the Sony ones. Any help would be appreciated.

What is in a Watt? I take it you want a system to play loud and have good clear dynamics? Well speaker sensitivity does play a part here! And remember watts are logarithmic not linear; so to double from 10 watts is actually 100 watts, and to double that, you are looking at 1,000! MiniDisc is easy - go for the Sony MDS-JB980. It has your desired NET MD link and MDLP, so you can squash your four hours worth of MP3 horrors on a disc, if that's your cup of tea? Then, listen to Arcam's CD82 and Cyrus's CD6 CD players, and the 'loud' choice at the price point, NAD's C370 integrated amplifier. As for loudspeakers, depending on the size of your room, audition Dynaudio Audience 52, KEF Q5 or B&W 603/III. HB

A loudspeaker's power rating only tells you at what point it will destroy itself - and even then it is pretty approximate. Most people want to know how loud a 'speaker will go and this is the maximum SPL (Sound Pressure Level) it will generate - not often quoted. Sensitivity is important too, since it says how loud a 'speaker will go from one watt. I suspect you want a loudspeaker that goes loud. The ultimate for this alone are Cerwin Vegas. More in keeping with hi-fi standards look for large, floor standing, multi-driver designs like the Revolver R50s I reviewed last month, which go loud form little power. B&W's less expensive floor standers are worth auditioning too. NK



Quad 405 - good but not the full nine yards.

### **SUB STANDARD SYSTEMDEK**

I have owned a Systemdek I I x for many years, it's been a faithful companion to all the components it has ever had to perform with. Recently, I've noticed the sub-platter has developed a wobble. It would appear that this is being caused by several small cracks, running outwards from the bearing. The big question, is what to do? Is it time to say goodbye, or can I replace this part, and possibly upgrade it at the same time? I would be grateful for any advice/contacts you could give.

Simon Dillon

reasonable but not loud volume, around 94dB SPL at one metre from the speaker. The push-pull will give you a few dB more volume, at a little less quality. Oh decisions! Both are superb for the Quads of course, since there's little feedback to affect stability - and electrostatics more clearly reveal the neutral transparency of a valve amp compared to the hard, flattened sound of a high feedback, large component count, high current density, innately non-linear solid-state amp. Ugh! You will have a lovely



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# from to this... PUTTING SOUND INTO FOCUS from to this

### Well Researched



ew would dispute that a decently done valve amplifier is capable of superb sonics, but the problem is that they're not as user-friendly as solid-state designs — at least to the uninitiated. While you can buy any sensible transistor integrated, plug it in and expect a reasonable sound whatever your system, it isn't quite the same with those aspirated by thermionic valves. The Vsi55 is an exception.

Essentially, it is the integrated version of Audio Research's established VS55 power amplifier. It is a largish, imposing looking device, and by no means unattractive. It measures 14x8x16" (in old money), and features a centrally mounted, milled, anodised aluminium top plate, complete with large inset Audio Research logo.

The gently recessed front panel features a long LED volume display, which also shows source selected and whether muting is engaged or not. To the right is a bank of control buttons, including power, mute, source (which toggles through the five inputs, and volume up and down. All these controls are duplicated on the supplied remote - it's not the most auspicious looking device (far from it), but does the job well enough and - hey - any remote controlled valve amplifier is welcome! The fact is that the Audio Research Vsi55 is an ergonomic dreamboat compared to its tubular

Round the back, there are five pairs of single-ended inputs labelled CD, Tuner, Video, SEI and SE2, plus a full-range mono subwoofer output, voltmeter test points for setting bias, reasonably sized loudspeaker terminals with both four and eight ohm taps and an IEC mains socket. The amplifier has an optional perforated cage-type top cover for £250, which would be essential for those with young children or pets. but having neither, I found the Vsi55 looked rather fetching 'au naturel'.

Audio Research says that very short, high performance input relay paths are used, as per the sister REF2 MkII. The active circuitry is essentially that of the VS55, but with 7dB more gain for greater sensitivity. It also uses the same Class A input (with regulated DC heater supply) and driver stages utilising three 6NIP tubes, and partial cathode-coupled Class AB output stages with two pairs of 6550EH output tubes. Interestingly, three little rubber socks are provided for the input valves,

presumably to minimise soundimpairing resonance.

The control section is passive, utilising microprocessor-controlled relays which contribute enormously to this amplifier's ease-of-use. Switch it on and for thirty seconds there's a flashing LED to tell you that the output is muted while the unit warms up. Then it goes automatically to the last input selected, and to mute mode – considering this amplifier's considerable power, this is a welcome 'speaker (and ear)-friendly feature

Using the Vsi55 is a joy – the electronic input selection and warm up facilities allied to remote control, plus the excellent build quality and finish make it instantly appealing to seasoned valve-ophiles and solid-staters alike.

### **SOUND QUALITY**

As you may have gathered from the ergonomics of this new Audio Research integrated amplifier – with its brilliantly judged selection of 'real world' features – it is not way out on the fringes of hairshirt hi-fi. It's pitched at people who are serious enough about sound to consider valve amplification, but who'd rather not keep a soldering iron or oscilloscope to hand. And it's voiced precisely in this way too.

At nearly £3,000, buyers have plenty of choice. There's a host of tube designs around, and by the time you've reached this price point, you can pretty much choose your poison. To wit, there are some very nice parallel single-ended and single-ended triode power amplifiers available from Italy (for example), not to mention the wealth of products from closer to home. The Vsi55 simply does not set out to compete with



these – it is unashamedly an easy, user-friendly, one-box solution to the problem of amplifying music in the home. As such, it actually finds designs such as Musical Fidelity's A308 integrated as its natural competition – this offers precisely the same blend of features but uses solid-state rather than tubes to realise the brief.

Given the aforementioned remit, the Audio Research Vsi55 sounds quite spectacular. Hardened tubular types will doubtless be seduced by far more esoteric circuit designs, but audiophiles seeking a mixture of serious power and speaker driving ability and a wonderfully engaging and propulsive sound will love this. It actually sounds much like a valve version of a superb transistor integrated - by which I mean it has masses of grip, punch, power and precision - with a frankly staggering bass - but adds real timbral accuracy and a highly lucid midband.

First on my turntable was 4hero's 'Escape That'. This is a beautifully recorded soul/jazz song with drum'n'bass rhythms courtesy - unusually - of a real drummer on a kit as opposed to a drum machine. Moving from Ouad's 909 - which is an excellent 'do it all' transistor integrated with no shortage of power - proved a big surprise. I'd expected this valve amp to sound smoother and less vigorous, and had anticipated major shortfalls in the bass department - but got the reverse. The power and articulation of the bass, allied to its speed and definition was a revelation. Whereas most valve amplifiers soften and dampen bass guitar notes, going loose

and fluffy by comparison to solid state, the Vsi55 proved truly tenacious. It's definitely warm down in the bass, but is disarmingly tight and powerful nonetheless. You don't get Naim levels of grip, but it comes very close to fine solid-state designs such as Musical Fidelity's A308 Integrated. There's absolutely no sense of compression or breathlessness until you get the volume up to ear-splitting levels — methinks the output transformers that Audio Research has chosen are something very, very special indeed.

Moving up to the midband, and the surprise and delight continued. It is not as finely etched as a top solid state design - it lacks a rigorous, forensic, 'hear-through' midband. However, it really isn't that far off the Vsi55 delights in throwing out oodles of detail with tremendous spirit and dedication. A vinyl recording of Beethoven's Pastoral Symphony (Karajan, DG) allowed the Audio Research to conjure up one of the most expansive and uncoloured acoustics I've heard from anything outside the realms of telephone number price tag, lottery winner super-fi.Via my reference Quad ESL57s, I was greeted with a vast, chasm-like soundstage with tremendous depth perspective. Fat, two dimensional, rosy and sepia tinged it was not - I can't think of any valve amplifier more unlike a Quad II! Instead, we had brilliant image articulation, very open and natural front to back and left to right image placement, and a sense of total unflappability. When the strings really kicked in with the volume cranked right up, the Audio Research integrated held onto everything with a vice-like grip, steadfastly refusing to let go of the tightly defined yet



### **PLYMOUTH SOUND**

Audio Research was founded in 1970 in Minneapolis, and has grown steadily over the last quarter-century. It now occupies a 48,000 square-foot production plant and administrative headquarters in Plymouth, Minnesota, where approximately 75 technical, assembly and support staff guide the product line from concept to finished goods. A research-only facility has also been established in Palm Desert.

been established in Palm Desert, California.

The company is particularly famous for its after sales service -Audio Research technicians can still repair, refurbish and restore any product ever manufactured during the company's

sumptuously wide recorded acoustic.

quarter-century history.

However, whereas Musical Fidelity's A308 would also manage this not inconsiderable feat, it could never compete with the Vsi55's timbral and textural detailing. Of course, this is no ultra low power, single-ended triode design — so I didn't expect a near supernatural level of subtle detailing and a Technicolor tonal palette, but the Audio Research was still surprisingly capable at describing the delicious 'woody' tone of the violins and cellos.

Switching to The Crusaders' 'Street Life', and it was a joy to behold Randy Crawford's disarmingly powerful and breathy voice. It has a wonderfully open, smooth, even and expressive midband whose tonality which errs on the warm side of neutral - is a revelation even compared to an excellent Class Abiased solid-stater like MF's A308. The easiest way to describe it is as 'being there'. The sudden lack of midband 'cling clang' that properly implemented valve amp designs offer - even compared to superb solidstate equivalents - never ceases to amaze me. The Vsi55 offers just this sort of revelation.

If the combination of barrel chested bass and brilliantly punchy and propulsive midband allied to a wonderful tonal accuracy sounds too good to be true, then you'll be relieved to know that this Audio Research integrated isn't perfect. The treble simply doesn't do it for me which is not to say that it's bad (far from it, in fact), but rather that it lacks the brilliance of the bass and midband. Cue up Herbie Hancock's 'The Prisoner', and the ride cymbals are nice and sweet, but they lack definition and air. It's a nicely satisfying, generic, cymbal sound, but if you then put on Dr Feelgood's

'Down By the Jetty' (which is a thrashy new wave recording), then you get precisely the same pleasant, warm signature. Essentially, the highs lack real incision or analysis — even something like Sugden's A21a Class A solid state

### REVIEW SYSTEM

Michell GyroDec turntable, SME Series IV tonearm, Ortofon Kontrapunkt B cartridge, Trichord Delphini phono stage Meridian 507 CD player, Quad ESL-57 loudspeakers, Perigee FK-1L loudspeakers.

integrated at one third of the price does better. Those seeking silky smooth, velveteen high treble should look to a decent parallel single ended design which will bring an altogether more organic and cohesive upper mid and treble, but just remember to use horn loudspeakers — or turn your hearing aid up...

Together, the Vsi55's many talents make for a riotously musical experience. You can throw many types of music at it, and sit back and be amazed. The powerful, electronic strains of Kraftwerk's 'Computer Welt' proved mesmeric, throwing up vast amounts of midband detail that showed the track's sequenced

electronic percussion like few amplifiers I've heard before. The massive, pounding basslines of Yazz's 'Fine Time' showed precisely how meaty those output transformers are - even at ear-poppingly high volumes through my Quad Electrostatics (yes, really!). The sub-bass was brilliantly articulated and there was no sense of the song's rhythms going AWOL. (As valve amp output transformers gradually saturate, they invariably lose control of the way bass notes start and stop, but this didn't happen until I'd got to seriously silly sound levels). Put on a piece of soft, acoustic rock such as Susanne Vega's 'Freeze Tag' however, and the amplifier moves from being a 'big mutha' to the epitome of delicacy and repose...

### CONCLUSION

This is one of the most well rounded, best conceived, user friendly valve amplifiers I've come across. It's an unashamedly do-it-all design, which — much to my surprise — manages to successfully fulfil its design remit. In short, it's 'tubes without tears'. Here's a product that brings the magic of valves to a wider audience. At £2,895 the new Audio Research Vsi55 is by no stretch of the imagination cheap, but its tremendous range of abilities is such that it can justifiably be labelled superb value for money.

### VERDICT •••



A brilliant all rounder, combining much of the power of top transistor designs with most of sweetness and musicality of the best tube amplifiers. Expensive for an integrated amplifier, yet superb value nonetheless.

AUDIO RESEARCH £2,895 Absolute Sounds (\*) +44 (0)20 89 71 39 09 www.absolutesounds.com

### **MEASURED PERFORMANCE**

Power output from the Audio
Research measured 49watts into
40hms and 45watts into 80hms, so
the 40hm section is better coupled
and best used. Since most UK
loudspeakers now use 40hm bass
drivers, the Audio Research is just
about a 50watter and will go loud.
But then the 6550 output tetrode is
popular in America because it has
welly.

I was impressed by the power bandwidth; output was not curtailed by the transformers at 40Hz or 10kHz, a sign of good transformer design. Also of significance was wide frequency response, reaching 70kHz no less, good enough for 24/192 DVD! — with a smooth roll off above this limit.

Distortion was largely second harmonic and levels about as expected. Fixed bias amps overload less gracefully than auto-bias and this was obvious in the distortion spectrum at high levels and the hard peak clipping that occurs at the limit. The VSi55 behaves almost like solid-state here.

Hiss was low and hum a

critically low 1mV. Input sensitivity was poor at 800mV, not adequate for old tuners like a Troughline.

The Audio Research was properly engineered, unlike almost all other tube amps ('tis sad but true). NK

Power (4ohms) 49watts

CD/tuner/aux. Frequency response 5Hz-70kHz Separation

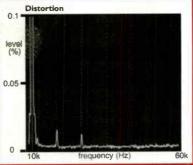
 Separation
 80dB

 Noise
 -92dB

 Distortion
 0.014%

 Sensitivity
 420mV

 dc offset
 10/8mV



### KUALA SHAKER

### Braving bumpy skies for Malaysia's annual A/V Fair, Noel Keywood finds a very different Kuala Lumpur...

umping across India at 38000ft on my return from Malaysia's annual A/V Fair, I was intrigued by a book titled History of Malaya. It's one of trade, conflict and piracy, in a setting where people survived in coastal settlements, backed by a hostile Malarial hinterland of swamp and jungle.

Even today traders are everywhere - and pirates too. The latter have given up on Dhows and are now to be found in Pressing Plants, according to the IFP!! This year I got to more clearly see what an impact they have on local conditions, because the biggest difference from previous years was a total lack of counterfeit goods; the Malaysian government had finally had cracked down hard on pirates early in 2003 and it has had a big affect.

In one single action, Malaysia's DVD market has been decimated, if the shopping malls in Kuala Lumpur are anything to go by. The racks are still there, but this year they are full of VCDs instead of DVDs. I could hardly find a DVD for sale. "The price of an original DVD is 80-100 Ringgit (Rm)" one trader told me, "and no one can afford that". "Also, the government is issuing hologram stickers for all DVDs and CDs but we cannot get them".

In previous years DVDs were everywhere, priced at 15Rm, or around £2.50. It was impossible to

tell they were counterfeits, so good was the sleeve artwork and signal quality. Most were likely digital copies; few were poor quality. At full Western retail an original DVD to a Malaysian would be the equivalent of £20-£25, a price few are prepared to pay it would seem, especially after having it so

cheap for so long!

With VCDs everywhere and not a DVD to be found – well I was offered a few under-the-counter ones – sales of DVD players have taken a hit. A VCD, or Video CD, uses mpeg I compression, which has half originate in the Far East they play VCD, but quality is a stimulus and VCD lacks it.

I noticed that not only had the DVDs gone, but also the fake watches and pirated computer software. Luckily, the IFPI hadn't



Far East exhibitors like to make their stands as pretty as possible...

the resolution of the mpeg 2 of DVD. It gives a grainy picture, much like older video cameras. VCD has always been more prevalent in the Far East and, for the time being at least, it has returned big-style in Malaysia. Since most DVD players

touched an original local creation – Nasi Lemak .With coconut rice, a piece of lightly curried chicken and various local delicacies this is one of Malaysia's small delights.Washed down with coconut milk or iced coffee it more than makes up for any



Spotted in a corner, beneath lots of electronic bits and bobs, a brand new, boxed Decca International tone arm in mint condition. Lovely!



A Soundstage valve preamplifier and, either side, 12watt monoblock power amplifiers, all for Rm2500, or around £416.

lack of DVDs as far as I'm concerned, but locals aren't so happy. Malaysia's A/V market has been hit by this crackdown.

In the long term I suspect prices of original discs will fall to 60Rm or so and sales will pick up, since other goods like camcorders are priced much like the West, to discourage grey importing. All the same, this crackdown has had a large impact locally, on jobs and the home entertainment market. For the time being at least, the copying business is out of business, but pirates have been around some time in this region it seems and I somehow doubt they are ready to abandon their pressing plants yet.

Trading conditions are still lacklustre in the Far East, after the boom years of the late nineties. The Gulf war didn't help nervous markets and SARs has hit the tourist trade, although the 747-600 I took to get there was packed to the gunwales all

With DVD kicked out of touch

and no new technologies from Japan, I spotted nothing new or innovative this year. Often Far East markets get to play with new technology first, but only Blu-Ray is on the horizon and it hasn't yet made it out of Sony's Japanese labs, nor from Philips either, However, interest in audio and all things electronic is still solid in the region and with China not so far away Malaysia gets product like small

STOCKISTS OF

ANAJEK

B&W

DAL

NORDOST

PRIMARE

TANNOY

EL84 based valve amps for just 600Rm (around £100). I got the impression that with DVD temporarily sidelined as a quality source the LP had re-emerged a little

The History of Malaya is full of setbacks and woes that have befallen the region. Most of them were a lot worse than anything I saw or

Vinyl was back in force this year, as this Chinese audiophile 180gm virgin vinyl pressing proves...

experienced this year, that's for sure. So although the traders weren't so happy and the pirates even less so, I suspect the effects will be short



A local LS3/5a loudspeaker club had a room housing a wide assortment, from Richard Allan through to Rogers and KEF versions of this popular small monitor. Visitors could hear each through a high quality system. The Club says the 3/5a is being revived by Richard Allan, using KEF manufactured drivers.



Thanks to a crack down on piracy, Video CDs (VCDs) have replaced DVDs, offering Malaysians poorer quali-





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### As good as it gets - just hear the B2.2 Revelation!



Music lovers - forget 5.1 ch HT, stereo is here again! In fact, the 2 ch sound from SETs and really good single-driver horn speakers has never been bettered for pure musical enjoyment. And horns don't come any better than the new B2.2 Revelation (right). The dynamics and transparency are phenominal - they give a depth of sound stage and image focus which is just so believable.

The Beauhorn Virtuosos simply manage to make music of all kinds more interesting and involving than conventional speakers.

Paul Messenger, Hi-Fi+

But it's also one of the most
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hear. It doesn't take long to
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get deeply involved in the musical content, thanks to the astonishing sense of realism that comes courtesy of tight midband time-coherence alongside dynamic contrasts that simply sound more 'right' and 'real' than those heard with more conventional speakers.

Paul Messenger, Hi-Fi Choice [B2.2 Revelation review]

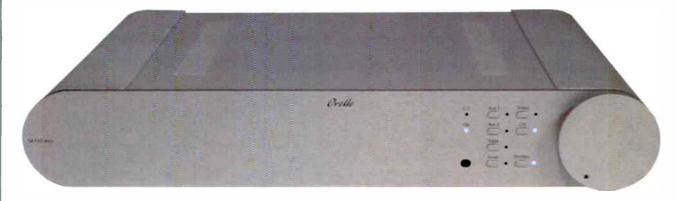


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### Heaven Orelle



Orelle's brand new SA100evo integrated amplifier seeks to better its £1,000 rivals in the great scheme of things. Albert Lee is star struck

e new Orelle SA100evo has an unusual case construction, designed to dissipate sound-degrading mechanical energy in a benign way. Made from aerospace-grade aluminium, the 440x370x70mm affair is most substantial at 8.5kg and finished beautifully - no rough edges here! Rectangular, with a large radius on each end that runs from the front to the rear, it looks truly distinctive. It's also non-magnetic, with minimal interaction with the PCB and transformer whilst providing a good RF shield.

The fascia is also a fine mix of form and function - the motorised volume control is a very large aluminium disc with an extremely weighty feel. To the left of this are the function switches, consisting of input selectors for aux 1, aux 2, tape, tuner, video and CD. The power on/standby is located under the selector bank, and has both fault and output indicators. There is a remote control included which although tiny, works extremely well — the circuitry switches into a low noise mode when it's not receiving a signal so as

to not interfere with audio signals.

Round the back, there's an IEC mains socket, two pairs of substantial binding posts (so bi-wiring can be achieved with little fuss), and all the signal inputs and outputs through gold plated phono sockets. They consist of Aux I, aux 2, video, CD, tuner and tape in and out. There's another pair of sockets labelled pre out, so you can connect another power amplifier for bi-amping (which gives far better results than bi wiring). A moving magnet RIAA option is also available at extra cost, but was not included in this review sample. The legends are thoughtfully laid out and easy to read. Inside the SA100evo resides a 300VA transformer. The component quality is of a high standard - the resistors are mainly 1% metal film types coupled with polyester capacitors.

### LISTENING IN

The SA100evo is simple to operate, because of its well thought out design. The instruction manual specifies a warm up period of thirty minutes, and another seventy-two before full performance will be realised. After switch on, the violet

output LED comes on, along with the red check and fault LED. The latter stays on for ten seconds then goes off and the violet output LED stays flashing for a further ten seconds so the microprocessor can check that the amp is ready for use. After waiting for seventy two hours with a CD on repeat, I was finally in a position to start listening.

The first disc in the CD player was Frank Zappa's 'One Size Fits All'. Frank's voice positively ripped out of my loudspeakers, planted bang in the centre of my living room with the drum kit pounding with great gusto. The Orelle was showing early promise as a very articulate and erudite musical performer. Its image projection was quite superb, with the recorded acoustic hanging behind my loudspeakers, seemingly completely disconnected from them. Next came my favourite Zappa track, 'San Bernadino', which rocked out at great speed.

Next up was Eva Cassidy's 'Songbird' - a very subtle album of songs, which is difficult for amplifiers of this category to reproduce convincingly. Here, the Orelle showed real finesse, projecting her





### The BorderPatrol P20

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Jason Kennedy Hi-Fi Choice Summer 2002. EDITORS CHOICE

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Arms: Rega 300/600/900; SME Series IV and V: Kuzma Stogi; Triplanar.

Cartridges: VanDenHul Grasshopper and Colibri; Kuzma KC Ref; EMT; Reson Reca and Elite; Cartridge Man Musicmaker; Benz-Micro including Ruby Open Air; Kondo lo J.

Amplifiers: Border Patrol; Canary; Sugden; Art Audio; Monarchy; Western Flactics: Icon: Tom Evens Audio Designe; S.I.S.

Amplifiers: Border Patrol; Canary; Sugden; Art Audio; Monarchy; Western Electric; Icon; Tom Evans Audio Designs; SJS. CD Players: Wadia; Sugden; Primare; Resolution. Louspeakers: Living Voice: Vitavox; Lowther. Cables and Tables by Living Voice.

Sale of part exchanged and ex-dem items	Sale	New
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Jamo Concert 8 - loudspeakers - 21/2 years old - maple - spotless	£700	£1365
Townsend Seismic - speaker stands - ugly and bouncy	£450	£695
Tube Technology MAC - mm and mc phono - nearly new - not bad	2600	£1400
Audio Innovations Series 1000 - silver circuit - 50 watts class A	£1100	£2500
Alchemist Forsetti ADP 15A - integrated amp - broken and horrid	£100	£1400
AudioNote Soro - phono integrated - serviced/new valves - smooth & soft	£700	£1900
Clear Audio Master Reference - tumtable - no arm		
2 years old - Perfect condition. Go on, be crazy, it's only	£6000	£8500
Audio Research LS2 B - line pre - fine condition - giveaway	£1000	
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Snell Type El! - walnut - industry classic - new bass-mid drivers	2000	2000
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exquisite voice with tremendous sympathy, as if it was shimmering in mid air. Her own rendition of 'Somewhere Over the Rainbow' is a magnificent piece of music, and showcased the SA100evo's essential nature — it is both warm and smooth, but strong and precise. Its air of authority is something which few amplifier at this price can boast of.

Miles Davis' 'Kind of Blue' sounded extraordinarily organic and cohesive. The musicians seemed to be there in my lounge, and really grooving together, while Coltrane's saxophone had exactly the right amount of bite. This Orelle has a more natural sound than the Cyrus 8 integrated, for example - its image placement is more solid, with superior depth and width.

Next, I pressed my turntable into use. In my opinion, Garrard 301s are probably the finest turntables ever built, and it really shone with this amplifier via a Trichord Dino phono stage. Using an Origin Live RB250 and Roksan Corus, I was again struck by the lucidity of the midband. The stereo image again was beautifully three-dimensional, and the mid to treble balance completely devoid of grain or distortion.

Likewise, its transient abilities were laudable. Music was able to go from soft to loud with alacrity, making for a fluid and natural sound. After a marathon listening session of more than nine hours I can say that I did not suffer from any traces of listening fatigue at all.

Downsides? Well, the Orelle SA100evo is no powerhouse, and cannot drive difficult speakers to very high volumes for extended periods of time. The bass isn't the tightest compared to the likes of Cyrus's 8 integrated (which itself gives ground to Naim's NAIT 5), so don't expect this to aspirate tricky loads with any degree of success. Despite its fairly high rated power output, it's very much in the 'sweet and subtle' category rather than the 'big bruiser'. Still, listen to this amplifier's superb midband and all is forgiven!

So, for my money, this is one of the best in an already crowded category – that of the £1,000 'super integrated'. It is an excellent all rounder, blessed with an open sound and flat frequency response, but

definitely biased towards sonics rather than stomp. Clarity and subtlety are its fortes, along with the ability to portray rhythm and timing information present in the original source material. Its exceptional resolution of the nuanced 'micro dynamics' translates the swell and flow makes that makes music sound like music!

### SPECS AT A GLANCE

- 300W power Supply
- dual toroidal transformers
- 6 inputs
- tape output
- moving magnet phono option
- Pre-amplifier output
- remote control
- full protection circuitry

### VERDICT COCOCO &

Fine build, sleek design and a wonderfully lucid sound make this an assential audition

ORELLE SA100EV0 £1,200 (C) +44 20 8991 9200 www.orelle.freeserve.co.uk

### ORELLE - THE RIVALS

The SA100evo is a superb amplifier, but faces stiff competition from a number of other audiophile amplifiers, all voiced in slightly different ways. Its essential nature falls somewhere between the Sugden and the Cyrus:

### SUDGEN A21A £1.049

This pure Class A gem has a very low power output. It has a tonality that's quite apart from all the rest here — it has a truly wide palette that lets you hear the difference between, say, a Fender Jazz Bass and a copy, like no others. It's beautifully, sweet, lucid and beguiling — but won't last very long at parties!

### CYRUS 8/PSX-R

Here's a great compromise between the sinewy, lithe Naim Nait 5 and the super-sweet Sugden. You get a real taste of tonality, but a good deal more grip and control, especially into difficult loads at high volumes over long periods. It's an exquisitely finished and conceived bit of kit Hard to find a reason not to buy it, really...!

### NAIM NAIT S

At the other end of the sonic scale is this slice of 'affordable' esoterica. For Naim's latest Nait — as with its predecessors — grip is everything. It's tight and taut and lithe, with an incredibly 'adhesive' sound — it sticks to every rhythmic and dynamic inflection with incredible grip. Unlike earlier Naits though, it's decently smooth and polished providing you give it a good source to play with. The result is a captivating and enthralling listen, but don't expect to chill out with it. It's got more power than before, but you still need to partner it carefully with sensitive loudspeakers.

### MEASURED PERFORMANCE Producing 78watts into 8ohms and 144watts into 4ohms the new SA100 78watts has some power. However, under 4ohm CD/tuner/aux. test both channels started smoking 4Hz-50kHz Frequency response after a minute or so, so this is not an Separation 72dB amplifier for continuous high output Noise -107dB use. Since a majority of loudspeakers Distortion 0.007% have four ohm bass drivers these days Sensitivity 400mV the SA100 possibly needs some beefing dc offset 24/36mV up to drive heavy current for long Distortion levels were low across Distortion the midband and second harmonic in nature, subjectively harmless. At high frequencies the picture changed a little. third harmonic appearing. However, at just 0.02% I would not expect this to be 0.05 = audible. The SA100 should sound clean. With good bandwidth and low noise the new Orelle measured well, but it is an amplifier best suited to high sensitivity loudspeakers that don't demand current. NK

### BEST BUY?



Arcam says its new DT-81 is 'the best Digital Radio tuner under £2,000'. Well, that's as maybe, says Noel Keywood — but thanks to the medium's obvious limitations, that's not necessarily saying much...

Digital radio is now 'taking off', thanks in no small part to dramatic price falls and wider availability (coming to a supermarket near you). And as one of the very first entrants to the field - as it has been with other technologies - Arcam has been a major force behind the medium. Whereas the likes of Pure Digital (and latterly Acoustic Solutions and Cambridge Audio) have pushed hard on price however, Arcam has remained firmly in the quality rather than quantity - domain. With the release of the new DT81, the Huntingdon company's third DAB tuner, they're looking to continue the formula. Cost-conscious bargain hunters need not apply...

Is there still a role in life for such an esoteric Digital Radio tuner? DAB is now being pushed as a 'free' format, and free -my friends - will sell anything! Certainly, the allure of its wealth of content cannot be denied. There are oodles of stations not seen on VHF/FM and even a DAB skeptic like myself starts to smile at the likes of Kerrang on air, whilst the London airwaves around me carry Planet Rock, Smash Hits, Kiss, XFM and others as an antidote to today's droning divas.

Working from a roof top aerial, the Arcam pulled in a useful 49 stations in Central London, missing some test transmissions that popped up on a rival Pure DRX-702ES, Since I can get around 32 VHF stations. that's not an enormous amount more, but then the picture is more complex here than a simple station count reveals. VHF stations carry around ten times more data per transmission, and since data equals bandwidth they are pretty dense on Band II if you use a large roof top array as I do. There are weak ones, powerful ones and interfered with ones amongst that 32.

You don't get any of this with DAB. Transmissions are packed into neat ensembles (or multiplexes). A bit like supermarket chicken they're stripped and neatly packaged to reach you fresh and clean - but you don't get a lot of flavour. Musicam compression is used to reduce the audio signal's data rate to around 128kbps, ten times less than that from CD. According to Arcam's press guidance blurb in the DT81, they are attempting to get the best possible sound quality from DAB by using 24/192 Wolfson DACs, plus numerous tweaks and upgrades. This

feisty document goes on to claim the DT81 is the best sounding DAB tuner under £2000 and, since it advises to the avoid the budget end of the market, I used the DT81 alongside a rival they could just be alluding to, the £350 Pure DRX-702ES!

Unlike the Pure, Arcam's new DT81 is DAB only - it lacks VHF/FM or AM. If you want analogue you must use a separate tuner, which can be fed through the DT81 via FM Audio inputs and selected from a front panel button.

On facilities the Arcam doesn't really compare with the feature laden Pure. It's a fairly straightforward DAB tuner with some useful features. DAB tuners autotune on installation like modern TVs, and the DT81 is no exception. It takes a little time to trundle up Band III but once completed a station can be selected by spinning the tuning knob, then pressing a Select button beside it. Alternatively, there are sixteen presets available from a bank of eight buttons.

Build quality is excellent and finish neat. The green fluorescent display was superb, giving station names in full with fine clarity. It can



VERDICT ••••

A fine product, hampered by its seriously compromised DAB medium. One for Digital Radio enthusiasts only.

ARCAM DT81 £650 Arcam (C) +44 (0);1223 203 203 www.arcam.co.uk

be dimmed or switched off if

Whilst setting up and using the DT81 is easy enough, connecting up was 'interesting'. I was surprised to find a BNC panel mounting socket on the rear panel for the aerial, DAB tuners to date have used F connectors. Whilst the BNC is a popular connector in pro equipment it isn't yet common in the home and trying to make connection with any coaxial plug or socket will mean a trip to Maplins if the dealer cannot oblige. Arcam supply a BNC terminated wire aerial and this should get most people up and running, straight for the box.

Reading the fine print I see that the DT81 has nominally a 50ohm aerial input. UK domestic product usually comes with a 750hm input and aerials are also nominally 75ohm. In as far as I can get a sensible reply from Britain's aerial manufacturers, domestic Band III DAB aerials are 75ohm, not 50ohm. It isn't a big issue; characteristic impedance is pretty nominal. Mismatched terminations suffer reflection and may increase error rate. Germany seems to pay more attention to this sort of thing (DAB was, originally, a German technology) so I wasn't surprised to see Arcam recommending Robert Bosch aerials for a decent Band III, and for an L-Band, Yes, the DT81 also receives L-Band, like its rival the DRX-702ES.

The UK gets L-Band in 2007 but unfortunately I got no sense from either the BBC about what L-Band is supposed to be offering in future, or from aerial manufacturers about suitable product. DAB is not, at present, directed at anyone wanting to erect their own aerials. The attitude seems to be 'leave it to the professionals'. Good aerial information is sparse, to say the least. The DT81 draws attention to all this by providing an Engineering Mode which, I must admit, I used

more than User Mode. It gives error rate, as well as Ensemble frequency and other data. Arcam fit decent aerial signal strength meters to their analogue tuners, so you can see whether they are working optimally and they fit an equivalent to this tuner. Error rates varied from around 25 down to 1 in my location, according to the programme being received. XFM (<10) and Capital (0) managed well, for example, whilst the Beeb hovered around 10 and Virgin was surprisingly poor at 25 or thereabouts. The rear panel also carries a Data Service output and a digital output with electrical and optical connectors.

### **SOUND QUALITY**

So, can a £650 DAB-only tuner like this justify its price tag, by putting some flavour back into the drab sound of emasculated digital? The short answer is, sadly, no. I spent hours listening closely to the DT81 on Radio 3 transmitting at 192kbps and at all times it was as revealing as possible. But you can't really go too far with this because there isn't so much to reveal in low data rate digital. It is bereft of richness, giving more an outline of the music than any real insight. A DAB tuner, no matter how good, cannot retrieve what isn't there in the first place. DAB can crack up badly with massed violins but this is I suspect more a encoding problem in the transmitting chain rather than a receiver problem. The DT81 handled violin and viola within Max Bruch's Double Concerto well, eking out as much detail as possible. There was just a little more insight than the Pure but it was a small difference and at times I fancied pole position changed. Digital systems change behaviour with programme content and this was at times a bit perplexing.

Monteverdi's 'Return of Ulysses' saw the DT81 again put a little bit more sparkle into a dulcimer than

the Pure, but differences were again small. There was little to separate the tuners across a broad range of classical programme I felt, although large orchestral works revealed Pure's PAC technology, as they call it, which equalises the analogue output, lifting low frequency energy to give DAB more body.

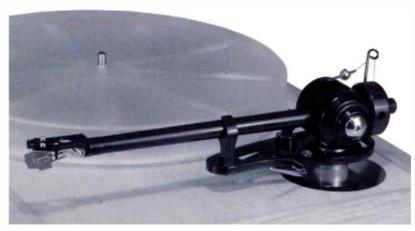
With broadband Rock the DRX-702ES obviously had more bottom end clout and heft, but whether this was good or bad depended upon the quality of what was being transmitted. Led Zeppelin's 'Since I've Been Loving You' had Bonham applying more muscle through the Pure, yet the DT81 sounded tight enough, bringing just a little bit more definition to his cascading drums. XFM was using lots of low frequency energy to generate a background rumble and here the Pure was starting to produce cone flap from the Revolver R45s! Again, close listening showed it was possible to hear a little further into Jimmy Page's guitar work through the DT81, and this extra insight existed across all stations and music types.

I wouldn't argue with the bold claim that this is the best sounding DAB tuner under £2000, but that's not to say the case is unarguable. Pure's DRX-702ES gives a bigger, warmer balance from DAB's many rock stations, with heavier bass. Sometimes it sounded bloated alongside the Arcam, sometimes just fuller. The DT81 was about as tight and detailed as it is possible to get from DAB at present, taking into account mediocre transmission quality. Of course the Pure offers VHF/FM and if you turn to this during a Radio 3 broadcast all is embarrassingly revealed.

DAB isn't really a quality medium - it's pop radio, a good modern alternative to Medium Wave. Arcam's new DT81 wrings as much as possible from it, but the price is high all the same.

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Hi-Fi World 2003 on Illustrious Tonearm













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### MIGHTY



### VERDICT COCCE

Superb value thanks to excellent sound, great build and ease of use, but the bundled 'speakers rather let the side down.

ONKYO CS-210 £299.99 Jamo (UK) Ltd © +44 (0)1788 573 100 www.onkyo.net

### Onkyo says its new CS-210 micro system is "the audiophile's choice". Haden Boardman investigates...

nkyo makes some bold claims for this little system - genuine audiophile performance for not much for than a couple of hundred guid! Well, this is a nice little system, but by no stretch of the imagination can the word 'audiophile' be labelled upon it. Still I know where Onkyo is coming from, as it has some unique features in this market sector. The power amplifier section eschews the usual hybrid thick film IC device for a totally discrete output stage, called WRAT (Wide Range Amplifier Technology), which is claimed to use minimal amounts of negative feedback (by transistor standards).

Along with carefully selected components, this makes for a power bandwidth of up to 50kHz. Although power is quite low - the RMS rating is given as 20W into 4 ohms at 1kHz - it is well on par for this kind of system. Indeed this little fella is actually quite happy with some fairly evil 4 ohm loads on the end of it. Build quality is very high, even better than the small Denon UDM-31 system I reviewed last month.

As a bedroom alarm clock, the timer on this unit was much more flexible than any other I have seen. Separate weekday and weekend timers, a proper record timer, which will activate a suitable Onkyo

cassette or MiniDisc, and a sleep timer. Very flexible and easy to use. No tone controls are fitted, instead a four position bass and treble booster called Acoustic Presence is fitted. Instead of the cheap electronic volume controls, this unit is fitted with a higher quality motorised potentiometer.

No less than three separate input/output sockets are provided, and the supplied remote control will happily control the whole lot utilising Onkyo's R1 remote control interface system. Speaker terminals were sadly the usual clip things. Onkyo supplied a pair of the fairly chunky D-NTX2 speakers, which take the total price up to a penny under £300. The bass unit is apparently Onkyo's own OMF structure (Onkyo Micro Fibre), a cotton weave mix. Cabinet construction was fairly solid, and the tweeter a fairly standard plastic thing.

### **SOUND QUALITY**

The loudspeakers came complete with a decent grade of OFC quality cable, but I cannot say I was impressed with them, as they sounded tizzy, thin, and boxy. So, with its claims of being happy to drive demanding loads, I thought it time to make the little Onkyo sink or swim. A pair of current hungry Dynaudio Audience 42s (£400) - one of my

favourite compact loudspeakers at any price - duly replaced the rather iffy Onkyo offerings. At this point, most minis would have popped a fuse, but not this thing.

Sure it ran a little warm, but you would not have believed you were actually listening to a small £230 system. Smooth, open and unfatiguing, it gave a real sense of musical involvement that simply transcended its meagre mini system status. From CD, bass was warm (relatively speaking), with a decent amount of energy and articulation. Midband was clean, and treble smooth and surprisingly incisive yet devoid of any nasties. Radio quality was fine, complete with RDS and a basic medium wave tuner Of course the Dynaudios are more than a little over the top here, so I would recommend something more like the new £100 Mission M30s.

This little system does offer terrific sound quality for the price. I have heard separates at twice the money which deliver less. The Denon UDM31 is a very good unit, but fiddly to use and neither as powerful or as musical as the Onkyo. We are talking small degrees here, but for me, the Onkyo CR-305 receiver unit has a definite edge over it. But don't bother with those speakers — they're not that good. I was sorry to see it go back!

### World Audio design

### PROBABLY THE BEST DIY KITS IN THE WORLD

DEMONSTRATION ROOM AT 12A SPRING GARDENS, NEWPORT PAGNELL, MILTON KEYNES BUCKS MK16 OEE BY APPOINTMENT ONLY - CALL FOR DETAILS ON 01908 21883

The Kecl82 is out latest introduction for the true beginner and designed by Andy Grove. A simple and elegant design based on the classic ECL82 valve, a triode and power pentode sharing the same glass envelope. The amplifier consists of two ECL82s per channel, the triode sectons work as the input/phase splitter and the pentode sections work in push-pull for the output stage. The amplifier offers 8 watts into an 8 ohm load, the hum level is extremely low, comparison to solid state standards. The chassis is constructed of 1.6mm mild steal with a black powder coat finish, there is only one signal input pair controlled at the front by a volume control for that simple touch. The speaker connects are the standard 4mm banana type, positioned at the rear, as are the mains input which is received through an IEC lead, mains switch and earth post. We have made the construction as simple as is humanly possible with comprehensive instructions. The circuitry is based on a single printed circuit board. Ultimately this kit is for the guy who has always fancied a go at building a kit, but never dared. Simon Pope says, "It's a great introduction to the valve sound. For it's humble price it delivers a full and rich sound with great detail and good depth." Kecl82 weighs 9kg. External dimensions are 30cm(w)x23.5cm(d)x11cm(h)

**NEW KIT** 



### **KECL82 VALVE AMPLIFIER KIT**

£195|



These are our new 6550 series amplifiers. A pure class A design providing 40 watts into a 8 ohm load.(available in a 4 ohm version if required) A truely high end design by Andy Grove, using 5vetlana 6550Cs in push-pull (any 6550 or KT88 tube can be used with this amp). It features valve rectification (5U4) a choke pi filter power supply and is hard wired. Weighs 19kg with dimensions



390mm(w) x 330mm(d) x 190mm(h) with valves or 220mm(h) with cage. 5imon Pope says - "If you favour attack and rhythmic grip, together with a smoothness of sound that's incredibly easy to live with, the KiT6550 could well be the kit amp for you. The 6550 is one for those who like a valve sound married to the attack and clout of a good quality solid state design".

### KIT6550 VALVE INTEGRATED AMPLIFIER KIT £615 KAT6550 VALVE POWER AMPLIFIER KIT

£580

The Kel84 features a pair of EL84 valves per channel in push-pull configuration. They give 15 watts into an 8 ohm load. The output transformers are Ultra Linear. Up front the ECF80 input/phase splitter valve has an extremely smooth sound. The Kel84 has very low hum, for simplicity the kit is built on a printed circuit board. A strong steel chassis is fronted by a 3mm anodised front panel and attractive chromed custom made knobs. There are five line level inputs, plus one monitor input, with a tape output included, all controlled from the front panel. At the rear is a mains switch/IEC power input, earth post, phonos, and 4mm bannana sockets. Simon Pope says, "The quality that can be gleaned from this amp is a fine introduction to the joys of the valve sound. The Kel84 will highlight all the intricacies and depth of detail in your favourite recordings whilst retaining a warmth and fullness that is almost exclusive to pure valve amps and is rare at this price point." Kel84 weighs 10kg. External dimensions with valves are 300mm(w) x 270mm(d) x 150mm(h).



### KEL84 VALVE INTEGRATED AMPLIFIER KIT

E298

The 2A3 PSE integrated amplifier offers a seriously hi-end sound, but without the cost usually associated with single-ended amplifiers. The stereo chassis houses, on the output,  $2 \times 2A3$  in parallel single ended configuration and a single 65N7 as the driver tube per channel. The valve rectified power supply consists of a 5U4 and a 10h choke. This feedbackless design provides 8.5 watts into an 8 ohm load, so a good sensitivity speaker is required above 90dB. It can accept 6 line-level inputs fully controllable from the front panel. We provide the excellent Alps Blue potentiometer as standard. The amplifier is hard wired so plenty of scope for tweaking in the future. 5imon Pope says, "The 2A3 PSE is extremely impressive piece of kit, good imaging, wide sound stage, nicely extended on the high frequency and tremendous bass thump. Weight - 20kg, external dimensions with valves fitted - 390mm(w)  $\times 360$ mm(d)  $\times 220$ mm(h)



### 2A3 PSE INTEGRATED AMPLIFIER KIT

£570

### PROBABLY THE

World Audio design

The PRE-II is a valve pre-amplifier with six inputs, tape monitor and two sets of output sockets. It utilises a high quality line driver transformer and x5 gain. The PHONO-II is a dedicated valve phono stage that incorporates a step-up transformer for MC users. Finally, PSU-II is a power supply unit that feeds both the PRE-II and PHONO-II.

Power Supply Unit (PSU-II) £205.00 Pre-amplifier (PRE-II) £215.00 Phono Stage (PHONO-II) £110.00 Moving coil step-up transformer £77.00 Passive pre-amplifier (PAS-II) £235.00



### eries II modular Pre-AMP kit



KiT34 is a 32 watt stereo valve integrated amplifier, featuring a pair of EL34s, in push-pull mode, per channel, plus an ECF80 pentode/triode as input/phase splitter. The power supply is valve rectified (2 x 5U4), using a heavy duty choke to achieve exceptional smoothing. The output transformers are 14% Ultra Linear tapped to keep distortion down to its lowest level and the kit is totally hard wired utilising three tag boards. It has five line level inputs, plus a tape-in and



tape out, all controllable from the front Simon Pope says, This integrated bring together the best sonic virtues of our KiT88, kel34 and top of the range 300B PSE in an affordable package. The highlights of the sound are a deep and taut bass response, together with an open and highly detailed mid and high frequency response that only the best valve designs can achieve... a true valve classic. 'Weight 22kg, External dimensions with valves fitted - 390mm(w) x 360mm(d) x 210mm(h)

### (AT34 VALVE POWER AMPLIFIER KIT

KITS4 VALVE INTEGRATED AMPLIFIER

Our Parallel Single Ended amplifiers offer ultimate sound quality Each monobloc has two of the beautfully linear 300B directly heated triode in its output stage, producing 20 watts into an 8 ohm load. At the front we have a 6AU6 pentode and an ECC82 as the driver valve. This design utilises a 5U4 rectifier valve in the power supply, in combination with a 10H choke, giving an extremely quiet supply. Both mains and output transformers we E/I pattern.

For purists, feedback is switchable and the kit is totally hard-wired. For those that require valves we provide the superb Tesla 300Bs, Russian 5U4s and European 6AU6s & ECC82. Simon Pope says, "Not to put too fine a point on it, the sound these monoblocs create is among the finest that can be encountered in hi-fi." Our 300B PSE kit bears an affordable price of £895.00 (UK price) excluding valves. Each

look and chassis as the 300B PSE monobloc.

monobloc weighs 23kgs., external dimensions with valves: 25cm(w) x 38cm(d) x 22cm(h) per monobloc. The 300B PP monobloc shares the same

> The 300B PP kit has been created for those who prefer a bit more dynamics and drive to their valve sound. With a pair of 300Bs in push-pull configuration providing 26 watts output.

these beauties will drive most modern loudspeakers to perfection. Andy Grove's design is totally feedbackless, using a 6AU6 pentode as the input valve and a 5687 as the phase splitter, the power supply uses

a Russian 5U4 for rectification. The kit is constructed by point to point wiring so some experience is required. 300B PSE owners do have the option to buy the conversion kit for £250.00 to turn their monoblocs to push-pull status. Each monobloc weighs 23kg.

### OOB PSE MONOBLOC KIT

www.hi-fiworld.co.uk

**World Radio** History

**300B PP MONOBLOC KIT NEW** 

The HD83 headphone amplifier is a beautifully simple design using Mullard ECL83 valves, a triode and power pentode housed in the same envelope. It works directly from any source, be it CD, tape, tuner etc., or from an amplifier's tape out or pre-amp out sockets. The circuit uses high specification E/I output transformers that will drive any headphone load from 16 ohms to over 300 ohms depending on how the secondaries are wired up. The HD83 is a singleended design with the power pentode wired up in triode configuration for added sonic purity, and it is as quiet as a mouse. For sound quality Jon Marks says," The bass is punchy and controlled without becoming artificial, while treble has the crispness of the best solid-state, with the tonal purity, delicacy and speed associated with valves." External dimensions 18cm(w) x30cm(1) x 8cm (h) weight 4kg.



ides valve headphone amplifier kit

### World Audio design

### PROBABLY

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Kel84 Upgrade kit

I x 100K Alps blue Potentiometer

2 x 1000uF, 16V Black Gate

4 x 100uF, 50V Black Gate

4 x 0.22uF, 400V Jensen paper in oil

KiT6550 Upgrade kit

I x 100K Alps blue Potentiometer 2 x 2200uF, 16V Black Gate

4 x 100uF, 100V Black Gate 4 x 0.22uF, 630V Jensen paper in oil

KaT6550 Upgrade kit 2 x 2200uF, 16V Black Gate

4 x 100uF, 100V Black Gate

4 x 0.22uF, 630V Jensen paper

£120

KiT34 Upgrade kit

I x 100K Alps blue Potentiometer

2 x 1000uF, 16V Black Gate

4 x 100uE 50V Black Gate

4 x 0.22uF, 630V Jensen paper in oil

KaT34 Upgrade kit

2 x 1000uF, 16V Black Gate

4 x 100uF, 50V Black Gate

4 x 0.22uF, 630V Jensen paper in oil

£120

300B PSE Upgrade kit

2 x 470uF, 16V Black Gate

4 x 100uF, 100V Black Gate

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2 x 0.47uF, 630V Jensen paper in oil

4 x 35A Bridge Rectifier KBPC3502

4 x 4700uF, 16V

£150



"KiT34 Upgrade Kit"

### BARGAIN BASEMENT

2A3 PSE chassis and base plate (without face plate), slight flaw on paint work, can hold 1 x 120 lam, 2 x 78 lam E/I transformer, 3 x octals and 4 x UX4s, hardwired. Price - £50.00

Kel84 chassis and base plate (Without face plate), slight flaw on paint work, can hold 1  $\times$  78 lam, 2  $\times$  29 lam E/I transformers and 6 x B9A. Price - £40.00

Audax drive unit, HM130Z0, aerogel, 5 inch mid/base unit UK price £35.00 each

> 5687 valves, double triode UK price £7.00 each

Kit34 chassis - UK price £50.00 each

Pls fax/tel 00 44 (0) 1908 218836 to order

### (Mains transformers & Chokes)

KIT6550/KAT6550 mains transformers 2 inch stack, 130mm(h)x120mm(w)x135mm(l) drop through fitting with zinc cap, Secondaries 425V-0V-425V, 350mA, 0V-5V, 6A, 3,15V-0V-3,15V, 9A, Suitable for 120V & 240Vac operation

KEL84 mains transformer
1.5 inch stack, 90mm(h)x 80mm(w)x 95mm(d) drop through fitting with zinc cap. Secondaries: 0.V-240V 300mA; 3.15V-0V-3.15V; 5.5A, suitable for 120/240V operation

KIT88/KAT88 mains toroidal transformer 120mm dia x 60mm(h). Secondaries: 1954-0V-95V,450mA/0V-27V, 100mA/3.15V-0V-3.15V,9A, suitable for 120/240V operation

KIT34/KAT34/KIT6550/KAT6550 choke
1.25 inch stack, 65mm(h)x105mm(w) with fitting holes x 60mm(d), clamp fitting, 2.5 H, 350mA

300B PSE mains E/I transformer 130mm(h) x 95mm(w) x 115mm(d). drop through fitting with zinc cap. Secondaries: 380V.0V-380V, 180mAJ150-0V-150V, 25mA/0V-5V, 1.2A/0V-5V, 1.2A/0V-5V, 3A/3.15V-0V-3.15V.0.4A suitable for 120/240V operation

KEL80 mains toroidal transformer (encapsulated) 130mm dia. x 65mm(h). Secondaries: 195V-0V-195V,390mA/0V-27V, 100mA/3.15V-0V-3.15V,7.5A, suitable for 120/240V operation

HD83 mains toroidal transformer 80mm dia. x 35mm(h). Secondaries: 0V-165V,75mA/3. 15V-0V-3.15V,1A, suitable for 120/240V operation

PSU-II mains toroidal transformer 80mm dia. x 35mm(h). Secondaries: 0V-270V,60mA/0V-10V,2A, suitable for 120/240V operation

TRANS I mains toroidal transformer 95mm dia. x 50mm(h). Secondaries: 0V-370V,150mA/0V-6.3V,3.5A 300B E/l choke 65mm(h) x 70mm(d) x 80mm(w) open frame fitting,10H, 180mA,

KEL84 E/I choke 0.5 inch stack, 40mm(h)x 35mm(d)x 70mm(w) clamp fitting, 1 H, 250mA

PSU-II E/I 40mm(h) x 35mm(d) x 70mm (w) clamp fitting, I5H, 20mA

K1T34/KAT34 mains transformer 2.5 inch stack. 120mm(h)x115mm(w)x95mm(d), drop through fit-ting with zinc cap.Secondaries 365V - 0V - 365V,300mA/0V - 5V, 6A/3.15V - 0V - 3.15V,7.5A. Suitable for 120/240V operation.

### Output transformers

KIT6550/KAT6550 E/I 16% TAPPED UL push-pull output transformer 2 inch stack. 80mm (w) x 95mm(l) x 100mm(h), drop through fitting with zinc cap. Primary-secondary 4.5K, 16% UL tapped. Secondary 4 or 8 ohm, pls specify on order max output 45 watts, max current 180mA, valves, KT88, 6550 etc

KEL84 E/I Ultra Linear push-pull output transformer 1,25 Inch stack, 76mm(h)x 65mm(w)x 76mm(d) Primary - seondary, 8K with 12.5% UL tap - 80hms, max o/p-15watts, max current 150mA valves EL84 etc

KIT88/KAT88 E/I push-pull output transformer 80mm(w)x95mm(l)x100mm(h). Primary-secondary 10K - 80hms max o/p-40watts, max current-160mA valves-KT88, 6550, EL34

KIT34/KAT34 E/I 14% tapped Ultra Linear push-pull output Printed circuit boards

transformer 2 inch stack, 80mm(w)x95mm(l)x100mm(h), drop through fitting with zinc cap. Primary-secondary 6.4K, 14% UL taps, Secondary 80hm, max output 34watts, max current 150mA, valves EL34, 6L6, 6CA7

HD83 E/I single ended output transformer 40mm(w)x50mm(f)), x55mm(h). Primary-secondary 4K - 4 x 640hms windings, max o/p-1 watts, max current-25mA valves-ECL83 etc

Pre-II E/I driver transformer 80mm(w)x60mm(I) x65mm(h). 6:1 step down transformer, max current-10mA valves-6922 etc pre-amp stage 300B PSE E/I parallel single ended output transformer 130mm(h) x 95mm(w) x 115mm(d). drop through fitting with zinc cap. Primary 1K3 Secondary 8R, output .

Kel84 Printed Circuit Board 280mm(w) x 135mm(l)x 1.6mm(d),

iT88/KaT88 Printed Circuit Board 140mm(w) x 310mm(l) x 2 4 Kel34 Printed Circuit Board (40mm(w) x 310mm(l) x 2.4mm(d)

80 Printed Circuit Board (a pair) 120mm(w) x 215mm(I) x 24m

HD83 Printed Circuit Board 140mm(w) x 160mm(l) x 1.6mm(d),

PSU-II Printed Circuit Board 105mm(w) x 130mm(l) x 16mm PRE-II Printed Circuit Board 105mm(w) x 130mm(l) x 1.6mm(d,

PHONO-II Printed Circuit Board 105mm(w) x 130mm(l) x 16

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These are expert kits, not for the inexperienced. You must be able to solder and read a circuit diagram. The valve kits contain lethal voltages. We cannot be held responsible for any errors arising from the construction of these kits.



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Kecl82 valve amplifier kit (with valves)(available 01/12/02) 2A3 PSE valve integrated amplifier kit (with valves)	2A3 PSE (with valves)	ă	£570.00	£485.00
2A3 PSE valve integrated amplifier kit (without valves)	2A3 PSE (without valves)		£470.00	£400.00
KaT6550 valve power amplifier kit (with valves)	KaT6550 (with valves)		£580.00	£495.00
KaT6550 valve power amplifier kit (without valves)	KaT6550 (without valves)		£450.00	£380.00
KiT6550 valve integrated amplifier kit (with valves)	KiT6550 (with valves)		£615.00	£525.00
KiT6550 valve integrated amplifier kit (without valves)	KiT6550 (without valves)		£485.00	£415.00 £410.00
KAT34 valve power amplifier kit (with valves) KAT34 valve power amplifier kt (without valves)	KAT34(with valves) KAT34(without valves)	j	£480.00 £415.00	£354.00
KiT34 valve integrated amplifier kit (with valves)	KiT34 (with valves)	ā	£515.00	£440.00
KiT34 valve integrated amplifier kit (without valves)	KiT34 (without valves)		£450.00	£385.00
Kel84 valve integrated amplifier kit (with valves)	Kel84 (with valves)		£298.00	£255.00
Kel84 valve integrated amplifier kit (without valves)	Kel84 (without valves)		£268.00	£230.00
PSU II power supply unit module	PSU - II		£205.00	£175.00
PHONO - II phono stage module (with valves)	PRE - II PHONO II	ă	£215.00 £110.00	£185.00 £95.00
PAS II passive pre-amplifier module with 10K or 50K attenuator (pls specif		ă	£235.00	£200.00
Moving Coil step up transformers	MC - step up (pair)	ā	£80.00	£68.00
HD83 Valve Headphone amplifier kit (with valves)	HD83 (with valves)		£195.00	£167.00
300B PSE Valve Monobloc amplifier kit (with valves) - a pair	300B PSE (with valves)		£1197.00	£1020.00
300B PSE Valve Monobloc amplifier kit (without valves) a pair	300B PSE (no valves)		£895.00	£765.00
300B PP Valve Monobloc amplifier kit (with valves) - a pair	300B PP (with valves)		£1197.00	£1020.00
300B PP Valve Monobloc amplifier kit (without valves) - a pair	300B PP (no valves)		£895.00	£765.00 £215.00
300B PP conversion pack( converts a 300B PSE to 300B PP)	300B PP (conversion pack)	J	£250.00	£213.00
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parts description	order No.	qty	(inc vat & carriage)	overseas (exc. vat & carriage)
2A3 PSE mains transformer	2A3 PSE mains T		£115.00	£98.00
KiT/KaT6550 mains transformer	6550 mains T		£120.00	£105.00 £85.00
KiT34 mains transformer Kel84 E/I mains transformer	KiT34 - mains T Kel84 - mains T	ă	£100.00 £60.00	£47.00
HD83 mains toroidal transformer	HD83 - mains T	ā	£40.00	£34.00
PSU-II mains toroidal transformer	PSU-II - mains T	000000000000	£40.00	£34.00 £98.00
300B PSE E/I mains transformer KiT34 E/I chokeKiT6550 E/I UL	300B - mains T (each) KiT34 - choke	ă	£115.00 £40.00	£34.00
Kel84 E/I choke	Kel84 - choke	ā	£20.00	£17.00
KiT6550 choke	KiT6550 choke		£40.00	£34.00
300B PSE choke 2A3 PSE choke	300B - choke 2A3 PSE choke	ä	£40.00 £40.00	£34.00 £34.00
PSU-II E/I choke	PSU-choke	ā	£20.00	£17.00
KiT6550 E/I UL push pull output transformer (4 ohm? or 8ohm?)	6550 - O/P T (pair)	وقوووووو	£130.00	£112.00
KiT34 E/I UL push pull output tranformer (4ohm? or 8ohm?) Kel84 E/I push-pull output transformer (4 ohm? or 8ohm?	34 - O/P T (pair) Kel84 - O/P T (pair)	ă	£130.00 £90.00	£112.00 £78.00
2A3 PSE parallel single ended output transformer	2A3 PSE O/P T (pair)	₫	£130.00	£112.00
HD83 E/I single ended output transformer	HD83 - O/P T(pair)		£100.00	£86.00
Pre-II E/I driver transformer 300B PSE E/I output transformer(4 ohm? or 8ohm?)	PRE-II - driver T(pair) 300B PSE - O/P T (each)	ä	£80.00 £110.00	£68.00 £94.00
300B PP E/I output transformer(6 ohm)	300B PP - O/P T (each)	ă	£110.00	£94.00
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Kel34 Printed Circuit Board Kel80 Printed Circuit Board	Kel34 - PCB Kel80 - PCB(pair)		£12.00 £52.00	£11.40 £44.65
HD83 Printed Circuit Board	HD83 - PCB		£20.00	£17.00
PSU-II Printed Circuit Board	PSU-II - PCB		£20.00	£17.00
PRE-II Printed Circuit Board PHONO-II Printed Circuit Board	PRE-II - PCB PHONO-II - PCB	ä	£20.00 £20.00	£17.00 £17.00
Tag board 2 x 16 connections (hard wiring)	TAG	000	£4.00	£3.00
Alps blue audio grade 50K dual log potentiometer	ALPS - 50K		£14.00	£12.00
Alps blue audio grade 100K dual log potentiometer	ALPS - 100K		£14.00 £75.00	£12.00 £65.00
Stepped attenuator with resistor pack 10K of 50K (pls specify) LCR 22.5uF 440Vdc polypropylene capacitors	Attenuator + resistor pack LCR - 22.5U	ă	£10.00	£8.50
Jensen 0.47uF 630Vdc paper in oil capacitor	JEN - 0.47U 630V		£20.00	£17.00
Jensen 0.22uF 630Vdc paper in oil capacitor	JEN - 0.22U 630V		£16.00	£14.00 £10.20
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2A3 PSE/6550/34 cage	2A3 PSE/34/6550 cage		£80.00	£68.00
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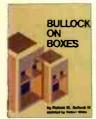
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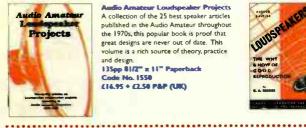
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### ITRIP CANCELLED

A popular gadget in the US, which lets Apple iPod users transmit music to FM radios, has been banned in the UK because it contravenes the Wireless Telegraphy Act of 1949. AN Micro, the UK distributor of the iTrip, said use of the device was prohibited under the Act, which forbids the use of radio equipment without a license or an exemption. The iTrip transmits at very low power on an FM frequency and so in theory could interfere with broadcasts from a radio station. The \$35 cylindrical device, made by Griffin Technology in the US, has won critical acclaim from fans of Apple's digital music player. There are no restrictions on its use in the US, where people can use it to listen to songs stored on the iPod on a home or car stereo. But in Britain, using it is akin to setting up your own pirate radio station. According to reports, two other countries - Austria and Iceland - have also stopped sales of the iTrip because of problems with radio frequencies.

### **REAL LIFE**

RealNetworks has announced its acquisition of Listen.com, creator of the award-winning RHAPSODY digital music service which delivered more than 12.4 million on-demand songs to its subscribers in July. RHAPSODY offers consumers unlimited 'all you can eat' access to the broadest library of major and independent label music with more than 350,000 tracks available for on-demand listening and more than 240,000 songs available for transferring to CD. It is now available as RealOne RHAPSODY via RealNetworks, with a 14-day free trial, for \$9.95 a month at www.real.com

### **AE GOES MP3**

Acoustic Energy's AEGO2 sub/sat active speaker system has been reduced in price to target the computer audio market. Originally selling for £299.95, the system is now on sale for just £99.95. Claimed to be capable of producing true hi-fi quality sound from almost any source - TV, PC, games console or Walkman - it now sports 'subtle internal design changes and cost savings' to target the massive growth in the MP3 jukebox / web download

music market. Neil Truckell, AE's UK Sales and Marketing Manager says, "In an audio world now dominated by home cinema, its great to see the youth market keeping music very much alive thanks to MP3 jukebox type 'gadget-togo' products". Click on www.acoustic-energy.co.uk for more details.

### **AOPEN SESAME!**

lust as we've watched CD burner speeds soar over the past few years, so DVD recorders are now beginning to rise. AOpen's zippy new DRW4410 boasts 4x DVD+RW, 4x DVD+R, 8x DVD-ROM, 24x CD-R, 10x CD-RW

and 40xCD-ROM speeds. Its improved antiheat design renders a cooling fan redundant, a there's Just-Link technology that eliminates the possibility of buffer-under-run errors. It has an ATAPI/E-IDE interface, 2MB data buffer

memory and a software disc containing Adobe Photoshop Album Starter Edition, NeoDVD 4.5 standard, Nero InCD and Nero Burning Rom and a wealth of other applications. Click on

www.aopen.nl for details.

### **HAVE YOUR SAY ON BLU-RAY!**

www.bluraytalk.com/forums/viewforum.php?f=1

James Morrow, a knowledgeable correspondent to Hi-Fi World's letter pages, is running an online poll on Blu-Ray and its associated HDMD technologies. He takes up the story, "Blu-ray is a new optical disk technology that uses blue lasers to read to and write from the disc, High Density MiniDisc is physically much smaller than DVD and CD, but has five times the capacity of DVD and is four times faster. This means

that it can record much better quality sound and video than any variant of DVD, and each topic at the web address below illustrates an aspect of its performance and provides a simple vote for you to take. Although all the enabling technologies are in place, the potential is so great that we need to better ascertain what people actually want from HDMD before we can release product. Hence the website includes a simple survey in the form of eight HDMD topics with polls for you to

vote in. But first you need to register (using your name and a chosen password) and then login. Then, just click on the topic of your choice, read the blurb about it and take the survey. There's just one poll for each, so it shouldn't take too long. There are eight



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topics in all, each with its own poll - so ideally you could start at High Density MiniDisc and work your way up. Note that they're deliberately brief so that the poll can quickly capture how you're feeling about HDMD having just read about it. As you can probably gather, it is a digital versatile disk - just a lot smaller, with five times the capacity and four times the bandwidth of DVD/DVDA/SACD. So, for example, unlike DVD-Audio, it can support six channels of 192/24 audio - in fact, six channels of 384/24 audio!

# The Emperor's new clothes

If you're serious about CD authoring, there's little to touch Ahead Software's Nero Burning ROM. While rivals like Roxio's Easy CD Creator may be less complex to use, Nero is an immensely powerful writing tool — and the latest v6.0 incarnation promises even more. David Price has a fiddle...

ero is the CD authoring package the professionals use, but in today's ultracompetitive software market, that's no longer sufficient recommendation. It has been famously difficult to use, with fussy ergonomics and a Wizard that seemed a token afterthought. Only when you've got used to it does it fall easier to hand, and then you're ready to explore its countless advanced features.

The latest 6.0 release attempts to bring the package a little closer to everyday users, without losing its wealth of features and tremendous functionality. Indeed, some more have been added for this latest version. There's an improved Nero Burning ROM 6 and Nero Express 6 for burning and copying discs, plus NeroVision Express 2, Nero Wave Editor 2 and Nero SoundTrax for processing and generating video and audio content on CD and DVD, and Nero BackItUp for saving data. There are also some little tweaks, which really add value as far as computer audiophiles are concerned, such as the highly improved HE-AAC codec. Here are the highlights as far as audio users are concerned:



doubtless appreciate it. I remember when I first tried Nero – it loaded up, presented me with a blank, Windows Explorer-style screen and I thought, "right – what do I do now?" There's also a switchable Advanced mode that displays more functions, plus a version management and software update notification system which automatically checks for updates from Ahead Software. You could say it's great having an autoupdate, but then again it's a very convenient way for Ahead Software to sell you new code!

### START SMART

The first thing seasoned users will notice is the new StartSmart quick launch bar, which integrates the package's many parts more closely. It's a pain in the neck for Nero veterans, as it's just one additional layer to trawl through, but novices will



### **BURNING ROM**

Nero Burning ROM is the core of the package, the bit that lets you



burn CDs. The screen is slightly redesigned and is now usefully cleaner and crisper — which frankly isn't saying much! A definite improvement on the old one, but the old one reminded me of a computer machine code disassembler, so the less said the better... The new Windows XP-look makes things more easily accessible than before, and the burning task dialogue has been reorganised for more usability. The actual burning process now lets

users start pre-mastering new tasks for burning on more than one recordable drive – making it truly multi-tasking.

After loading up Nero you get a scrolling bar which lets you choose your compilation source, such as 'Audio CD'. You can then click on the INFO tab to get useful information, like its size and number of tracks, and any CD Text present. The Windows Explorer-style Compilation Window lets you drag'n'drop the music files you want to record. Then click on the BURN button and Nero takes over. Details of your compilation are displayed in the upper pane of the window, and the phase which is currently running (and its result) is shown in the centre pane. Pretty comprehensive really, and it's this feature that's so useful if you run into problems. It's a great program, and now thankfully a bit easier to use.



#### **NERO MEDIA PLAYER**

This application, which boasts a skin akin to a late nineties high end Kenwood CD player (!), lets users play and rip audio tracks in a variety



of formats, including MP3, HE-AAC, TwinVQ, WMA, and WAV. There's digital track labelling for your audio CDs to see what's playing, and you can make your own sonic profiles with the graphic equaliser, and play MP3s directly from the Internet. The great news is that the very latest Fraunhofer MP3/MP3 PRO codec is included, supporting VBR (Variable Bit Rate) and standard bit rates from 96 to 320kbps. The bad news is that this is a trial version which lets you encode up to 30 audio tracks unlimited ripping requires a plug-in (single-user license, sent by email) available at a "small additional cost". There's Winamp DSP plug-in support, Winamp visualisation plug-in support and full playlisting. As media

players go, it's a neat enough little thing, but no great advance on the likes of WinAmp!

#### **NERO WAVE EDITOR 2**

This is a non-destructive editing and recording application, which means that your original music files will not



be modified during the editing procedure, until they are saved. Different filters and sound optimisation methods are available, crossfades can be added and usefully - there's automatic track splitting which exports tracks to separate files. It supports recording and editing in 24 and 32bit sample formats, there's automatic crash recovery and editing history and undo / redo information are saved. The Nero Audio Plug In Manger 6.0 permits the reading or writing to/from WAV, MP3, WMA or AIFF files. There's support for DirectX Audio Filter Plug Ins, VST Plug Ins, and an internal effects library including Reverb, Chorus, Flanger, Delay, Wah-Wah, Phaser, Voice, Modification, Pitch Tuning, Band Extrapolation, Noise Reduction, Declicker, Filter Toolbox, DC-Offset Correction, Stereo Processor, Dynamic Processor, Equaliser, Transpose, Time Stretching, Karaoke Filter. It's nice to use, with lots of power and flexibility, but you can't help thinking it's a generation or two old by the way it looks and feels which is as clunky as the old Nero 5.5 Burning ROM.

#### CONCLUSION

Overall then, the essence of Nero is the Burning ROM - the CD/DVD writing part of the package. This is superb, and remains the best around. No other authoring software offers such powerful copying and error handling capabilities as Nero. For the latest v.6.0 incarnation, it's substantially easier to use, thanks to the StartSmart Wizard and a better designed and crisper look. As for the extras, such as Nero Wave Editor and Media Player, well - I've seen better elsewhere. They're perfectly good, but lack the brilliance of the core burning application. Nonetheless, it's a great package, and one that can be confidently recommended to those serious about their disc authoring, above all others at or anywhere near the price.

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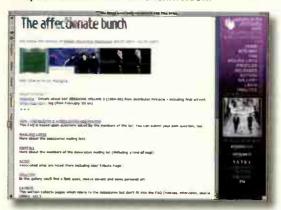
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#### THE SMITHS

http://www.askmeaskme.com As any skinny, daffodil wearing indie music fan will tell you. The Smiths were the greatest band of the 1980s. Messrs Steven Patrick Morrissey, Mike Joyce, Johnny Marr and Andy Rourke made the blueprint for guitar music for that decade and beyond and without them, Indie Dance and Britpop could never have happened. In an intense five years between 1983 and 1987, they released almost twenty singles and seven albums, and life would never be the same again for the eighties generation... This site, called 'Ask Me Ask Me Ask Me.com'. is a suitably exhaustive resource. packed with content, archive reviews and - appropriately enough given the purple-ness of Morrissey's prose lyrics. Brilliant.

#### THE ASSOCIATES

http://perso.wanadoo.fr/affectionate.bunch/home.html

On the 22nd of January 1997, the body of William MacArthur MacKenzie was found in a shed near his home at Auchterhouse, Dundee. It was a tragic end for one of the eighties' most quirky and charismatic musical talents. Along with Alan Rankine, he was the creative force behind The Associates - responsible for some dazzlingly offbeat and inspired music to come from the post-punk era. His incredibly powerful, operatic singing style was unique. 'The Affectionate Bunch' is a fitting tribute, with huge amounts of background information on the musicians he worked with (spanning Shirley Bassey, Yello and Martha (of 'and the Muffins' fame!)), his releases and links. Essential for any eighties indie completist.

#### SCRITTI POLITTI

http://www.dosswerks.com/scc

'The Scritti Crush Connection' is but one of a surprisingly large number of online odes to Green Gartside (aka Scritti Politti), who famously began his musical career as a Marxist punk rocker, but achieved success with a saccharine mix of soul and funk, using (then) cutting-edge synthesiser technology. His penchant for post-Structuralism (who else would write a song about Jacques Derrida?) and designer clothes was a curious conjunction, but then again it was the eighties - and anything was possible! This site is a good starting point for budding Scritti-istas, with lots in info and discographies. It lacks the enigmatic appeal of the late, lamented 'Archaeology of the Frivolous', however - a fansite that was the internet at both its best and worst (a serious anorak zone)! This one, however, is simply a fine, no-frills resource.

#### TREVOR HORN

http://www.trevor-horn.de There is a small but vocal group of people who believe that the work of Trevor Horn is the closest humankind has yet come to genius. As such, 'The Trevor Charles Horn Worship Hall' is a suitably reverent place in cyberspace where disciples can go to exchange stories of his new adventures in 16bit, 44k.056kHz ProTools-processed PCM! The site features a wealth of information on TCH's (very) prolific career, including his exploits with The Buggles, Yes, Frankie Goes to Hollywood, Propaganda, Seal and the rest... The navigation isn't brilliant, and it's pretty 'dense' (read: impenetrable) at times, but is well worth it if you're a fan. And how appropriate that a French ISP hosts the artistry of Billy MacKenzie, whereas Trev's technical brilliance has a German one...!

# For The Record

Frustrated by the mediocre analogue to digital convertor on your soundcard? Then Xitel has the answer for you in the shape of its brand new INport, which gets high quality audio into your computer via USB. David Price listens in.

ccessories - don't you just love them? For yours truly, life wouldn't have been the same without Audio Technica's AT 634 Electronic Stylus Cleaner, QED's Discsaver battery phono stage or Mobile Fidelity's GEODISC alignment protractor. Whilst they may not have been the mainstay of my system, they've given me useful extra functionality, and upped its performance in a way disproportionate to the cost. Think of the INport just like this - something you didn't really know you wanted but may now not be able to live without.

About eighteen months ago, I first tried out two curious creations by Xitel - the Analogue Link and the Digital Link. If you missed the original review, the idea behind both was simple - the soundcards built into most PCs are awful enough to dispense with at the earliest possible moment, and that instead of having to pull your PC apart, there is an easier way! Xitel's Hi-Fi Links used the USB port, fitted to virtually every PC since 1998, as a way of piping out the pure, unsullied digital audio stream direct from your motherboard to the outside world. Now, the company has done one that works the same, but in reverse.

The INport is essentially an offboard analogue to digital convertor. Plug a line level analogue source into it (via standard RCA phonos) and it converts it to PCM digital audio and pipes it direct to your motherboard via USB. You can then use any number of recording software packages (from Cool Edit

to WaveLab) to commit the digits to hard disk, chop and change it and then burn it to CD-R. Brilliantly simple, but there's another benefit too. You see, soundcards in computers aren't famous for being high fidelity devices. By using the INport, you can bypass this veritable den of audio vice and use a good, known quantity instead.

Xitel claims that the INport is indeed an 'audiophile' product, with carefully selected, 'high grade' componentry, 'fully customised ground loop isolation' and 'gold plated terminals' (personally I believe these are actually sonically inferior to non-gold plated', but that's another story). There's also a 'sophisticated digital engine', and - thoughtfully -9m of high grade shielded audio cable'. This is most welcome, as invariably - unless you have a notebook - your computer is a good way away from your hi-fi, assuming it's in the same room at all!

Inside the box is the USB connection cable and a CD-ROM, complete with Xitel's own CFB software. This is a handy little application that lets you record directly onto your hard drive, automatically setting input levels for you and numbering songs track by track, so you can burn them to CD-R directly using a CD authoring package like Roxio's Easy CD Creator. It's not the most powerful bits of code I've come across, but is as simple to use as its writers intended. Installation with Windows XP was easy - simple plug in and wait for the 'pling' as Windows tells

you its found it! In the instruction manual, Xitel recommends doing a Restart for good measure, however.

Record from

The INport sounds very good. It is not - emphatically - an £11,000 Apogee studio ADC, nor does it equal the (rather fine) analogue-todigital convertors in my Sony TCD-8 DAT Walkman. It does, however, improve dramatically on the convertors built into practically any bundled PC soundcard. Only when you pay serious money for a serious soundcard like Terratec's EWX 24/96 (£150) does it come under threat. Much like Xitel's Digital Hi-Fi Link USB DAC, it has a smooth and even sound with a decently lithe bass and sweet treble. There's a lot of midband detail, and a good degree of space and atmosphere. Most importantly, there's no harshness, hum, noise or other nasties - all of which are standard practice with cheapo \$10 bundled soundcards!

With the INport, you can archive your analogue safe in the knowledge that you're getting a good hi-fi sound. Can't say fairer than that! Personally, I'd love to see Xitel do a serious, high end hi-fi version with expensive audiophile passive componentry (Black Gates, et al!) - the INport PRO, maybe. The INport caters for those looking for fine sound, but I'm sure loads of computer audiophiles would willingly pay the premium for a stunning one. And who knows, it could become another cult hi-fi product? As for the INport as it is, however, it's two large thumbs aloft.

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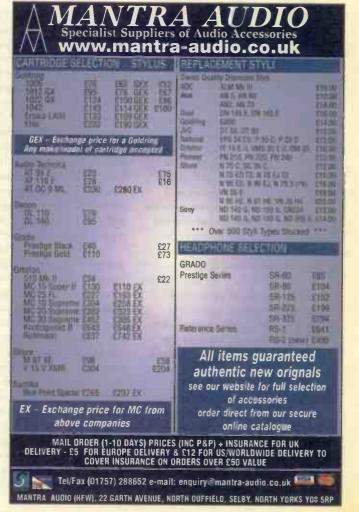
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# noel keywood



t one time or another we've all dreamed of using something ultimate, like a big horn loaded Tannoy Westminster. I'd love a pair, but first ! would have to swap my standard issue house for a mansion - as they're enormous! Still, sometimes I'd still crave something a bit gentler in another room. Loudspeakers are so confusingly different that I couldn't hand on heart pick one I would want to live with to the exclusion of all

others.

Knowing the drawbacks and weaknesses of even the best, though, means I'm fairly happy to accept the least. Small loudspeakers aren't half bad; in fact they're very good. The box of a box loudspeaker is concerned mainly with reproducing only bass, and I've sort of de-tuned myself from the need to have something going boom, boom, boom in the room. This the box does very well - large, rigid boxes deliver a peculiar whoomph back at you if you shout into them - and this is exactly what the rear of a cone does.

I tend to take an engineering view of loudspeakers, which is analytical and mechanistic. There are other ways of viewing the same beast, in terms of emotional impact or ir cognitive impact – how the loudspeaker interacts with our auditory mechanism.

Emotional impact is a difficult and controversial one, but it's real enough. Emphasis and clarity of beat gives a strong sense of timing and in a lot of Rock, especially Rap and music based on it, a loudspeaker that apparently times well seemingly handles this sort of music best. But as studio engineers will often add in some emphasis at 60Hz to add rhythmic life, so a loudspeaker tuned

to this frequency emphasises the effect. Loudspeakers like this sound lively, that's for sure, but it is an effect. Taken too far it will compromise accuracy to an obvious degree that may start to interfere with other instruments, like electric bass which will go one-note.

Emphasising treble can also add

Stereo utilises little of these abilities; in truth it warps.

a useful edge to transients and sharpen timing too, but again if this is taken too far it starts to become intrusive in other ways. Cymbals will start to sizzle noticeably and, as with all such emphases the effect may be tolerable until you try and play a recording that itself is strong in high frequency energy. Then, where an accurate loudspeaker conveys what's on the disc, the tuned one blows it out of proportion.

You can heighten emotional impact in this manner but you will be forsaking accuracy. It's hard to listen to two different loudspeakers and pick the one that sound least exciting. But that's what I did when i heard Quad electrostatics and that's what I continue to do, albeit with care. It makes no sense to take the excitement out of music, but what provides the excitement is worth scrutinising. If it again comes down to beat and timing, or maintaining rhythm then I'd contend that's a narrow view of excitement. Excitement can come from hearing right into a performance in a way we haven't done before. Or it may come from a singer that magically appears in front of us, so close and well defined as to be real. It should come from all these things, but then a

balance must be struck – less excitement in one area for more in another.

Loudspeaker choice is intertwined with the system too. As mono demanded one large loudspeaker, often in a corner, stereo brought a pair out into the room. And suddenly they had to image.

Now we have surroundsound and it too is unique in certain ways. It better engages our ability to aurally locate objects around us and has more cognitive impact as a result. Placing sounds all round helps remove spacial muddle and compression.

We can locate singers and instruments more readily. Stereo utilises little of these abilities; in truth it warps reality by directing rear information into front channels to give an artificial sense of spaciousness. It might be pleasing and even satisfying, but so was mono. I've been surprised and intrigued at the way surround-sound can improve clarity by expanding a performance out and back in the room, pulling it away form the front loudspeakers.

Factor in other surround-sound benefits such as improved image resolution, smoother and better dynamics from multiple loudspeakers and a less one-dimensional sound stage dependent upon loudspeaker position, and you end up with a good argument for surround-sound over stereo I feel.

There's a lot to be said for moving to surround-sound with small high quality loudspeakers instead of stereo with large monitors. So if you are dreaming of owning a loudspeaker like the Westminster take heart from the fact that you can get a pretty vivid sound from something a lot smaller - and you won't have to move house.

# GFEAT WORLD'S COMPETITION Gleanav

WIN A FABULOUS PURE DIGITAL DRX-702ES DIGITAL RADIO TUNER IN THIS MONTH'S GREAT COMPETITION!



#### Competition Questions

#### DRX-702ES's dab

- [a] VideoLogic
- [b] Frontier Silicon
- [c] Imagination Technologies
- [d] Technologica

#### [2] In what sense is the DRX-702EX a hybrid?

- [a] It has both AM/FM analogue and DAB receivers
- [b] It is half human, half Vulcan
- [c] It's recycled from old digital and analogue
- [d] It's a rare breed of plant

#### [3] What is PAC-II an acronym for?

- [a] Pink And Cream
- [b] Punk And Country
- [c] Punchy And Clear
- [d] Psycho-Acoustic Compensation-II

#### [4] How did Simon Pope conclude his review?

- [a] "Sensational" [b] "Poptastic"
- "Twice as nice"
- [d] "Not 'arf, great mate!"

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

ere's an unmissable chance to win one of the very best sounding Digital Radio tuners from the world's largest manufacturer of this technology. This clever hybrid tuner offers FM and AM analogue in addition to DAB, and features the latest DAB processor from Frontier Silicon in addition to multi-language support

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- Multiple entries will be automatically disqualified
- Purchase of the magazine Is not a pre-condition of
- No correspondence will be entered into
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and dual-band reception for use throughout Europe, In Hi-Fi World's exhaustive group test of tuners back in August, Simon Pope was positively effusive. Here's what he wrote:

"Crammed with features, you get analogue auto tune (very handy) and selection by station name, plus naming of non-RDS FM stations. There's USB connectivity for software upgrading and future DAB data access; configurable DAB station programming, ninety nine presets each for DAB, FM and AM; RDS capability and full signal strength and aerial diagnostics.

This machine works well on analogue FM. Radio 3 had a decent amount of warmth and depth... Voices were natural with just a tad of chestiness. Moving to Radio 3 on DAB, and contrary to popular journalistic belief, it sounded better! This is down to PURE's own Psycho-Acoustic Compensation-II technology (PAC-II), which appears to add a smidgen of EQ at the frequency extremes to liven up what is usually quite a dead sound. It works very well indeed, making

digital Radio 3 a force to be reckoned with.

Again the PURE delivered a slightly better response in DAB than analogue with local commercial and BBC stations, the digital side of the machine did a much better job with pop music than many rivals do in analogue... The 702 is an interesting and brilliantly well equipped bit of kit, which can't be bettered when it comes to facilities and features... It's an easy 'one box' solution for those wishing to solve their analogue versus digital dilemma. Twice as nice!"

You can get more detailed information on the superb PURE DIGITAL DRX-702ES by calling 01923 260511 or by going online and pointing your web browser at www.videologic.com. If you'd like to win this superb hybrid Digital Radio/ analogue tuner, then all you have to do is answer the following four easy questions. Send your entries to: October Competition, Hi-Fi World magazine, Unit G4, Argo House, The Park Business Centre, Kilburn Park Road, London NW6 5LF.

#### CONGRATULATIONS

...to Mr. Michael Robinson of Fulwood, Preston, the winner of our August 2003 competition. A pair of Monitor Audio B4 Floorstanding Loudspeakers are on their way to you!

# dominic todd



P's review of the Cambridge DVD 57 in July's issue made fascinating reading for me. It wasn't so much the DVD I was interested in - fine though it is - but rather the featurette on the CD4SE. As a former owner of the CD4SE it brought back many memories of just what a storming player it was for the money. Truth be told, even today's finest budget CD spinners have yet to really improve upon it. The reason for this, of course, is that the CD4SE came out about the time the CD player

engineers had a pretty good idea as to how to get the best from a budget machine.

market began to mature. After

around fifteen years, digital

Of course CD is far from being the only mature market. Amplifier and loudspeaker markets matured long ago, though that doesn't necessarily mean that there haven't been improvements over the years. What it does mean, however, is that there are certain older models that can still give newer rivals a good run for their money. So, thanks to David's example of the CD4SE, in this column I'm going to take a look at a couple of classic amps, one well known, the other perhaps not quite so, but often both sell for a song.

I don't think that any discussion of budget esoteric amplifiers would be complete without mention of Pioneer's legendary A-400. This was Pioneer's early 1990's answer to the dominant UK minimalist amps of the day, and boy was it good. In fact, I found it so damn good that I used one myself in those days to review the majority of equipment between £200-£1000. What made it special was the rare ability to simply get on with the art of making music with the minimal intrusion. Yes, I admit

that it was perhaps a touch soft at the lowest bass levels, and the phono stage failed to do it justice, yet otherwise it was nigh on perfect. It was also one of those products that just got better and better the more expensive the ancillaries were. Some said that it didn't suffer budget partners gladly, yet I found it to be

If ever there was or is an amplifier of the decade award, then the A-400 would probably be up on the podium.

quite tolerant, at least of the better really cheap stuff. If ever there was or is an amplifier of the decade award, then the A-400 would probably be up on the podium. That it cost a mere £230 was simply icing on the cake.

Its replacement, the A-400X, was a veritable for A-400 fans. At the time I remember reviewing it and couldn't help being sorely disappointed. It had traded some of the original's insight and sparkle for greater ancillary tolerance, and I think Pioneer knew as they ran the two simultaneously for some time. So if you fancy a classic then sick to the straight A-400.

The very amplifiers that Pioneer were responding to were often pretty decent themselves. Many pages have been written about the Cyrus I and 2, the Audiolab 8000A and the NAD 3020, so I'm not going to dwell upon any of them here for too long. Needless to say, whilst they all had their strengths, I don't think any got close to the musical cohesion of the A-400. Having said that, I don't think anyone would be unhappy with a second hand one today, although

the 8000A really did require careful system matching.

Along with the A-400 another, and rather more obscure, favourite of mine was the Albarry PPI. It cost between £400-£500 over its three year or so life span from around 1992, and is unmissable thanks to its deep red acrylic front panel. It was

also available in grey yet, as hardly anyone took up this option, we can see how the amplifier earned its nickname of 'the strawberry Albarry'. What I found so bewitching about this particular midpriced product, pitched bravely against some especially strong competition at the time, was its liquid smooth response. One

wouldn't have been so surprised had it been a valve or Class A design, yet it was neither. It could still give a contemporary Musical Fidelity Al or Audio Innovations 300 a good run for their money in the smoothness stakes whilst still offering good old transistor clout, Admittedly, 45 watts was never that much clout, but it was enough to drive most loudspeakers, and certainly way more than the 25 and 10 offered by the above rivals. These days a strawberry Albarry is a rare find indeed yet, because of their relative obscurity, they tend to sell for less than the ubiquitous Audiolabs, Cyruses, NADs and Musical Fidelitys. Pick up a cherished one for around £80-£120 today, and be prepared to be amazed as you would never have believed for such little cash!

So, should you happen to be the happy owner of a Cambridge Audio CD4SE, and looking for a suitable partner, then give either of these a go. Chuck in some suitable secondhand loudspeakers, and for less than the price of a top spec iPod you'll have a truly rewarding and engaging system.

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# david price



y own personal favourite Roxy Music album is 'Avalon'. It's an unfashionable choice - lacking as it does the redoubtable talents of Brian Eno, it's by no means as innovative, edgy or experimental as the likes of 'Roxy Music', 'For Your Pleasure' or 'Stranded'. Released in May 1982, the band's eighth studio album is actually quite significant, inasmuch as it proved to be the last where we'd see Phil Manzanera, Bryan Ferry and Andy Mackay working together.

'Avalon' was recorded at the Compass Point studios in Nassau, and the Power Station in New York. As with most 'final' albums, there were tensions in the studio during its recording, with the band pulling in differing artistic directions. Nonetheless, in conjunction with producer Rhett Davies and a wealth of session musicians (thirteen, so I believe), it took the Roxy sound to new areas. Indeed, it could be argued that it set a blueprint for the production values of eighties rock albums - sounding immensely expansive, polished and atmospheric. A chance meeting with singer Yannick Etienne in the studio corridors famously led to the title track's arrestingly powerful female vocal refrain weaving through the sax and guitars.

The result was tremendous chart success – in the days when you needed to sell more than double figures to get into the Top Forty. The first single, 'More Than This' reached number 6 of the UK charts in March 1982, 'Avalon' number 13 in May and 'Take A Chance With Me' number 26 in July. The album topped the charts and stayed in the album charts for 60 weeks. The original British LP release also proved something of a hi-fi stalwart. Its superb production

values and very high standard of recording quality made it the dem record of 1982 – and for many years after

With this in mind, I was most excited when I received an invitation from the record company to attend the launch party of the new SACD pressing of 'Avalon'. Not only did it offer the chance to hob-nob with the three band members at Soho's

they'd cut it from a second generation digital copy made sometime in the late nineteen eighties!

swanky Groucho club, but I'd have a chance to speak to producer Rhett Davies about how he achieved that brilliant sound. After thinking about the offer for all of three tenths of a second, I graciously accepted.

On a baking June afternoon, yours truly braved the London heat to get over to the Groucho.

Upstairs I had a chance to drink beer and chat with the people behind the new Super Audio Compact Disc release. It was an impressive event, all done in the best possible taste and with no small measure of style. However, when I finally got the chance to 'interrogate' Rhett on the precise details of the new superbly packaged, shiny new SACD, things went swiftly downhill...

I started by saying how nice I thought the original vinyl pressing sounded, and he agreed. I then said that SACD would be an ideal vehicle for the re-release, with its nicely warm and detailed sonics well able to capture the delicacy of the original analogue master tapes. Instead of nodding emphatically, he dropped a bombshell. "Err, you know that this SACD is taken from DAT

masters, don't you...?"

Suddenly, the room started spinning. It wasn't through an excess of ice-cold Budwar (which I'd been drinking for purely medicinal reasons), but Rhett's revelation that one of the biggest, most significant SACD re-releases to date would afford not one scintilla of the theoretical benefits of Direct Stream Digital coding — multichannel mixes

notwithstanding. Why?
Because it had come straight from an old 16bit, 48kHz
PCM digital tape recording!

Whilst the PR blurb had taken great pains to point out the sonic benefits of SACD, the album's producer had just told me that they'd cut it from a second generation digital copy made

sometime in the late nineteen eighties!

Apparently, the masters had been recorded onto a faulty batch of Ampex 560 which had been stored incorrectly, and its poor adhesive duly caused it to start shedding oxide. Then the engineers noticed they'd archived the masters to DAT before they passed the point of no return. The result is that the SACD had been mixed off these very second generation masters!

In an adjoining room at the Groucho Club, the new multichannel mix was being played through £50,000 of monitoring equipment, including five top B&W studio monitors. It sounded deeply mediocre. I told Rhett that I'd heard far better from my old Rega Planar 3, NAD 3020 and Tannoy Mercury system on which I'd originally played the album back in 1982. He didn't look surprised — an early eighties vinyl pressing is, after all, far closer to the original (now tragically defunct) analogue master tapes...

All I can say is that - if this is what's going on behind the scenes of most 'high resolution' digital reissues - then heaven help hi-fi.

# dial a dealer

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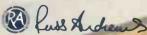
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# world classics

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 CD11986 [£1500]
Inspired Stan Curtis redesign of Philips
CD104, complete with switchable digital filter. Lean but tight and musical performer.

CAMBRIDGE AUDIO CD 4SE 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-I 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 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.



MERIDIAN 207 1988 [4995] Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output.

NAIM CDS 1990 [£ N/A] Classic Philips 16x4 chipset with serious attention to power supplies equals grininducing 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.

### COMPACT DISC TRANSPORTS

ESOTERIC PO 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.

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

#### **DACs**

CAMBRIDGE AUDIO
DACMAGIC 1995 [499]
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.

PINKTRIANGLE DACAPO 1993 [£ N/A] Exquisite; the warmest and most lyrical 16bit digital audio we have ever heard. Clever plugin 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.

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.

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.

#### GOLDRING LENCO 88/89 1963 [£15.6S]

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.



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 [2599]
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.

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.

TECHNICS SP10 1973 [2400]
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.

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 ROCK1979 [£ 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 [2600]
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.

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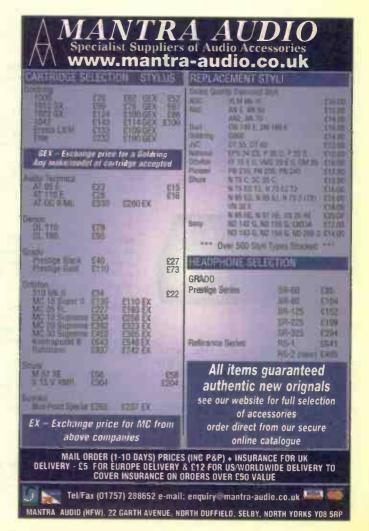
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#### **TONEARMS**

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.

GRACE G707 1974 [458]
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.

HADCOCK GH228 1976 [£46] Evergreen unipivot with lovely sweet, fluid sound - although bass and dynamics are limited. 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.

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 3009 1959 [218]
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.

SME SERIES III 1979 [£113]
Clever variable mass design complete with
Titanium Nitride tube tried to be all things
to all men, and failed. Charming nonetheless,
with a warm and inoffensive sound.

TECHNICS EPA-501 1979 [£ N/A]
Popular partner for late seventies Technics

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

### INTEGRATED AMPLIFIERS

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

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.

CREEK CAS4040 1983 [2150] More musical than any budget amp before it; CAS4140 loses tone controls, gains grip.

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

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

MUSICAL FIDELITY AI 1985 (£350) Beguiling Class A integrated with exquisite styling. Questionable reliability.

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

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 superamp.



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

ROGERS CADET III 1965 [234] 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.

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

#### **PREAMPLIFIERS**

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

CROFT MICRO 1986 [4150] 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!

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



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.

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NAIM NAC32.5

forward for digital.

1978 [£ N/A]

1952 [£22] The Salisbury company came of age with this, incisive sound that's a joy with vinyl but a tad respects though, it sounds hopelessly dated. Low power and hard to partner properly.

1958 T£251 OUAD 22

their classic high end pre. Brilliantly fast and

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

**OUAD 33** 1968 F£431

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

#### **POWER AMPLIFIERS**

LEAK POINT ONE, TLIO, 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.

**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

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

MARANTZ MODEL 9 1997 [£8000] Authentic reproduction monoblocs still more than cut the sonic mustard. Highly expensive and highly sought after.

MICHELL ALECTO 1997 [41989] Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!

MUSICAL FIDELITY XA200

1996 [£1000PR] 200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.

The all-time classic valve amplifier, with a deliciously fluid and lyrical voice. In other

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

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.

#### **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**

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



**MARANTZ ST-8** 1978 F£3531

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

[£79] NAD 4040 1979

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.

LEAK TROUGHLINE 1956 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 deli-

ciously lucid with true dimensionality.



NAD 4140 1995 [£199] Brilliant affordable digital tuner has a smooth, detailed musical sound plus sensible realworld facilities.

1993 [4595] NAIM NAT03 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.

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

#### ANALOGUE RECORDERS

AIWA XD-009 1989 [£600] Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

NAKAMICHI CR-7E 1987 [£800] The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.

**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.



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Arcam FMJ CD23 CD Player (1Yr G/tee) (1199.00)	£779.00	Marantz DV7000 DVD Player (1Yr Gtee) 60% .(599.00)	£169.00
Arcam FMJ DV27 DVD Player (2Yr/Gtee)(1599.00)	£1259.00	Naim NAT-05 Tuner (1Yr/Gtee)(785.00)	£599.00
<b>B&amp;W CM2</b> Speakers (2Yr/Gtee) (550.00)	£369.00	Naim NAP 150 Power Amplifier (2Yr G/tee) (795.00)	£595.00
<b>B&amp;W CM4</b> Speaker (2Yr/Gtee) (895.00)	£579.00	Naim Credo Speakers (2Yr G/tee) (1350.00)	£875.00
B&W CDM7 Speakers - Cherry (2Yr/Gtee)(1250.00)	£799.00	Rega Planet 2000 CD Silver (1Yr G/tee) (498.00)	£369.00
Celestion Compact A Spkrs R/nut (1Yr G/tee) .(600.00)	£239.00	Rega Mira 2000 Amp Silver (1Yr G/tee)(498.00)	£365.00
K.E.F. Q3 Speakers-Cherry (2Yr G/tee) 40% (399.00)	£229.00	Sugden Bijou Ampmaster (2Yr G/tee) (689.00)	£495.00
Linn Classik Movie System (2Yr G/tee) (1995.00)	£1195.00	Sugden MasterClass Integrated Amp (2200.00)	£1590.00
<b>Lexicon MC1</b> Processor (2Yr G/tee) 50% (5500.00)	£2595.00	Spendor S3 Speakers Maple (2Yr G/tee) (600.00)	
Mission M51 Speakers - Rosenut (2Yr G/tee)(299.00)	£209.00	TAG AV30 A.V. Proc - Silver (2Yr G/tee)(1800.00)	£1089.00
Mission M52 Speakwers - Maple (2Yr G/tee) (449.00)	£295.00	TAG AV32R BP192ex (2Yr/Gtee)(2994.00)	£1499.00
Mission M53 Speakers - Beech (2Yr G/tee) (549.00)	£369.00	TAG DVD32FLR DVD Player (1Yr/Gtee) (2999.00)	£1899.00

PIONEER CTF-950 1978 [£400]
Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.



YAMAHATC-800GL 1977 [£179]
Early classic with ski-slope styling courtesy of Mario Bellini. Middling sonics by modern standards, but cool nonetheless!



#### **DIGITAL RECORDERS**

KENWOOD DM-9090 1997 [£500] Serious and sophisticated sound thanks to well implemented ATRAC 4.5; surprisingly musical MD recorder.

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.

PIONEER PDR-555RW 1999 [£480] For a moment, this was the CD recorder to have. Clean and detailed.

SONYTCD-8 DATMAN 1996 [£599] Super clean sound makes this an amazing portable, but fragile.

SONY MDS-JE555ES 2000 [£900] The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding.

#### **LOUDSPEAKERS**

JR 149

Infamous cylindrical speaker that was ignored for decades but now back in fashion! Based on classic KEF T27 / BII0 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but rewards with fine clarity in imaging,

**LEAK SANDWICH** 1961 [£39 EACH] Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.

LOWTHER PM6A 1957 [£18 EACH] This seminal full-range driver is still manufactured. High sensitivity, as fitted to many classic horn designs.

MAGNEPLANAR SMGA198X [£800] Technological loudspeaker with genuinely musical abilities; fast, smooth, open, dry.

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.



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 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!



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.

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!



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.

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Arcam FMJ CD23 Player (1Yr G/tee)(1199.00)	£699.00	Linn 5103 AV Processor Sil LCD (1Yr G/tee) .(3250.00)	£1299.00
Arcam FMJ DV27 Player (12Mth G/tee)(1599.00)	£1199.00	Linn 5103 AV Processor Sil VFD (1Yr G/tee) .(3250.00)	£1749.00
Arcam A85 Amplifier (1Yr G/tee) (799.00)	£599.00	Linn LK100 Power Amp (1Yr G/tee)(695.00)	£349.00
Arcam A22/P75 Dave AV Amp (1Yr G/tee) (2849.00)	£1495.00	Marantz DV890 DVD Player (1Yr G/tee) (399.00)	£149.00
Arcam Alpha 7 Tuner (6Mth G/tee)(279.00)	£149.00	Naim NACD5 CD Player (1Yr G/tee)(1125.00)	£785.00
<b>B&amp;W CDMC</b> Centre Speaker (6Mth G/tee)(299.00)	£175.00	Naim NAT-02 Tuner (1Yr G/tee)(1029.00)	£799.00
<b>Denon TU260L</b> Tuner (6Mth G/tee) (139.00)	£95.00	Naim NAP 150 Power Amp (6Mth G/tee)(799.00)	£525.00
Linn Karik 2 C D Player (6Mth G/tee) (1850.00)	£625.00	Naim CDX CD Player (1Yr G/tee) (2470.00)	£1750.00
Linn Numerik D A Converter (6Mth G/tee)(1100.00)	£499.00	Naim CDS Head Unit (1Yr G/tee)(4165.00)	£3295.00
Linn Majik Amplifier - Phono (6Mth G/tee)(849.00)	£449.00	Naim PSX Power Supply-CDX (1Yr G/tee)(2100.00)	£1695.00
Linn Kolektor Preamp (1Yr G/tee) (495.00)	£369.00	Pioneer DV909 DVD/Laser Sil (6Mth G/tee) .(899.00)	£229.00
Linn Kairn Pro Preamp (1Yr G/tee) (1400.00)	£599.00	Ruark Talisman Speakers (6Mth G/tee) (499.00)	£199.00
Linn Kairm Phono Preamp (1Yr G/tee) (1700.00)	£799.00	<b>Spendor S3</b> Speakers (1Yr G/tee)(600.00)	£449.00

# world standards

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

#### TURNTABLES

ANTTI/ARM ONE/IQ1 1998 £725 Redesigned Systemdek IIX now off the pace, but the arm and cartridge are both star per-

LINN LP12/ LINGO 1973 £2100
The quintessential belt drive superdeck offers a beguilingly musical midband at the expense of lumpy bass and nebulous imaging. Latest Lingo brings a new lease of life, with even more punch and polish.

MICHELL TECNODEC 2003 £575
Superb introduction to Michell turntables on a budget. Top quality build and elegant design make it the class of the mid-price field right now.

MICHELL GYRODEC SE 2002 £870 Its beauty is more than skin deep - superbly build and finish allied to clever design equals class leading performance. Latest DC motor with 'Never Connected' PSU make it all the more unassailable.

MICHELL ORBE SE 2002 £1916
Cost-no-object evolution of the Gyro adds massy acrylic platter and two-stage isolation. Fantastically capable all rounder with commanding, powerful, detailed sound that gets the best from almost any arm and cartridge.



PRO-JECT DEBUT II
PHONO SB 2002 £170
Fuss-free all in one starter turntable, complete with built in phono stage. Not a star
performer, but a fine midi system upgrade all

REGA P3 2000 £298
Great entry level audiophile deck with fine bundled tonearm. Tweakable, and responds well to careful siting on a Base platform.

REGA P25 2001 2619
Until the TecnoDec, the best mid-price turntable package. Fine build and elegant styling. Clean, open sound but limited at frequency extremes in absolute terms.

SME MODEL 10A 1995 £3333 Exquisitely engineered deck and arm combo, but dry and clinical sounding compared to rivals. Accomplished performer with classical music, nonetheless.

TECHNICS SL1200/III 1973 6395

Slick build makes it a respectable performer, although the cheapo arm limits it - fit a Rega RB2S0 and it's suddenly a serious mid-price machine.

#### TONEARMS

HADCOCK 242 SE 2000 £649 Latest of a long line of unipivots, with added mass, revised geometry and better finish. Musical like few others at or near the price, but poor frequency extremes.

LINN EKOS

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

MICHELL TECNOARM 2003 £346
John Michell's brilliant reworking of Rega's
classic adds a classy counterweight and end
stub, plus Cardas cable. The result is a near
transparent sound with plenty of power and
poise

NAIM ARO 1987 £1425 Charismatic unipivot is poor at frequency extremes but sublime in the midband; truly emotive and insightful.

ORIGIN LIVE SILVER 2502001 6625
This fully developed and expertly fettled
Rega boasts a superbly even, transparent and
tuneful sound. Gives away only a small degree
of finesse and dimensionality to top arms.

ORIGIN LIVE
ILLUSTRIOUS 2002 £1570
A modern superarm with battleship build.

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

REGA RB250 1984 £112
Sold through Moth Marketing, this is capable far beyond its price point, with a tight, lean and detailed sound. Responds brilliantly to Origin Live counterweight modification, and well to rewiring.

SME 309 1989 £767
Entry level SME complete with cost-cut aluminium armtube and detachable headshell.
Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

SME SERIES IV 1988 £1127
Offers nine tenths of the SME V's magic at just over half price. Exquisitely built and finished, and a design classic. Faces stiff competition these days, but lovely nevertheless.

SME SERIES V 1987 £1614
The so-called Best Pickup Arm in the World isn't, but comes close.Vice-like bass with incredible weight, ultra clear midband and treble. Does everything except beguile the listener.

#### CARTRIDGES

AUDIO TECHNICA AT-110 1984 629
Great starter cartridge that's refined, detailed and musical beyond its price.

DYNAVECTOR DV10X5 2003 £250
A distant descendent of the classic Ultimo 10X, this has warmth and sweetness in spades, allied to a punchy bass. Beats G1042 comfortably.

DYNAVECTOR DV20X-H 2003 £299
The best modern budget MC combines deliciously sweet sound with fantastic get-up-and-go. High output version works a treat with valve phono stages too.

GOLDRING G1042 1994 £135
One of the best MMs going, with sweet and extended treble and punchy, muscular bass.

LYRIA LYDIAN BETA 1998 2600
An altogether more beguiling listen than the MC30S, although not quite as incisive. Superb all rounder, nonetheless.

LYRA PARNASSUS DCT 1997 £1895 Jonathan Carr's masterpiece is a brilliantly lyrical and fluid performer, with a deliciously sweet tone and immense subtlety and polish.

ORTOFON MC25FL 1994 £285 Strong budget MC with a cleaner and more detailed sound than the Dynavector; more sterile and less emotive, however.

ORTOFON MC30 SUPR' 1995 £550
Beautifully clean and detailed device with real finesse, albeit a tad mechanical sounding.

ORTOFON KONTRA' B 1999 4720 Surprisingly articulate performer by Ortofon standards. All the brand's usual polish and detail allied to real vim. Loves making music!



SHURE V15XMR 1994 2350
The most musical MM yet made – brilliantly dynamic and punchy in the classic Shure mould, yet refined and tidy too.

SUMIKO BPS 1995 £250
Charismatic performer with rhythm aplenty, but in other respects way off the pace – lacks smoothness and sophistication of the DV10X5.

#### DIGITAL DISC PLAYERS

ARCAM DIVA CD82T 2002 £600
Oodles of finesse, but not the most gripping performer at the price. A fine all rounder in the classic Arcam mould.

#### CAMBRIDGE AUDIO

DVD57 2003 £200 Crisp, lively DVD-A sound makes this superb value for money, but 16bit playback is way behind similarly priced CD spinners.

CREEK CD50 2003 £699 Lyrical and musically engaging mid-price machine, but lacks its Marantz rival's tonal exuberance

CYRUS CD8 2003 £1000 Highly incisive, engaging, grippy and dynamic sound, but needs careful matching to smooth ancilliaries. Optional PSX-R adds bass and dimensionality.

DENON DVD-AI 2002 £2500 Middling CD performance, but a genuinely strong DVD-A sound with masses of space and detail. Excellent pictures, too!



LINN GENKI 1999 4995
Undeniably fast, lithe, musical and fun - but
some won't take to its dry, wry character.
Works best in all-Linn systems, where it really rises to the challenge!

LINN IKEMI 1999 £1950
Has the brilliant focus and clarity of the previous Karik III with a dose more tonal richness and polish. More grip and poise than most at any price - still superb!

MARANTZ CD6000KI 2001 £500
Brilliantly warm and voluptuous sound will
endear it to vinylphiles and tube lovers alike.
Musical, colourful, polished and powerful like
none others at or near its price.'

MARANTZ CD17 II 2002 £800 Oft-overlooked middleweight boasts a truly beguiling sound with lots of tonal flavour. Sits awkwardly between the £600 and £1000 price points, where some brilliant value buys reside, though.

MARANTZ DV8300 2002 £1500
An extremely well designed universal player, offering a beguilingly natural sound whatever you feed it.

MERIDIAN 507 2003 £1195 Quintessentially Meridian mid-price machine; smooth, warm, expansive and seductively musical. The best all rounder at this competitive price point.

#### 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.

NAD C5411

2002

4330

Highly musical and articulate budget machine in the classic NAD mould. Second only to Cambridge's CD500SE in the value stakes.

NAIM CDS

2001 £1195

Taut and grippy like no others at the price, but lacks the warmth of the Marantz

CD6000KI at half the price. To wit, it's a very focussed product, best used in Naim systems.

NAIM CDX2-XPS2 2003 £4950
A fine high end machine, but add an XPS2

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

NAIM CDS3 2003 £7050

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

PHILIPS DVD963SA 2003 £400 Creamy CD sound allied to superb SACD and DVD video playback makes this brilliant value for money.

REGA PLANET 2002 4498
Rhythmic and beguiling performer, although lacks the warmth of tone needed to better its Marantz rival. Superb ergonomics and design, nonetheless.

REGA JUPITER 2002 £1000
A Planet on steroids, this machine adds depth
and breadth to its baby brothers already
impressive sound. Good, but facing stiff competition.

#### **DIGITAL RECORDERS**

PIONEER PDR-609 2001 £200
Brilliant value CD recorder that makes excellent recordings from its digital inputs. Half decent digital converters, too.

PHILIPS DVDR880 2003 43
Poor CD audio playback, but makes great
DVD video recordings and boasts fine
ergonomics. Top AV value.

SONY RCD-W3 2002 £250
Usual superb Sony ergonomics make for nononsense budget buy. Fine direct digital copies, but analogue input poor. Middling sonics, but there's a digital output!

YAMAHA CDR-HD1300E 2002 6600
HD means MD-style ease of editing, but
compromises recording quality ever-so slightly. Add decent CD replay and it's a fine all
rounder nonetheless - top value.



ONKYO MB-S1 2001 £1100
An interesting machine complete with MP3 functionality, but high price, fussy ergonomics and over-smooth sound make it mediocre

#### **PHONO STAGES**

value against the Yamaha.

CREEK OBH-21SE 2003 £250
Musically enjoyable yet highly refined for the price - a superb buy. Gives the Dino a real hard time

EAR 834P 1993 £400

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

LINN LINTO 2000 £900
A musical and incisive performer, with more speed than the Delphini at the expense of detail and tonal colour.

MUSICAL FIDELITY X-LP 1999 £149
Clarity and detail allied to decent smoothness make it a solid first phonostage.
MM/MC.

QED DISCSAVER 1995 £35
Rhythmic, bouncy sound via battery, although it's bright and forward. Great value, but £100 more on the X-LP is well worth it!

TRICHORD DINO 2002 £299
Great all rounder with switchable MM/MC.
Fast, fluid and smooth like no others at the price.

TRICHORD DELPHINI 2003 £995
The very latest 'Never Connected' variant is easily the best, bringing velvety smoothness to an already refined and engaging performer. Neutral to a fault - some will mourn the passing of the charismatic ISO.

#### **AMPLIFIERS**

ARCAM DIVA A65 PLUS 2002 £370
Classic budget Arcam fare - decently sweet and open with sensible facilities and plenty of power.

ARCAM FMJ A32 2001 £1150
For those who value serious power and labyrinthine facilities over outright clarity or grip. A very impressive all rounder with an unusually muscular power amp at this price.



AUDIO ANALOGUE PUCINNI 1999 £495

Brilliant value mid-pricer is a real step up from budget designs. Smooth, fluid, natural sound with adequate power and no nasties. Fine phono stage too!

AUDIO NOTE OTO SE 2000 £1199
This baby tuber is beautifully sweet and creamy, but lacks solid-state's clarity, detail and incision. Low, low power means speaker choice critical.

AUDIO NOTE SORO SE 2000 £1699 Wonderfully out-of-the-box sounding tube middleweight is all about sweetness and fluidity. Limited power and loose bass, but little the worse for it.

CYRUS 6 2003 £600
Cracking do-it-all mid price design, bringing svelte sound, good connectivity and upgradeability and stunning style and build.

CYRUS 8 2003 £800 Unusually warm and lyrical for a solid-stater, with decent power and punch. PSX-R adds dynamics, detail and dimensionality.



MERIDIAN 551 1994 £895 Evergreen middleweight is a serious performer even now. Tonally a tad dry, it's still very smooth and svelte with bags of power,

MUSICAL FIDELITY
A308 2002 €2400

detail and grip. Class act.

Impressive monster integrated. Vast power delivered with clarity, even-handedness and finesse. Musical, with real tonal colour. Separate pre-power version better still, but less good value.

NAD C320

Not the giant killer that the 3020 once was, but a very strong budget design. A great starting point; forms a fine system with NAD's partnering C541i CD player.

NAIM NAIT 5 2001 £845
A fast and thrilling listen, thanks to taut and articulate bass and midband. Surprisingly polished for a budget Naim amp, both sonically and ergonomically.



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

#### **PREAMPLIFIERS**

CREEK OBH-12 2000 £220
Brilliant value budget passive, giving little
away in sonics to far more expensive designs.
Connectivity and build aren't great, but what
do you expect at this price?



MF AUDIO PASSIVE PRE 2003 £1010
Novel and effective pre with switchable gain via a transformer, and balanced operation.
Open and incisive sound, yet makes most active rivals sound edgy by comparison.

NAIM NACI12 2002 £660
Affordable admission ticket to the Salisbury
high end experience. Detailed and dynamic, if
tonally rather lacklustre.

#### **POWER AMPLIFIERS**

LINN LK140 2000 £800 Dry and grey sounding, but decently dynamic and musically engaging all the same. A worthy worker in a budget Linn system.

NAIM NAP150 2002 £795
Driven by a decent source and a NAC112,
this gives highly enjoyable results - providing
you like the Naim sound! Taut, fast and feisty
despite its relative lack of power.

MARANTZ SM-17 2001 £700
Useful budget power amp with plenty of clean transistor power. Not the most transparent, but sweet and clean all the same. Fine build completes a great value package.

MUSICAL FIDELITY



A308 CR 2003 £2400
Superb transistor behemoth, worth partnering with any high end CD player or preamp.
Oodles of grunt served up with poise and purpose.

QUAD 909 2001 £900
The latest current-dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but super value all the same. Lovely build, finish and Quad's legendary service are nice,

#### LOUDSPEAKERS

B&W CDMI NT 2002 475
Fine clarity and imaging allied to pleasing warmth and great rhythmic cohesion make these standmounters an essential audition.

CASTLE CONWAY 3 2003 £930 Superbly smooth and crisp performers, with a big hearted musical sound. Ultimately coloured though, with a slow, plummy bass.

CYRUS CLS70 2001 £800 Charismatic performer with a fast, tight and open midband, but lacks cohesion and scale...

EPOS ELS-3 2003 £200
Plenty of brio and a decent degree of refinement makes this budget baby a fine value contender.



**KEF Q1** 2003 £250 Highly polished and articulate standmounters at the price, but demand good ancillaries for best results.

KLIPSCH HERESY II 1997 £1100
An outstanding high sensitivity loudspeaker with midrange and treble horns coupled with infinite baffle 12" bass driver. Effortless, fast and accurate

LINN NINKA 2001 £995 Major on rhythms and dynamics, making them an involving listen. Reasonably refined, too - but tonally disappointing.

MISSION 782SE 2003 £900
Bright and tight design capable of brilliant speed and grip, at the expense of warmth.
Demands high quality, high powered ancillar-

MONITOR AUDIO B4 2003 £350
An unusually smooth and lucid performer at the price, and its 3-way design means it drives rooms well. Fine engineering, but build and finish so-so.

MORDAUNT SHORT 914 2002 £300
Warm, detailed and articulate performer, but a touch loose in the bass and veiled up top.
Fine partner for budget valve amps.

NAIM ALLAE 2002 £1990
Taut and grippy like few others, this speaker majors on transient speed. Surprisingly smooth for a Naim box, with nicely etched treble. As always, tonally dry.

TDK S-80 2002 £90 Ingenious NXT multimedia sub/sat system has a wonderfully even and open sound - like baby electrostatics.



QUAD ESL-988 2001 £3400
Wonderfully neutral and self-effacing with sublime imaging and projection. Treble lacks extension, bass lacks weight - although the pricier 989 answers the latter resoundingly.

PERIGEE FK-IL 2002 £5000
Charismatic Aussie ribbon design with deliciously open mid and treble, allied to fine bass weight. The right room and ancillaries essential. Engaging, musical and powerful sound. Superb.

W'DALE DIAMOND 8.1 2001 £120
Still the best baby budget standmounters around. Tight and grippy thanks to Kevlar drivers, but invariably limited in the frequency extremes.



#### **HEADPHONES**

JECKLIN FLOAT TWO 1998 499
Wonderful panel-like sound from these esoteric-looking headclamps.

SENNHEISER MX-500 1999 £19
Our unqualified recommendation for those seeking a serious sounding pair of in-ear phones. Smooth, detailed and musical.

SENNHEISER PX-100 2002 £29
Cracking pair of lightweight open back cans ideal for personals, but good enough for real hi-fi use. Superb build allied to a smooth and engaging performance make them the spiritual successor to the HD400s.

SENNHEISER HD-590 1998 £199
The company's best real-world cans to date.
Open and smooth with plenty of detail.
Brightly lit midband makes them an ideal partner for a valve headphone amp.



#### **INTERCONNECTS**

CHORD CO. CHAMELEON 2 £90/M
One of our favourites, these are musical performers with a smooth yet open sound.

DNM RESON

Neutral and transparent - a steal!

NORDOST BLUE HEAVEN £150/M
Some of the fastest and most transparent
cable around.

VDH ULTIMATETHE FIRST £260/0.6M



Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space results in a cracking cable for the money.

### **October 2003/No.75**

**Contact Numbers** Mon-Fri 9am-5pm

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#### Distributed by

Comag Magazine Marketing, Tavistock Road, West Drayton, Middlesex UB7 70E Tel: +44 (0) 1895 444 055

#### Printed by

Southern Print, Dorset Tel: +44 (0) 1202 628 300

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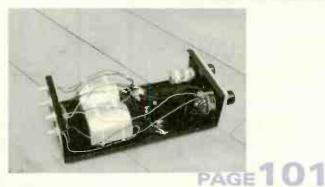
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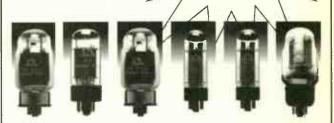
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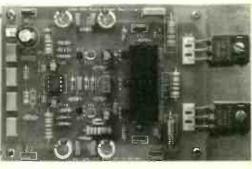
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# aly news

#### **DATA GALORE**

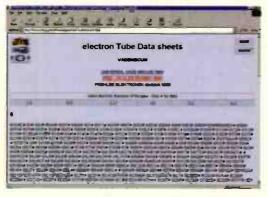
If you have a look at some of these database sites it is amazing how much information they have for you to download freely. A web pdf file is normally 250kByte plus, say you have a hundred of these sitting on your site. A site has 200 visitors a week - a below average rating, each visitor has a look at five of these pdfs that works out at over IGByte bandwidth a month. A normal web host package will give you 2 - 4 Gigabytes bandwidth a month, over this and you get charged for it. So you can imagine the bandwidth of really popular database sites - we are talking 20Gbytes easily. Anyway I am waffling. One-Electron, lists hundreds of circuit diagrams of valve amplifiers, test equipment, radios. They also offer a design service, for circuits and printed circuit boards. A good clean site.

222222 One electron

One electron's home page.

#### **GIGANTIC**

This is the mother of all database sites, simply titled Frank's Electron Tube Pages. So large it sits on 5 different servers dotted around the world the Netherlands, Poland, the USA, Germany and China. This site has hundreds of valve data files, he seems to have the whole



Only the beginning of the VadeMecum listings.

UniversalVade- Mecum (valve characteristic bible) on his system with a useful English translation table for all the symbols that appear in the book. He also has Tube bases database, valve substitution tables and an explanation of the numbering system of valves. This one must be put into your favourites.

With a header - 'Do It Yourself audio from around the world', you know that there are going to be some weird and wonderful creations from around the globe. Mostly single ended / parallel single ended amplifiers featuring directly heated triodes, like the 300B, 845s etc...

FROM SCRATCH BUILDS

Pictures are available of them all, some have schematics to peruse and email addresses so you can contact the constructors. You can also purchase vintage hi-fi from this site, though where they are based is unclear and I would guess ordering would be via email as no shop is present. There are a few bad-links on the site but it's still worth a visit.

#### **VIRTUAL VALVE MUSEUM**

If you have ever read or heard about a valve, and wanted to know a bit more about - what it looks like, basic uses etc... then look no further. www.valve-museum.org is the site for you with over 3200 valves on their database. The site in a clean and easy to use format.

The valves are categorised by manufacturer, all 82 of



Details on a 9531KA valve.

them. Click on one and you get a listing of their valves - brilliant. Also available on the site are Museum listings, plus private collections you can visit. Yes, the site is English so no plane trips required. They also list old valve equipment. This is a really great site with lots to see.



212E S.E. amp, S.E. 300B mono. amp, S.E. 50 stereo amp, and 6C33 OTL amp, by Mick Maloney.

# Panel Power



#### Ed Swift unwraps an Electrostatic speaker kit from Australia

his foray into the dark art of DIY electrostatics came after the disappointment of chasing 2 pairs of QUAD 63s on Ebay, only to find they had faults when I arrived to pick them up. This was to be the realisation of a long held dream for me so failure was very frustrating. Having read Roger Sanders superb book on the subject I was convinced that building was a possibility and immediately started searching for materials. However, the cost and specific nature of the parts looked like a risk area, so when I discovered the kit from ER Audio in Australia, the answer seemed at hand.

We are now venturing into the little charted waters of specialist DIY so I may already have chased away half the audience. DIY will always be a bit scary, especially if you don't have a local friend who has trodden this path before. "But", I hear you cry, "DIY hi-fi will usually produce products of inconsistent specification and quality and suffer from limited and subjective reviewing. Anyway, who would want to publish such rarefied stuff, it's not like it's in demand."

So, I'm going to try to convince you that it's a fairly straightforward job, and with a bit of effort and attention to detail, a high specification product can be produced. I am hoping here to address the areas of inconsistent spec and quality which is, after all, what a good kit should try to overcome. My credentials for this task are strictly amateur, having been an avid hi-fi fan for 30 years and dabbled in cabinet construction as a hobby during most of this time. I'm sure I can pass on some encouragement to many would-be constructors.

### WHAT YOU GET FOR YOUR MONEY

The kit itself is very comprehensive, containing all the electronics and all the necessary parts for constructing the electrostatic panels.

Comprehensive means all the minor things like glue, gloves, wires and clips. These are things that some kit producers seem to think people keep in their cupboards. However, the kit does not include any materials for the cabinets, although plans are included for two suggested cabinet frames. The instruction manual is equally comprehensive and runs to 50 pages including numerous, very helpful photographs and diagrams.

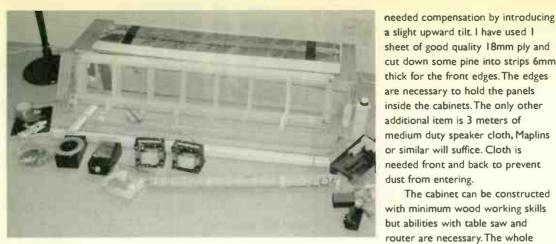
#### CONSTRUCTION

The speakers themselves are intended to be arranged as vertical 4 feet panels, two 8 inch bass panels

positioned either side of a 3 inch high frequency panel.

Following the instructions gives a low-pain route to the finished product but, I emphasise this is not a doddle, and care and attention, together with a degree of precision are required.. Preparation is crucial here and space and patience are primary requirements. It is necessary to have a solid work surface at least 5 feet by 2 feet 6 inches with access all around. In addition it is necessary to cut some MDF panels to use as pressure pads for the weights while gluing. I used car batteries (9 of them!) as weights, but anything heavy will suffice. All panels are produced in two halves with the all-important diaphragm being attached to only one half and then being sandwiched between the pair.

Producing the panel halves is a matter of gluing thin plastic spacers around the edge of a half inch thick plastic mesh frame (The mesh frame is identical to the light diffusers which can be seen underneath fluorescent light fittings). Plastic coated metal grids (stator panels) are then glued to the mesh frame, within the border made by the spacers. This procedure is not technical but is very time-consuming. Each gluing operation takes 24 hours to cure, and if producing I panel half at each session means 8 days to glue the



Contents of the kit.

panel spacers and grids; 4 days for the spacers and 4 days for the grids.

Once the metal stators are glued in place, the diaphragm is fitted to one half of each pair of panels. This panel half is the one that faces the front of the finished speakers. To the other half of the panel pair, a strip of copper conductive tape is fitted around the plastic spacer. This tape carries the charge to the diaphragm and is in contact with it when the two panel halves are brought together.

Fitting the diaphragm was the most exacting task of the whole assembly. It involved laying the polyester film (diaphragm material) onto the construction table and then tensioning and taping all around the perimeter of the film. Once tensioned the panel half is glued (super glue) and laid on top of the film. This process is exact, as the panel must be laid precisely onto the film so that the glue corresponds to a track of primer which has been applied previously. Once attached to the panel, blobs of silicone bath sealer have to be applied to the diaphragm at strategic points so that it is attached to the stator grids. The designer states that this gives a D'Appolito array effect.

Before assembling the panel halves, the diaphragm has to be coated with a conductive paint which allows the bias charge to be held by the diaphragm. Again, attention is paid to detail here because the 'paint'

must be applied in a temperature above 20 degrees in order to cure correctly. Assembly is simply a matter of joining the panel halves with plastic channel clips. Very simple and

kindly finished my cabinets in car lacquer. Any more detail here, I feel, very effective and it does mean that

Cab Glue: cabinet all glued together.

panels can be easily dismantled if errors are detected.

Wiring is straightforward. After soldering terminals to the supplied wire they are attached to the grids with small brass nuts.

The cabinet shown in the photograph is based on the suggested plan in the instruction manual, however I have reduced the height to satisfy what the designer calls "WAF" (Wife Acceptance Factor). Height is important with electrostats and I was aware that reducing the height might have

would belong in a woodworking magazine.

sheet of good quality 18mm ply and cut down some pine into strips 6mm thick for the front edges. The edges are necessary to hold the panels inside the cabinets. The only other additional item is 3 meters of medium duty speaker cloth, Maplins or similar will suffice. Cloth is needed front and back to prevent

The cabinet can be constructed with minimum wood working skills but abilities with table saw and router are necessary. The whole

cabinet is constructed as box sides with internal shelves, and jointing is

all by routed grooves. The quality of

finish will obviously be based on

proficiency here. I am fortunate to have a friend in the motor trade who

dust from entering.

Wiring the panels into the cabinet is, again, straightforward and all connections are achieved using standard connector blocks. The wiring diagram is foolproof and I experienced no problems following it. There is no mention of quality where the audio signal wire is concerned but I elected to join the gold plated banana terminals to the step-up transformer with 1mm solid mains wire.

The only other modification that was found necessary was to replace the 9v power supply for the diaphragm bias power. This came as an integral unit with an Australian plug which was connected to the voltage adjuster circuit. I elected to dismantle the power supply and rehouse it in a new box together with the voltage adjuster. This looks more elegant and is perfectly functional.

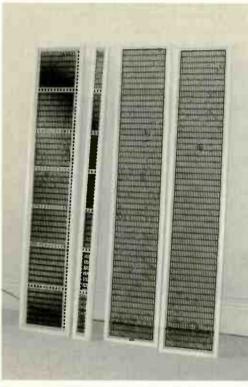


Cloth being attached to the frame.

#### THE SOUND.

Switch on was a nail-biting moment. The manual gives comprehensive advice for a number of possible problem areas and I was beginning to think 'what if this' and 'what if that'. I had been building for 3 weeks, surely during this time I must have made some mistake. So, after waiting the prescribed hour for the diaphragms to charge up, and adjusting the bias voltage for optimum level (all fully detailed in the instructions). I connected to the amp, my trusted Meridian modular pre/power which has been with me for 20 years.

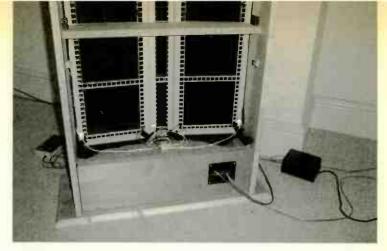
Without being too melodramatic, I was totally unprepared for the experience. This



Panels made up.

was a greater leap for my hi-fi than the introduction of my Linn Sondek/Ittok in 1985. Christening was achieved with Vaughn Williams Fantasia and Lark Ascending. Things will never be the same again!. All the clichés apply here, clarity, space, precision and presence. To be able to locate all the instruments in space was breathtaking. The system has always produced a reasonable stage, but distinctions between instruments in roughly the same location has always eluded it, until now.

Next up was Van Morrison's Astral Weeks which I have always considered a bit of a reference recording. Cyprus Avenue and Madame George. The dings are dingier, the thuds are thuddier and the whole thing appears to be



Internal view of the speaker.

happening inside the head. The introduction of vocals, bringing invisible people into the middle of the room is still a bit disquieting. There is no doubt whatsoever that the system is singing as I am now discovering rhythms that I hadn't even noticed before, presumably as previously unheard instruments become visible. Every subsequent disc produced the same result and my whole record collection now contains new experiences.

During the first hour of playing, the volume increased noticeably, and I had to back the volume down from II o'clock to 9 o'clock. This is the same listening level that the previous speakers had (KEF Carlton III), so I am assuming they may have similar efficiencies. This is presumably the diaphragms bedding in.

One idiosyncrasy that I had read about being present in most

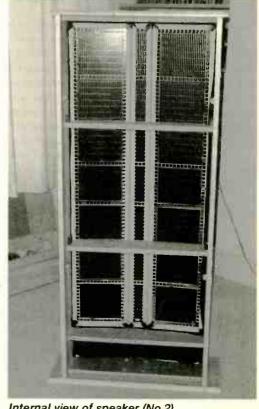
electrostats was the beaming phenomena. When moving from the favoured location the sound appears to leave ones head and just be present in the room. At the same time the volume appears to diminish. The down side here is that inviting friends round to listen may result in rough stuff as everybody fights for the sweet spot. There is bass, contrary to some articles I have read about electrostats in general.

I cannot detect any deficiency and my own recordings produced in my home studio produce the same bass as was present on the studio monitors

#### CONCLUSION

I am in no doubt that this is a high end product although I am in no position to compare it with exotics like Apogees etc. The kit is priced at AUD 1700 which converts to approximately £650. In addition there is £160 for shipping and £160 for import duty to be considered. In total, the finished speakers cost just over £1000. A bargain? I think so. The backup and advice from Rob Mackinlay at ER Audio has been faultless and I can thoroughly recommend the kit, I am now glad I didn't find that immaculate pair of Quad 63s, the disappointment was well worthwhile.

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Internal view of speaker (No.2)

Rob Mackinlay **ER Audio** www.eraudio.com.au For more information on building and importing see www.vitalstates.co.uk

# Can you hear it it?

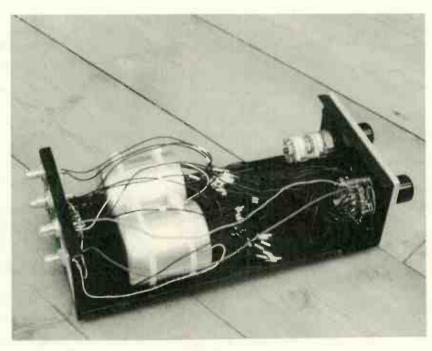
Clive Meakins puts the Stevens & Billington TX-102 transformer attenuators through their paces

ve heard it said that a passive preamp is an oxymoron, as a simple passive volume control cannot amplify. A more accurate description might be a "passive pre". Here we have a passive preamp that lives up to its billing.

The TX-102 is the basis for building a passive preamp that can provide 6db of passive gain.

Produced by Stevens & Billington. these multi-tapped transformers have a primary with 0db and +6db options for gain. There are 23 secondary taps to be switched. The TX-102 transformers are available on their own or part of complete kits, some of which are also available fully assembled.

Will the TX-102 work in your system? Most power amps have an input impedance of 50k or more. This is fine though less will work but, it's hard to be definitive. Power amp sensitivity should not be an issue and is dealt with later in this article. There's lot of information on the S&B website about compatibility, if you need extreme detail. Bandwidth is said to extend well over 100kHz, useful for SACD. The price for a pair of copper-wired TX-102 as reviewed here is around US\$400 plus duty and shipping. Silver comes in at US\$750. The version under review is actually specific to Bent Audio. It uses OCC copper wire from Neotech in Japan. The silver version uses Audio Note silver wire with OCC silver wire leadouts. When purchasing from the UK or Europe, check with the



vendors as S&B say they can ship direct from the UK.

### BUILDING A TX-102 PASSIVE PREAMP

Various kits using the TX-102 are available, Bent Audio and Diyhifisupply being two suppliers. I chose to build a purist version using WAD's own passive pre enclosure. This provides a great visual match for anyone using a WAD power amp. As I primarily use a single source I decided not to implement an input selector. I've found in the past with high transparency preamps that any additional contacts and wiring can have a sonically detrimental effect. Why bother if you don't need the

extra inputs?

The TX-102s are totally mumetal enclosed, one "can" per channel. There are lots of wires, 0db, +6db and ground for the primaries and 23 secondaries plus a screen wire that goes to ground.

The WAD switched attenuator happens to use a 23 way 2-pole switch, which is ideal. Secondary taps start at -52db then go to -46db, -43db, -40db, -37db, -34db and then run in -2db steps to 0db. Each wire is labelled with its attenuation in db. To mount the two transformers I drilled eight holes in the WAD case to allow me to use two tie-wraps per transformer.

Now for the wiring. The length of the leadout wires is perfect with

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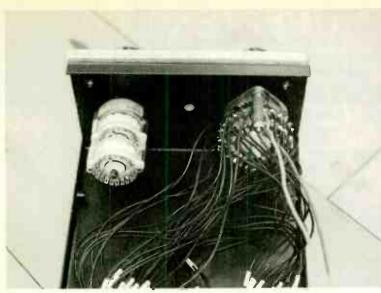
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Close up view of stepped attenuator and unused Elma selector switch.

no shortening being required. When stripping TX-102 wires be careful not to pull them, you could cause internal damage. I gripped them with pliers whilst stripping the ends. There are a lot of wires to solder but construction is really very easy.

I used some Kimber wire between the switch and output phonos. Solid core cable was used to connect the grounds of the +6db and 0db inputs together. No other wire other than the transformer leadouts was needed.

The next task is to burn-in the transformers before forming a valid view of their sonic performance. Transformers do need to burn-in for a while, maybe around 50 to 100 hours. John Chapman of Bent Audio advises loading the output with 300 ohm resistors, winding up the volume control and leaving a source playing, no power amp should be connected. I used 1k resistors as 1 didn't have any 300 ohm. By the way, check the Bent Audio website for building instructions and circuit diagrams. The only other advice I have is to not take this unit through airport security control. Internally it looks very much like a bomb!

On hooking up the TX-102 I checked the noise at my speakers with my DMM on the AC setting The Grounded Grid with KaT34 gives 1.2mV, which is reasonable. The TX-102 isolates the source due to transformer coupling and adds no noise of its own. Now I have only 0.2mV of noise, an excellent result, due in no small part to the KaT34 as well as the TX-102.

#### TIME TO LISTEN

To properly evaluate the TX-102 transformers I used two power

amps, the Billie 300B SETs reviewed in DIY supplement No. 63 and a WAD KaT34. I also used an Audio Synthesis Passion shunt-type attenuator. This is a good example of its type, resistors are from Vishay. Finally, I compared the Grounded Grid preamp reviewed in DIY supplement no 69. For the source I mainly used a Meridian 588 CD player. This has a specified output of 2V and an output impedance of 47 ohms. Speakers were Mordaunt Short Performance 860 floorstanders and Adire Audio HEIO.1.

I started with my KaT34, which needs 300mV for full output, and the TX-102 using the 0db input. Initial impressions were of a very unconstrained sound that seemed to appear from a very silent background, possibly due to a very low noise floor. More extended listening confirmed this initial impression. Bass proved to be tight

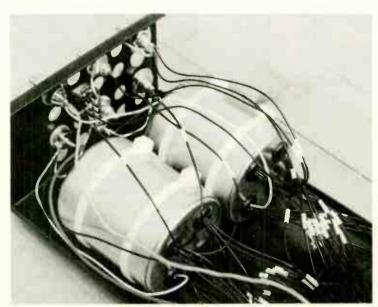
and extended without being dry.
Mid is faithful with no harsh
undertones. The top-end is very
well extended and very free of any
coarseness.

Time to compare the TX-102, Grounded Grid and Passion. I listened to many types of music which ranged between Mary Chapin Carpenter, Beth Orton, Chris Rea, Genesis, Diana Krall, Glenn Miller, Vivaldi, Smetana and many others.

The Grounded Grid was slightly softer sounding and less detailed. It also seemed as though the musicians were trying a little too hard with the Grounded Grid. The TX-102 had tighter bass, was more detailed and extended. I felt it was a more composed performer. It was almost impossible to choose between the soundstaging capabilities of these two preamps. Installing the Passion showed detail to be good but not as good as the TX-102, treble seemed to be similarly extended. The Passion lost out in the rhythmic drive department, it did most things very well but ultimately had less soul. Soundstaging was of the left/centre/right type. Any resistive passive attenuator is going to be more finicky about matching with cables, source and amplifier so this is maybe why it lost out. I should add that at low volume settings the TX-102 retained it's qualities but the competition sounded a touch thin and less convincing.

On very extended listening with the TX-102 I can only describe it as deeply satisfying. I had no inclination to tinker with it or swap it out. From when I first used it, the TX-102 had a feeling of complete "rightness" about it.

Time to move onto the Billie



Close up view of both transformers fitted.

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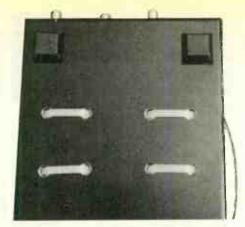
300B Single-Ended Triodes from Diyhifsupply. These require around 2V for a full output of around 9W, input impedance is 100k. Clearly the TX-102 would need to be configured for 6db of gain and 1 expected the Passion to struggle.

I started with the TX-102 on the 0db gainless setting. I listened to Jennifer Warnes/Famous Blue Raincoat, a very unfair, low digital level recording. On the maximum volume setting the album was quite loud with the 95db Adires but not achieving full output from the Billies. The 6db lift of the TX-102 recovered the situation. The Passion with its 15k resistor in the signal path barely made an acceptable volume level, there was nothing in reserve. Of course, the Grounded Grid provided plenty of voltage drive.

Using more typical digital signal levels helped the Passion but in reality this type of preamp is not an option with a low sensitivity power amp, unless your DAC puts out a prodigious voltage, probably around 4V would be required.

Sound pressure levels aside, the comparison between the preamps turned out much the same as it did with the KaT34. Ultimately the TX-102 had the most precise, extended and smoothest sound. Whilst smooth it was also the most exiting sounding.

I've yet to hear a resistive attenuator with such drive and depth as the TX-102. The transformers then go on to exhibit the detail associated with the best switched attenuators. Bass is very musical, tight and textured. There is great



The underside of the amplifier and tie wraps used to hold in place.

presence and detail whilst there is no hint of the TX-102 being in anyway clinical.

Is there a downside? The transformers cost rather more than the handful of resistors they replace in a switched attenuator. Then again the overall cost of a TX-102 preamp is around the same price as the very fine sounding Grounded Grid kit. Am I convinced by the transformer volume control approach? Absolutely! Flexibility in system matching is almost as good as an active preamp. The TX-102 delivers the best of a passive attenuator and adds the best that an active preamp can do for good measure.

The PAS II, (World Audio Design's passive pre-amplifier) chassis, with 2 chrome knobs, front plate and chassis lid and base can be purchased at a cost of £100.00 inc. VAT+p&p, the stepped attenuator is also available at a price of £70.00 inc. VAT+p&p. Call 01908 218836 for further information.

SUPPLIERS OF TX-102, full kits and assembled preamps: www.bentaudio.com (the version reviewed is available here)

MODEL 102 PREAMP \$857 UPWARDS, Various configurations, including silver. Duty & shipping extra www.diyhifisupply.com

DJANGO KIT S649, \$799
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For details and more in-depth information regarding importing and building, visit www.vitalstates.co.uk

Manufacturer:
http://www.stevens-billington.co.uk/
Copper (\$400) and silver (\$750)
transformers available from the suppliers



# Upgrading the upgrade

Neville Roberts installs Origin Live's revised DC motor kit

n DIY Supplement 65 published with the May 2002 issue of Hi-Fi World, I described my experience of upgrading my turntable using the Origin Live (http://www.originlive.com) kit of parts. This was an extremely successful project that transformed the sound of my vinyl collection. However, the only criticism made of the turntable since then has been

that a slight motor noise can be heard if you place your ear close to the motor. Being a DC motor, the noise was a purely mechanical 'whirr', but it did not seem to be transmitted to the cartridge. However, I was delighted to read in the June 2003 issue of Hi-Fi World that Origin Live has revised their DC motor kit with a new motor that runs silently and gives significantly better performance than the previous

The motor is available as a separate item for £79 and has identical fastening holes, which makes it very straightforward to replace. It was a relatively simple exercise to remove the old motor from my turntable. The two motors can be seen together in Figure 1. the new motor being on the right. While the motors were

out of the turntable plinth, I powered them up to see Having taken all the discernable difference in fitted into the turntable. The motor noise. Noise from the old motor was very evident, to my ears, but the

new motor was hardly audible at all. Of course, this is a very subjective assessment, so I thought it might be useful if I could somehow quantify the noise produced. In order to do this, I made use of my PC, a microphone and some freeware oscilloscope software that is available on the web. The software. "Oscilloscope 2.51", is bundled with a package called Audio Test Bench which is available from http://www.HigherFi.com and also. incidentally, includes a very useful tone generator.

Armed with the above software, I took some measurements of the two motors Obviously, the same oscilloscope timebase and gain settings were used for each motor. With reference to Figures 2 and 3, the reduction in noise level with the new motor can clearly be seen.

This useful little program also has the capability to display Fast Fourier Transforms and this feature was used to analyse the frequency spectrum of the noise produced. Figure 4 shows a comparison of the old and new motors. From here, it can be seen that the old motor produces measurable noise to over 4kHz, while the new motor produces noise up to about 1.5kHz.

I should point out that these simple programs can really only be used for comparison purposes and are not for accurate absolute measurements. There are also the limitations of using a computer sound card, but it does serve to illustrate the different behaviour of the two motors.

measurements, the new motor was measurements have clearly justified the claim of lower noise, but the most important test was yet to be



Figure 1. The Old and New Motors

made! How would it sound in practice?

The sub-platter was reassembled, having first added a couple of extra drops of the special oil into the bearing. The belt tension was then carefully set, having been cleaned with some methylated spirit, The speed of the turntable was then checked with a strobe to see if there were any differences with the newly installed motor.

It was quite clear that, despite being very similar physically, the electrical characteristics of the two motors are quite different. The new motor rotated at about half the speed with the speed adjusters still calibrated for the old motor.

Having re-calibrated the motor speeds with the preset adjusters on the motor control board, I settled down to listen to my set of 'test' LPs, starting with an excellent recording of Vivaldi's Concerto in A minor for Oboe and Strings F.VII/5 (Telefunken 6.42355 AW). This recording has a solo instrument with strings and harpsichord and is very good for checking image placement and clarity.

The clarity was superb and I concluded that there was indeed an improvement in imaging and depth, when compared with the effect produced by the old motor.

In conclusion, I would say that the new motor is well worth the investment. It is easy to fit and has effectively eliminated the motor noise issue and gives a discernible improvement in sound quality.

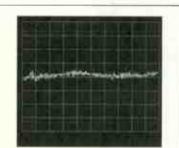


Figure 2. Noise from the Old Motor

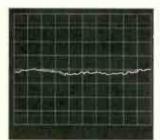


Figure 3. Noise from the **New Motor** 

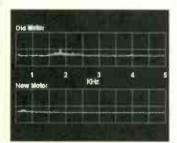


Figure 4. Frequency Spectrum of the Motors Noise

if there was any

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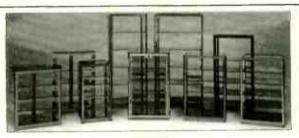
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MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MORREL Bass Moster (Oak but marked) NAIM (redo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Sceptre RUARK Sceptre RUARK Logrythm (Sub)	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$990 \$2200 \$700	£299 £399 £599 £994 £695 £950 £380 £999 £369 £640 £999 £329
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MONREL Bass Moster (Oak but marked) NAIM (redo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Broadsword (Rosewood) RUARK Sceptre RUARK Logrythm (Sub) SNELL 13 High Sensitivity Monitors	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$990 \$2200 \$700 \$700 \$900	£299 £399 £599 £994 £695 £950 £380 £999 £369 £640 £999 £329 £348 £498
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MONREL Bass Moster (Oak but marked) NAIM (redo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Broadsword (Rosewood) RUARK Sceptre RUARK Logrythm (Sub) SNELL 13 High Sensitivity Monitors	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$990 \$2200 \$700 \$700	£299 £399 £599 £994 £695 £950 £380 £999 £369 £640 £999 £329 £348 £498 £498
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MONREL Bass Moster (Oak but marked) NAIM Credo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Broadsword (Rosewood) RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$990 \$2200 \$700 \$700 \$900	£299 £399 £599 £994 £695 £380 £380 £999 £369 £640 £999 £329 £349 £349 £498 £349 £800
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MORREL Bass Master (Oak but marked) NAIM (redo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE QNR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Equinox (Black) RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum SONUS FABER Signum	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$990 \$2200 \$700 \$700 \$900	£299 £399 £599 £994 £695 £380 £380 £999 £369 £640 £999 £329 £349 £349 £349 £349
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MONREL Bass Moster (Oak but marked) NAIM (redo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Broadsword (Rosewood) RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum SONUS FABER Solo SONUS FABER Solo	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$7200 \$700 \$700 \$700 \$770	£299 £399 £599 £994 £695 £950 £380 £999 £369 £349 £349 £349 £800 £350 £495
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MONREL Bass Moster (Oak but marked) NAIM Credo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Broadsword (Rosewood) RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum SONUS FABER Solo SONUS FABER Wall speakers SOUNDLAB Dynastats	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$790 \$700 \$700 \$700 \$770	£299 £399 £599 £994 £695 £950 £380 £999 £369 £349 £349 £349 £800 £350 £495
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MONREL Bass Master (Oak but marked) NAIM Credo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Equinox (Black) RUARK Broadsword (Rosewood) RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum SONUS FABER Solo SONUS FABER Wall speakers SOUNDLAB Dynastats SYSTYM 165 (Mahogany)	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$7200 \$700 \$700 \$700 \$770	£299 £399 £599 £994 £695 £950 £380 £999 £369 £349 £349 £349 £800 £350 £495
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MORREL Bass Moster (Oak but marked) NAIM Credo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Sceptre RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum SONUS FABER Solo SONUS FABER Wall speakers SOUNDLAB Dynastats SYSTYM 165 (Mahogany) TANNOY Buckinoham	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$790 \$700 \$700 \$770	£299 £399 £599 £994 £695 £950 £380 £999 £3640 £999 £329 £349 £498 £498 £498 £498 £1100 £400 £400 £400 £400 £400 £400 £40
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MORREL Bass Moster (Oak but marked) NAIM Credo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Sceptre RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum SONUS FABER Solo SONUS FABER Wall speakers SOUNDLAB Dynastats SYSTYM 165 (Mahogany) TANNOY Buckinoham	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$790 \$700 \$700 \$770	£299 £399 £599 £994 £695 £950 £389 £369 £369 £348 £498 £349 £800 £495 £1100 £244 £1600
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MORREL Bass Moster (Oak but marked) NAIM Credo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Sceptre RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum SONUS FABER Solo SONUS FABER Wall speakers SOUNDLAB Dynastats SYSTYM 165 (Mahogany) TANNOY Buckinoham	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$790 \$700 \$700 \$770	£299 £399 £599 £994 £695 £950 £380 £999 £369 £349 £349 £349 £349 £498 £350 £495 £1100 £244 £244
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MONREL Bass Moster (Oak but marked) NAIM Credo Ex-dem OPERA Povorotti PINK TRIANGEL Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Guinox (Black) RUARK Broadsword (Rosewood) RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum SONUS FABER Signum SONUS FABER Wall speakers SOUNDLAB Dynastats SYSTYM 165 (Mahogany) TANNOY Buckingham TANNOY Berkeley TANNOY Berkeley	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$790 \$700 \$700 \$700 \$700 \$700 \$700 \$7	£299 £399 £599 £599 £990 £380 £999 £369 £640 £999 £329 £348 £498 £349 £349 £349 £495 £1100 £495 £1100 £495
MONITOR AUDIO Studio 14 (Marked) MONITOR AUDIO 705 (Black) MORREL Bass Moster (Oak but marked) NAIM Credo Ex-dem OPERA Povorotti PINK TRIANGLE Ventrical PROAC Studio 1 Mk2 LINN Kaber (Rosewood) ACTIVE ONR Monitors (Black) REGA XEL (Black) RUARK Equinox (Black) RUARK Sceptre RUARK Sceptre RUARK Logrythm (Sub) SNELL J3 High Sensitivity Monitors SONUS FABER Signum SONUS FABER Solo SONUS FABER Wall speakers SOUNDLAB Dynastats SYSTYM 165 (Mahogany) TANNOY Buckinoham	\$800 \$1600 \$1425 \$1500 \$2500 \$1200 \$790 \$700 \$700 \$770	£299 £399 £599 £599 £990 £380 £999 £369 £640 £999 £329 £348 £498 £349 £349 £349 £495 £1100 £495 £1100 £495

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### NEW STOCK ITEMS

- 1). Brand new AVI S21 MC CD Player (£1300) to match the S21 MI Laboratory series integrated (£1400) so well reviewed - see Hi-Fi Choice, May 2003.
- 2). Alon Lotus Elite floorstanding speaker, see rave review, Hi-Fi Plus, issue 25, Aug/Sept 03, a bargain at £4k.
- 3). Alon Thunderbolt superb subwoofer at £1800, for both Hi-Fi and Home Cinema.
- 4). Eslab DX-S8 300 w/ch digital power amp (£2500)
- 5). New SIM2 Domino DLP 16:9 projector at £3700, and the similar Infocus 5700 at £3000, for those into Home Cinema.

SALE ITEMS TO MAKE WAY FOR A	BOVE
A) Previous AVI 24 bit cd player	£800
B) Eslab DX-S4 200 w/ch digital power (£2.5k)	£1500
C) Alon Lotus, 15 ohm bass driver (£3k)	£1500
D) ATC SPA2 -150 power amp (£3239)	£1900
E) ATC SCM 50 passive's black ash (£5k)	£2500
F) SME 20A MK II turntable/MC30 supreme	
as new (£5800)	£2800
G) Linn LP12/Lingo/Ekos/Circus/Trampoline/	
Lyra Beta	£1600
H) Ruark Solstice speakers (£4k)	£2000

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Ethic Will IEO (Mildle Kayser) and MK Tough plug Cable can be required lines to our all steel 4, 6 and 8 way distrithe distribution blocks with en and the second cost option. Refer to our web site

AUGUSA - OOM Silverlink OCC balanced pesker cable - from lec, silver on OFHC plus improved bass performance.
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or of 3mm diameter (approx 8 eause Cable Overall Dimension: 14.72 mm.

GNLM 05/2 5 (CSA2.5) £48 for 1.0m, £58 for 1.5m, £68 for 2.0m. Off the reel £30 for 1st meter, £20 per m thereafter.

Eupen GNLM 05/2.5 (CSA 2.5) shown with Marinco IEC 320 will be fitted at extra cost.

GNLM 05/04

£58 for 1.0m, £72 for 1.5m, £86 for 2.0m. Also available of the reel.

Both GNLM cables are available for export.

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ac mains connectors

#### LAT International AC-2 AUDIO AC MAINS CABLE

the have come could it cabling (weaving) pattern along with an unusual analysis and any littering system that gets rid of the our components. The difference to the search our cord is astounding. Our power cord takes ts design through use of our proprietary The conductors are 10 gauge and with me insulation available. Fitted as standard with IEC 78MC 18Mb blug. . 60cm £62, 90cm £75, 1.2m £88, 1.5m E112 etc Other lengths available and off the reel. 4.6 and 3 way all steel mains distribution blocks fitted with Schuko or USA sockets.CE tested & approved mains units manufactured of heavy gauge steel, finished and fitted with high quality 13amp sockets. It has no stars, circuit breakers, surge protection, transformers, capacitors, LED's, on/off switches, chokes, regujust fitted with 1m of AC-2 mains cable.From £166 for 4 way, £198, 6 way, £229 for 8 way.

AC-2 Power cable compare with products costing ten times as much, then decide

and copper. IT IS NOT SILVER PLATED OR SIL-VER CLAD. Plating (or clad, which is the same thing as plating) causes a dioding effect when signal is passed through resulting in brightness and distortion. The Silverfuse process starts with seven nines OFHC copper wire with a diameter that is slightly larger than the required size. It is then pulled through a trough of molten silver. The wire with a silver deposit, is then forced through a compacting die where it is subject to tremendous pressure. The silver and the high purity copper are fused together into a near alloy. The compacting fusion also reduces the wire diameter to the desired size. No dioding subsequently occurs with this process. The result provides for 4 4 the benefits of silver; which are excellent definition and clarity, with the high purity copper benefits of warmth and mellowness.

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MONRIO ASTY VALVE PRE-AMP (VERY PRETTY) 3 MONTHS OLD LUMLEY REFERENCE PP-40 PRE & ST-40 POWER AMPS (CHROME) EAR 834P PHONO STAGE	MINT BOXED MINT/BOXED EX DEM/BOXED	£695 £375 £995 £350	RACKS/STARUS SOUNDSTYLE ST-105/AQUA GLASS (NEW MODEL £399?) SOUNDSTYLE XS 105 5 SHELF BLACK OR SILVER (£320) SOUNDSTYLE XS 310 AV TABLE (£320)	EX DIS/BOXED/AS NEW EX DIS. EX.DIS	\$275 \$195 \$195
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Meridian 505 - Mono Power Amplifiers (XD) - £650 Each
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Agencies Include: Linn, Musical Fidelity, S.M.E., Origin Live, Monitor Audio, Castle, Quad, Wharfedale, Harman Kardon, Creek, Meridian, Tannoy, Infinity, Loewe, Sanyo, Ortofon, VDH, JBL, Pro-ject, Roksan, QED, Cable Talk, Michell, Arcam, Trichord, PMC,

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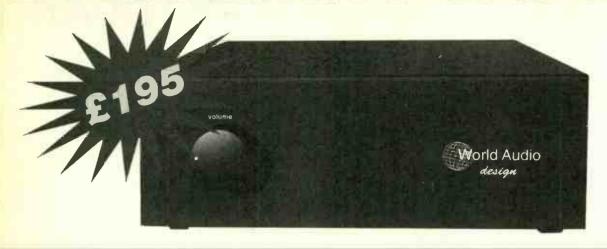
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AUDIO RESEARCH LS15 line pre with remote, silver front	1650		125	DOLAN PMI champagne fronted pre xcellent adjustable phonostas		TRANSCRIPTOR HYDRAULIC REFERENCE, with sme 3009, 60
AUDIO RESEARCH REFERENCE PHONO, black front mint boxed			550	EC AUDIO FINESTRA preamo, TOM EYANS, mm/mc	500	VAN DEN HULL MC2 high output( 2.5mv) 60
AUDIDN STIRLING phono stage	350		350	GRYPHON PHONOSTAGE & HEADAMP	1750	VAN DEN HULL GRASSHOPPER GLA III just serviced by VDHull 100
AUDIDN APOLLOS, single ended ltd edition	2800		400	GRYPHON KT 2 box pre with mm & new mc	2500	VAN DEN HULL GRASSHOPPER GMN 111
BEARD p35 mk2 POWER AMP	450		650	HAFLER DH I 10/220 pre, POWER	300	I'mv output just rebuilt by vdHull 100
BEARD c35/p35 pre/poweramp combo	800	QUAD ESL63 serviced by quad in 1998	100	KRELL KAY 3001 integrated arrip	1400	VOYD the voyd, rosewood,ref bearing/platter, split phase,
BORDER PATROL 300B amp,mkl	1250	quad esIS7 JUST SERVICED 7	700	KRELL FPB 300 stereo, gun metal finish	4000	audionote arm, boxed 180
CARY SLA70 power amp	700	ROGERS STUDIO I teak 250 PAIR		LFD LS1 line preamp,	450	VPI JHw 9" arm special rega mount version 57
CARY 805 monos boxed	3250	ROKSAN OJANS plain black finish 4	400	LFD PAO power amp	350	CABLES
CONCORDANT QUAD II MONDBLOCKS	500	RUARK CRUSADERS walnut boxed, 6	600	UNN LK100	275	AUDHOQUEST FOREST 4 x 2.5m WBT 47
CONRAD JOHNSON PV8 pre with phono boxed	550	RUARK ACCOLADES, walnut, boxed triwirable 12	200	UNN INTEK integrated amp boxed	200	CARDAS QUADUNK SC Im pair phonos 15
CONRAD JOHNSON PYTOAL boxed	450	SONUS FABER ironwood stands adjustable 3	350	UNN LI/K2 pre power, no remote but upgraded, Ik280 board	± 300	CYRUS INTERCONNECT boxed 5
CONRAD JOHNSOJN PV6 pre with phono	400	TANNOY ARDENS reconed hpd 385 9	900	UNN KAJRN PRO (line level ) boxed	600	IPS LABS CAPTIVATOR 2m power cord 600, 2 available
CONRAD JOHNSON PREMIER 7 pre, 2 box	2000	TANNOY 1225, DUAL CONCENTRIC 10" AND ABR, glass tops mice 2		MARANTZ MA24 monoblocks, dass A boxed	1100	NDRDOST BLUE HEAVEN phono Im interconnect 10
CROFT EPOCH ELITE mahogany front, boxed	600	TANNOY cheviors MKI, Good pair serviced 4	450	MARANTZ PM17 MIQ IQ SIGNATURE, mint boxed	900	NORDOST RED DAWN XUR IM INTERCONNECT pair 17
CROFT SUPERMICD black with stepped attenuator	325		000	MARANTz SH 17 power amp, mint boxed 450 2 a	rvailable	NORDOST RED DAWN 4M biwire pair ( 4 plugs each end) 70
CROFT SERIES IVS POWER AMP, JUST SERVICED,	650		350	MERIDIAN 105 MONOS	350	NDRDOST SPM REFERENCE IM XUR balanced interconnect pair 45
EAR V20 line level integrated	1400		500	MERIDIAN 201 with 605 monoblods	1100	VAN DEN HULL Clearwater 3M biwere bananas 8
EAR 509 monoblocks mkl, just serviced	1200	TUNERS, CASSETTE DECKS,		METAXAS CHARISMA PREAMP, chrome finish	500	VAN DEN HULL MAGNUM 2.5M PAIR bananas 12
GAMMA SPACE REFERENCE, 300b integrated amp.	1500		80	MICHEL ALECTO STERED, latest version boxed	675	EMPORTWIRE our own cable, silver plated interconnects
GAMMA AEONS boxed	2000	ARCAM TS1 tuner black boxed	150	MOTH 100 WATT MONDBLOCKS, average condition only	250	
LEAK STERED 20 serviced	350		100	MUSICAL FIDELITY X-A2 integrated amp, mint boxed	325	EMPORIWIRE also din to phono
LEAK TLI2.1 pair	POA		120	MUSICAL FIDELITY PRE 3A	125	EMPORIWIRE 4 PIN DIN TO 4 PIN DIN for quad 3
MELOS 333 two box pre line great dynamics,boxed	1000	CYRUS FM7 2	250	NAIM NAC 62/NAP F40 old style v good with cables	500	EMPORIWIRE ARM cable to fit sme/linn 1.6m 7:
				NAIM NAC 62/NAP 140 old style v good with cables		

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## **BARGAIN BULBS**



If you've always thought of valve amps as temperamental and expensive beasts, think again. World Audio Design's latest kit is designed with the budget conscious beginner in mind.

The Kecl82 was created from a brief that demanded simplicity, ease of build and a super low cost. In order to achieve a reasonable power output we went for a push-pull amplifier.

We chose the ECL82, a triode/output pentode. This tube is readily available and has a good sound. In push-pull mode it delivers 8Watts.

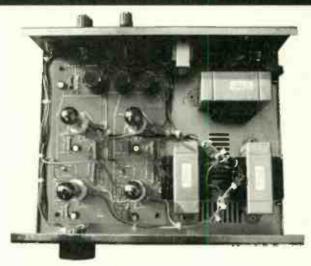
Realistically you need a speaker of around 89dB or above. This is possible at a budget price - try the smaller Triangle models, or a Tannoy mX3 or even one of the older Missions like the 773e, or if you like building your own speakers, try the Adire Audio HE10.1, as reviewed in HFW October 2002 issue.

You will see that the front has only a volume control, and it is fed by one pair of phono sockets. A selector and tape/source switch were not used in this amplifier as they are tricky to wire up, and the aim was to make it easy to build. In fact, in many ways the Kecl82 would be great powering a second system, using a CD player as a source, and will definitely give you a taster of what valves can offer. Measuring 30cm wide, 23.5cm deep and 11cm height with feet, it is entirely self-enclosed. The valves are visible through the four upper circular vent holes (one directly above each valve). We have kept the look simple with the minimalist front panel holding the volume potentiometer. The two-part chassis is constructed from 1.6mm mild steel with a durable black powder-coat finish. The whole unit is very sturdy, weighing in at 9kgs.

The signal input is in the form of a pair of gold plated RCA phono sockets that sit at the rear of the chassis. The speaker sockets accept 4mm banana plugs as well as bare wire. The mains switch is positioned at the rear of the amplifier, on the right hand corner for easy access. Mains power is received via an IEC lead. The Kecl82 is based on a printed circuit board (PCB). The PCB is easy to follow with all component names, locations and orientations shown clearly. The amplifier requires no set up, you just turn it on. The kit will come with comprehensive instructions taking you through the build step-b-step.

#### **SOUND QUALITY BY SIMON POPE**

Purity is the key to this amplifier's design and sound. Because there's very little to get in the way of the signal what you get is an exceptionally sweet and simple sound that also has a superbly wholesome roundness to it. A high quality recording of Mahler's Das Lied Von Der Erde on Reference Recordings showed that the Kecl82 faithfully reproduced all the depth and space of a full symphonic orchestra without any problems. Violins were smooth and sweet, as was percussion (which virtually sparkled) and the woodwind section was especially impressive, with a spacious and airy sound.



A run through Miles Davis's Kind Of Blue saw the little integrated delivering a detailed and precise sound that highlighted the warmth of Coltrane's tenor sax and the rich, deep sound of the upright bass. Rock and Pop records such as Radiohead's 'Lucky' demonstrated that the valves inside the amp, whilst small, are quite robust sounding, with commendable clout and bass depth for a humble budget 8W valve amp. This is a great introduction to the sonic art of the valve amp and a big upgrade for anybody with a mid-price solid-state amp that wishes to swap over to something more musically engaging, for a price that's virtually as cheap as chips!

#### MEASURED PERFORMANCE

Frequency response power output sensitivity hum +/-3dB 15Hz - 75kHz 8 watts into an 8 ohm load 850mV (suitable for CD)

The Kecl82 amplifier kit is available from World Audio Design Tel/fax: 00 44 (0) 1908 218836 or order on-line at www.worldaudiodesign.co.uk

Kecl82 amplifier kit (UK price) £195.00 (Inc. vat & carriage)

Kecl82 amplifier kit (EU price) £195.00 (inc. vat, exc. carriage)

Keci82 amplifier kit (Overseas price) £170.00 (exc. carriage)



#### SALE LIST

	PRICE NEW	SALE PRICE	
KRELL FPB 300c Power amp	£9,500.00	£5,595.00	D
KRELL KAV 500i Int Aamp	£4,995.00	£2,499.00	D
KRELL KAV 250 CD		£599.00	S/H
KRELL KAV 300 CD		£1,195.00	S/H
KRELL KAV KRC-3		£1,495.00	S/H
CYRUS DVD7	£1,000.00	£599.00	D
CYRUS 5 AMPLIFIER	£500.00	£329.00	D + N
CYRUS 7 AMP	£700.00	£479.00	D + N
CYRUS AV MASTER - PROCESSOR		£100.00	D
AUDIO RESEARCH LS16 PRE AMP - BLK	£3,500.00	£2,195.00	D
ARCAM DV88 DVD PLAYER	£1,000.00	£679.00	D + N
ARCAM DIVA CD92	£800.00	£579.00	D
ARCAM DIVA A75 AMP	£470.00	£309.00	N
ARCAM ALPHA 7R AMP	£280.00	£189.00	D
ARCAM FMJ A22 AMP	£1,100.00	£679.00	D
ARCAM FMJ A22 Inc DAVE AC3/DTS processor	£1,850.00	£999.00	N
SONUS FABER SIGNUM SPEAKERS	£1,250.00	£799.00	D
TAG MCLAREN AVR32BEX (NEW BOXED)	£2,994.00	£1,949.00	N
TAG MCLAREN AVR32	£2,500.00	£1,495.00	D
TAG MCLAREN DPA32R (Digital pre inc DAB)	£1,990.00	£1,189.00	D
TAG MCLAREN SR - 5 CHANNEL POWER AMP	£2,995.00	£1,799.00	D
MARTIN LOGAN AEON	£3,148.00	£2,195.00	D
MARTIN LOGAN ASCENT	£4,499.00	£2,895.00	D
MARTIN LOGAN SCENARIO	£2,498.00	£1,629.00	D
CELESTION CI - Compact speakers	£199.00	£114.00	D
CELESTION - C2 - Floorstanders	£499.00	£299.00	D
LINN MAJIK - INT AMP	£650.00	£399.00	D
LINN KAIRN - PRE AMP	£1,400.00	£595.00	D
LINN 5140 - FLOORSTANDERSapprox.	£2,400.00	£799.00	D
LINN KABERS -BLK		£395.00	D
MERIDIAN 500 CD TRANSPORT approx.	£1,100.00	£599.00	D
MERIDIAN 502 PRE AMP	£1,470.00	£849.00	D
MERIDIAN 556 - 2 CH POWER AMP	£995.00	£649.00	D
MERIDIAN DSP 5000 96/24 SPEAKERS (VGC)		£3,200.00	D
MERIDIAN DSP 5500 96/24 SPEAKERS	£7,695.00	£3,599.00	D
MERIDIAN DSP 5000C 96/24 CENTRE SPEAK	ER £2,150.00	£1,099.00	D
MERIDIAN 565 PROCESSOR		£895.00	D
MERIDIAN 559 - 300W 2 CH POWER AMP	£2,550.00	£1,895.00	N
PROCEED AVP PROCESSOR. VGC/LIGHT USE	£4,700.00	£2,579.00	D
PROCEED PMDT DVD PLAYER. VGC/LIGHT US		£2,995.00	D
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Special Internet offer see page 129 for details

WORLD & computer audio

LEAK STEREO 20, grey, £340. Quad ESL 57s bronze £395. Tel: 01744 755 434 (Oct(I)

MARK LEVINSON 380 pre, 33! pwr amps with box, manual, 1/2mm M.L. balanced cable, just about run in, getting married why selling (new £8880) £4500 may split. Tel: 020 8357 1264 work 07971 708041 mobile (Oct(I)

MUSICAL FIDELITY Tri-Vista 300 integrated Ltd Edition amplifier mint, boxed, etc £3000 Tel: 020 8531 5979 or 07903 265205 (Oct(I)

THIEL CS3.6 floorstanding loudspeakers, excellent condition £5495 brand new, absolute bargain at £1995. Tel: 01508 499586 after 6.30 or leave message on answer machine. Oct(I)

INSTRUCTION BOOK needed for Sony Stereo Music System HMK-70. Please phone Fisher: 020 8450 1779 (Oct (I)

WANTED LATE D.P.A. 200S power amp must be in top condition cash waiting. Tel: Rob 07813 702571 or Email: robert@ higginson990.fsnet.co.uk (Birmingham) (Oct(I)

ADVANTAGE MONOBLOCKS M.300 x2, £2500. Advantage PI preamp £1000. Rel Strata subwoofer black £250. Audio Alchemy V3 DAC Audio Alchemy Transport £650 with 0.5 lead all good condition with boxes Tel: 01395 275 698(Oct(I)

TOM EVANS modified Pioneer A300 Precision. Norm price £750, £300 ono. Moth 30 active preamp £70. Creek A50i integrated amplifier new & guaranteed £450. DNM speaker cable 5.50 metre. Tel: 01582 724414 (Oct(I)

NORDOST SPM Reference biwire speaker cable 3m £1600 (£2900). Nordost Quatrofil interconnect balanced 1m £850 (£1250). KEF Reference 3.2 speakers rosewood £1300 (£2250). All boxed, mint. Tel: 07739 870377 (Oct(I)

LINN KOLECTOR preamp and LK 140 power amp £700. Linn Karik 3 CD player £620. All items in good condition, boxed with manuals. Tel: 01256 461453 (Basingstoke) (Oct(I)

LINN: 5103 (2003) pre-amplifier/processor (silver) £2100, 5125 (2002) power amplifier £1200. Heybrook HBI speakers with dedicated stands £100. All in mint condition and boxed. Tel: 01778 421397 (Oct(I)

MAGNEPLANAR MG2.5R loudspeakers. Shahinian Arc loudspeakers, Meridian 500 transport CD player, Meridian 518 processor, Audiosynthesis DAX-2 D/A converter, Quad 606 power amplifier, Synn AP900 60wpc valve amplifier, excellent condition Tel: 01179 521341 (Bristol) (Oct(I)

LINN KOLEKTOR preamp £250, Marantz PM66SE £90.
Musical Fidelity X-LP, £70.
Tascam Portastudio Porta 02 II £60. JBL MRCentre £40. NAD 5120 turntable (modified) £60.
Tel: 07624 499464 (Oct(I)

AUDIO RESEARCH D250, new valves £2200. Audio Research SP14, mint £1100. Krell KSA 100, fully serviced, perfect £1300. KEF 1053, rosewood, mint £825. Tel: 01959 575737 or 07980 646832 mobile (Nov(I)

KRELL KSA50 £1000. Krell PAM5 preamp £1000. Krell KSA50 Mk2 £1050. Sonus Faber Concertino £375. Naim Nac5 3 x 3m £75. All vgc. Tel: 01905 764145 Worcs, evening 01684 278418 days, Email: scurtis@zoom.co.uk (Oct(I)

REGA PLANAR 2 with RB200 arm, P2 motor spectradynamics mat. Wooden plinth. Tel: 01803 851630 (Torbay) (Oct(I)

AUDIOLAB 8000S intgrated remote amplifier, low use. No box. Mint condition. Can demo. Reason for sale gone valve! (£750) when new asking £325, buyer collects (South Wales). Tel: Rhys 01269 850084 (Oct(I)

TRICHORD TRANSPORT + Pulsar One DAC + power supply + MOD's (£3000+) £750. Clock Four now available. Tel: 01772 314151 Preston Mobile: 07751 475062 (Oct(I)

WANTED: CELESTION
Kingston speakers or Yamaha
NS1000/NS1000m speakers for
cash.Tel: 07932 063335 (Oct(I)

MUSICAL FIDELITY A3 dual mono amplifier £400 boxed. Monitor Audio silver 8i loudspeakers £400 boxed. Tel: 01482 508389 mint condition. Tel: 01482 508 389 (Oct)

GRANITE PLINTH polished grey 20 x 16 x 2 inches £20. Target HJ24/2 speaker stands 24" tall £20. Tel: 01564 770013 (South Birmingham) (Oct(I)

ROBERTSON AUDIO 4010 power amplifier x2 for sale £1000 new, £500 for both. Willing to sell separately. Tel: 01535 654220 (Oct)

LEAK SANDWICH speakers real classics 25 3/4 high x 12" deep x 14 3/4 wide, teak wood finish cabinets perfect, still working. Offers welcome Tel: 020 8690 1939 (Oct(l)

SIMPLY THE best 300Bs? Unison Research Smart 300B. Mono Blocks S.E.T. 25 watts per channel new and boxed £4250 new. £2000 no offers. N-T-W please. Tel: 01562 827710 (Oct(I)

AUDIOLAB 8000LX integrated amplifier, mint condition, boxed with manual £250. Tel: Mark 07930 401634 (Staffordshire) (Oct(I)

ARCAM ALPHA 9 CD player £450 ono. AE 109SE loudspeakers £200. Wanted: Naim Flatcap 2 power supply. Tel: 01752 291625, Mobile: 07817 413421 (Oct(I)

NAIM SBL's with passive x-over. Black. Unopened in boxes, han plans to emigrate, then didn't! Obviously perfect condition and excellent Naim sound. May deliver £1600. Tel: 07780 995 483 (Oct(I)

ARCAM FMJ A22 amp silver, remote, 100 wpch, seven months, boxed, mint, (£1000) £599. Marantz CD6000KI black remote £249. Arcam P75+ power amp £199. Quad 11L speakers black £319 Tel: 0115 960 3934 (Nottingham) (Oct(I)

WANTED FOR spares etc. faulty or non working Quad 44 preamps and Quad 405 power amps or boards for above. Also required Quad FM3 tuners. Tel: Mike 01758 613790 (Oct(I)

AUDIONOTE MI phono preamplifier, mint, boxed, £350. Audiolab 8000C preamplifier £200. Tel: Tom 020 8986 1762 (Oct(I)

NAIM CDI very good condition with packaging £730 ovno. Tel: 01778 393264 or Email: peterglo@ northor30919.fsnet.co.uk (Oct(I)

ROKSAN KANDY amplifier boxed manual with remote power 110 watts with control £275. Philips CDR 602 CD recorder boxed manual remote £90 both excellent reviews. Can demonstrate. Tel: Steve 01924 871782 (Wakefield) (Oct(I)

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KRELL KAV300r integrated £1200 (£3500) Krell Kav150a power (£1100). Audionote ANJ/SP speakers £500 (£1800) CR Developments Romulus valve integrated £500 (£1800). Tel: Bill 01993 851508 (Oxford) (Oct(I)

REVOX TAPE recorders. G36 4 –track with service book £100. C278, 8 channel unused with remote and service book £350. Tel: 01732 850574 (Oct)

QUAD 22L top of range loudspeakers in maple finish £680. Only 3 weeks old, genuine reason for sale. Also Arcam 6 CD player £75. Tel: Tony 02476 460729 or 07788 642632 (Oct(1)

CASTLE SEVERN 2SE floorstanding loudspeakers in cherrywood. 9 months old boxed £295 ono. Tel: 01246 274735 (Oct(I)

EAR 834P (phono) MM pre amp, black case, as new condition, original owner, invoice available, £195. Tel: 020 8654 2223 or Mobile: 07879 805 837 (Croydon) (Oct(I) DENON DCD \$10II CD player, high end, luxury, champagne gold, phono/balanced, superb involving musical sound, 14 kilos! Immaculate, boxed, can deliver London area (£20). £495 (£1300 new). Tel: 01273 541 462 (Brighton) (Oct(I)

TOP QUALITY system in mint condition. Kuzma Stabi deck, Kuzma Stogi tonearm with Benz Micro cartridge plus wall stand, £495. Shearne Audio Phase 7 compact disc player, £600. Shearne Audio Phase 2 Reference integrated amplifier, 2 Phase 3 Reference amplifiers, 3 Cable Talk interconnects, £1500. Jamo Concert II floorstanding loudspeakers, 3 5m lengths Q.E.D. 4x4 Profile speaker cable, £1000. 5 shelved Soundstyle unit £50. Tel: 01253 854 114 or Email: robert@simpson2.v-net.com (Oct(I)

NAD 4020A tuner, case top slightly marked, otherwise VGC and sounds excellent, £50 ono. Rega headshell, vgc, comes with A&R cartridge body (don't know if the latter works) £10 ono. Want outgrown interconnects, speaker cables, RDC cones, w.h.y. Phone Keith on 01594 837695 or Email: aburrow@clara.co.uk (Oct(I)

BOW WIZARD CD Wand £1950. Tannoy SR840 power amp £895. Adcom 585LE power amp £795. NHT VT2 piano black floorstanders £895. Nakamichi 505 cassette £595. Wanted: Naim tuner. Tel: 01747 853 372 (Dorset) (Oct(I)

SONUS FABER Gremona Auditor speaker with stands. Finish maple, £1700. Michell Gyrodec SE with Rega RB300, Sumiko BPS cartridge, £800. Tel: 020 8531 5979 or 07903 265 205 (Nov(I)

CELESTION A1 speakers with matching stands finished in cherry. Bought new this year and absolutely new. Genuine reason for sale. A true bargain at £550. Tel: 020 8874 6262 or Email: michael@hlaustin.co.uk (Oct(I)

MARANTZ CD73 classic 1980's analogue sounding CD player. "Arguably the best CD transport ever designed" - Hi-Fi World April 2003. One owner from new. Good condition. £270. Tel: 07790 880 328 (Yorkshire) (Oct(I)

WANTED: CELESTION
Kingston speakers or Yamaha
NS1000/NS1000m speakers for
cash. Tel: 07932 063335 (Oct(I)

LINN SONDEK LP12 with Zeta arm and Grace F-9 cartridge with spare unused Grace RS-9E stylus, £800 ono.Tel: 01706 819962 (Oct(1)

SHACKMAN ELECTROSTA-TIC speakers. Excellent working condition. Fantastic big sound. £300 ono. Tel: 07831 227788 or Email: sportingbauchers@aol.com (Liverpool) (Oct(I)

FOR SALE: Townsend Glastonbury 11 speakers, (2nd owner) in good working condition, serial numbers 105A and 105B. There are no front covers. £400. Contact Alan at alan.cavender@bt.com or 01661 852 874 evenings (Oct(1)

CAMBRIDGE CD4SE ISO Magic DAC, interconnect, £150. Goldring 1042 £45. Hardly used. Aiwa XIL009 needs new heads, any offers. Tel: 01923 230214 ask for George (Watford) (Oct(I)

WANTED: PAIR of WAD KEL80 monoblocks. QC Power supply for Gyrodec. Harmon Kardon Citation power amp. All items to be top notch. Tel: 00 44 2 33 48 03 91 (Nov(I)

## trade ads

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AMAZING CABLES! Silver hybrid and solid silver interconnects from £85, with world class plugs. Solid silver speaker cables from £220. Fantastic performance, refund guarantee. Details: 0115 982 5772 after 7pm, or E-mail Bob@skydivers.co.uk (Dec(I)

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AUDIOREPUBLIC, 78 Otley Road, Headingley, Leeds, 0113 217 7294. Yorkshire's newest Hi-Fi retailer, representing Naim, Rega, Creek, Totem, Quadraspire, Dynavector, Roksan, Teac and more. Used LP12's, Lingo's, Linto's stocked. Call for advice. Tel: 0113 217 7294 (Oct(I) EX DEMONSTRATION
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guyholdsworth@onetel.net.uk
(Oct(I)

THE MISSING LINK – We Offer You Our Very Own High End Pure Silver Interconnects at Realistic Prices. Loan cables Available. Full Details from Mark on 0115 877 9089 or Email: the missing link@ntlworld.com (Dec(I)



"AMPS" QUALITY Valve Amplifiers: Repaired, restored, upgraded. Custom designs commissioned. Kits assembled. Experienced Engineer. Free estimates and fair prices. Tel: 01525 756 935 http://www.dhaen.co.uk/amps Email: amps@dhaen.co.uk (Oct(I)

NEW VALVE Amps; powers £260; matching preamp £190; other valve related goodies at www.audioclassics.co.uk or telephone 01942 257525 for more information. Dealer enquiries welcome. (Oct(I)

## AUDUSA

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# Professional Expertise

LIK Setright has a cassette player for when it matters - Sony's WM-6DC 'Walkman Professional'.

nce upon a time, writing for a motoring magazine, it occurred to me to ask two or three hi-fi manufacturers what they listened to in the car. Ivor Tiefenbrun ('anything, so long as it was recorded from an LP12') drove a tuned Jaguar XJ-S. Anthony Michaelson drove a Maserati, and thought it reasonable to listen to that Michael Creek, who drove a Peugeot 205 GTi, scorned all built-in apparatus: he listened, through openback headphones, to a Sony Professional Walkman.

So do I - not necessarily through headphones, for it is plumbed into my main domestic array, the only non-Linn item in the whole assembly for the very good reason that Linn understandably never produced cassette machines. Such things were for decades, however, an unavoidable if unfortunate necessity.

Most of them were quite utterly awful. Only a few specialists made anything that could be trusted to make the best of the medium. BBC reporters used invariably to be armed with the Uher, a hefty box that was just about portable -until, in the 1980s, some of them began to be seen carrying a costly, tiny - and unbelievably heavy - black box upon which the wicked word Walkman was followed in chaste Roman capitals of smaller size by the word

#### PROFESSIONAL.

I bought one. It was very handy and unobtrusive, just right for those occasions when I might have to interview some car stylist or saxophone player. As a recording machine it was surprisingly good, the stability of its tape speed assured not only by quartz-controlled servo feedback but also (and perhaps more



positively) by a remarkably heavy high-speed flywheel. I often wondered whether they made it of one of the tungsten-based heavy alloys, but I never found out. What I did find was that the little machine was somewhat sensitive to tape quality: it was reasonably happy with high-bias chrome dioxide, but when sound really mattered it was wise to use a good metal tape.

It was nevertheless as a playback instrument that the little black box exceeded all expectations. With settings for Dolby (including the then new C) and tape bias supplemented by a speed variation up to plus or minus 4% (kind to people with perfect pitch), it was one of those few phenomenal cassette players that sounded like something better than a cassette player could be. There had been a yawning gap in performance between the best Nakamichi instruments and the rest; now this tiny Sony professed to plug that gap.

It did not do quite that. Those who took the trouble to compare them (I never bothered) reckoned that for playback quality there was nothing to choose between The Professional and the Nakamichi. The yawning gap remained - between

these and the rest.

There had to come a time when the old order would change, yielding place to new, and it came in the mid-1990s with baby cassettes of digital tape. Recording engineers loved this new medium - not because it sounded any better, but because it. made editing so very much easier. Sony went where the professionals went: the new Walkman Professional was a bit bigger, and was digital.

You would not find Setright following suit. In the first place, I thought that digital processing would have to grow a lot better before ! should go out of my way to pursue or endorse it. In the second place, I had some quite irreplaceable things on cassette tape, and had every intention of continuing to listen to them without losing anything by further translation.

The first old Walkman Pro that I bought was sewn into my Linn system for what has proven a long winter for my discontent, since it is still there.

My second is kept mobile for such occasions as require me to cart something about. Whenever I want to make or, better, to listen to a tape, this is how I propose to do it.

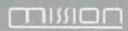


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