

# hi-fi

P. Jones

## WORLD

DECEMBER 2005 UK £3.40

### COMPETITION

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Electric M520  
valve amp worth  
£1,539!

## ICE COOL

SHANLING CD-T80 - serious valve CD player value



### DIGITAL AUDIO SPECIAL

#### CD PLAYER SUPERTEST

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NAIM CD 5i, CYRUS CD8x  
MUSICAL FIDELITY A3.5CD  
PRIMARE CD77, QUAD 99 CDP 2

DENON TU1300DAB DAB TUNER  
MARANTZ SA15SI SACD PLAYER  
SPENDOR 58r SPEAKER SMOOTHIE

HI-FIDELIO: A DIGITAL MUSIC SERVER

BIT PARTS: DIGITAL TWEAKS, DIGITAL RADIO UNPLUGGED

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10 PAGES OF HI-FI Q&A CLASSIFIED ADS

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SUBSCRIPTION  
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DECEMBER 2005

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9 770961 766147



The experiences this chair has had! The amazing performances, concerts and gigs it has witnessed from all around the musical world. From the front row at Carnegie Hall to the stalls at Brixton Academy, from the dress circle of the Sydney Opera House to the bar in Ronnie Scott's – this chair has been there! It has experienced music as it should be heard – alive and vibrant, with every nuance and emotion as clear as the musicians intended.

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*including the RA-03 amplifier*



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May 2005



B&W Loudspeakers, Dale Road, Worthing, West Sussex BN11 2BH, United Kingdom, 01903 221500

World Radio History



**Rotel RA-03**  
April 2005



# welcome

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It's no secret that we here at *Hi-Fi World* are not completely convinced of the merits of digital audio. Since its inception, myself and publisher Noel Keywood have been more than a little incredulous about the claims made for it, by those (surprise, surprise) trying to sell it...

Think about it; from the very inception of audio right up to 1983, when CD was launched, we saw a continual progression of music formats, each successive medium offering superior sonics to its predecessor. Just as seventy eight RPM shellac was vastly better than the old wire recorders, so 'microgroove' vinyl LPs were a dramatic step up from seventy eights. But Compact Disc broke this trend; with the advent of consumer digital audio in the early eighties we saw a wholesale downgrading of our mass music carrier.

Of course, you could say that the cheap silver disc spinners that replaced most people's budget turntables of that time were superior – and this is a legitimate, albeit arguable point. But for audiophiles, people with passion for music and a desire to get as close as possible to the original sound, the first Philips CD100 CD player did not a Linn Sondek turntable beat.

Now we see history repeating itself with Digital Radio. Has the BBC ever replaced a sonically superior system with a sonically inferior one before? Moreover, does it really know that this is the case? A 'Corporation' spokesman on BBC Radio Four's 'PM' programme recently commented, when asked by the interviewer whether analogue radio sounded better than digital, that it was "subjective"...

With digital, the devil is in the detail. Considering that, to many people's ears, not even 24bit, 192kHz uncompressed PCM can match analogue LP, I'm not convinced that mono DAB at 80kbps (16bit, 44.1kHz) 'subjectively' rivals analogue stereo FM...

Still, despite all this stuff and nonsense from those who frankly should know better, we're not anti-digital; we're trenchant critics because we want it to be brilliant. In this issue, we're showcasing the best affordable audio hardware; from superb sub-£1,000 CD spinners, to sweet and smooth ancillaries, to accessories to make your digital system sound superior.

Just because we don't fawn over the constant stream of new and improved silver disc spinners, doesn't mean we don't enjoy digital on a daily basis, which - if you get your silver disc based system working properly - is precisely how it should be.

David Price, editor

## verdicts



**OUTSTANDING**  
**EXCELLENT**  
**GOOD**  
**MEDIOCRE**  
**POOR**  
**VALUE**

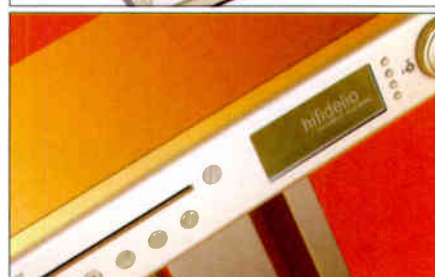
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keenly priced

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## testing

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



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Six top sub-£1,000 CD spinners spun in this month's supertest



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Flash Medium: Apple iPod Nano



PICTURE COURTESY OF APPLE



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NET Audio Sonance DAC: digital - thoroughly modern and musical...



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Chord's latest digital dreamboat is a stunning way to spend six grand, but can it beat its Origin Live analogue price rival?



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Spendor S8e loudspeaker - warm and sweet like few others, and just what you want for digital.



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World Radio History



news@hi-fiworld.co.uk

# news

## BIG NAIM

Naim Audio has gone straight for the jugular of the famed Linn Sondek CD12 with its brand new high end CD555/555PS CD player, claimed to deliver the ultimate musical performance from a CD. Naim says, "the CD555 doesn't try to play DVDs, DVD-As or SACDs. It doesn't have a digital output. It doesn't have a variable output. The CD555 just plays CDs and at that it excels". The transport sports a machined transport tray, with high mass to improve suspension characteristics, isolation from chassis and other components, its own infra red reflective coatings to reduce eye pattern interference and noise, an extremely low inertia and low resonance CD clamp, Philips Pro CD mechanism, diecast chassis, very heavy brass subchassis, separate for digital and analogue electronics, analogue stages, filtering and output driver that are from discrete parts, seven-pole output filters, separate low jitter clock circuit with its own multi-stage regulated power supply, post digital filter de-jitter circuitry, DACs isolated from electric and magnetic fields, very heavy low resonance casework and a top loading motorized disc door. The 555PS boasts seven regulated power supplies including separate one for the clock circuitry, five secondary windings on the transformer (which is 40% larger than that in XPS2), separate dedicated analogue and digital output sockets (Burndy) to minimise high frequency noise modulation of analogue supplies, and a low resonance case with isolating feet. Naim says there is a separate power supply from the transformer secondary winding, triple regulated, right through to the critical master clock and dejittering circuitry. Special attention has been paid to reducing capacitive coupling of high frequency noises from other supplies into this super quiet clock supply through interconnect cables and wiring looms. Two Burndy interconnects are used between power supply and head unit, one carrying digital supplies and the other analogue to extend this principle of reducing capacitive coupling between power supplies as far as possible. There has been "significant upgrading of power supplies from existing designs. More regulators have been used to isolate the supplies to various parts of the circuit, minimising their interaction." The DACs are mounted in a "quiet room", a shielded enclosure to keep their environment free of the varying electric and magnetic fields that inevitably occur in a CD player. For more information, call Naim Audio Ltd. on +44 (0)1722 332266 or click on [www.naim-audio.co.uk](http://www.naim-audio.co.uk).



## SMALL WONDER

Lehmann Audio's new Black Cube Stamp shows "that it is possible to save space and supply real high end quality sound reproduction at the same time", says the manufacturer. This modern switching amplifier is claimed to be equipped with "only the best parts available"; the printed circuit board sports double sided 105µm copper plating, and internal audio cabling is solid core soldered directly to the board and the connectors, avoiding additional plugged contacts. The mini (280x115x42mm) powerhouse delivers up to 20W per channel at 4 Ohms, making it good to go with speakers of 88dB or more. It's designed to work with the Black Cube Linear preamplifier and Black Cube Decade or Silver Cube reference phonostages. It can be mounted beneath desktop tables, in or under cabinets or on walls by using the optional mounting kit. For more information, call Henley Designs on +44(0)1235 511 166 or click on [www.henleydesigns.co.uk](http://www.henleydesigns.co.uk).



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## UNIVERSAL SOLDIER

Denon's new £249.95 DVD-1920 is claimed to be a major performance upgrade over the previous DVD-1910, and rolls in SACD / DVD-A and benefits from the experience gained in developing Denon's high-end DVD players. The HDMI and video circuits are said to go way beyond its competitors' quality at this price. It sports HDMI with HDCP Digital Video for new generation Plasmas, LCD and projectors, HDMI Black Enhancer, HDMI multichannel digital audio transfer, HDMI Bass management, HDMI Video Select - For RGB or Component out via HDMI, HDMI Scaling from Silicon Image 480p/720p/1080i. HDMI digital video is fully specified and gives superb pictures on an HDMI or DVI capable display. The performance 216MHz video DAC and Faroujda Progressive Scan deliver a stunning picture via the component output and make the DVD-1920 an ideal complement to current Plasma and LCD screens. RGB on SCART delivers the best picture for standard TVs. It plays CD, SACD and DVD-AUDIO discs, plus CDR/RW discs carrying MP3, WMA9 and MP3-VBR files, 24bit / 192kHz Audio DACs. Size is a compact 434x300x75mm. For more information, click on [www.denon.co.uk](http://www.denon.co.uk).

## CROFT ORIGINAL!

Croft's new Vita preamplifier features: a four valve circuit with three or five line inputs, with the option of a MM or MC phono stage with the former option. There's a choice of chassis, an E-A stepped potentiometer and specially selected components, all hardwired by British craftsmen using silver solder and specially selected cables. Watch out for a review in Hi-Fi World soon! For more information, call Eminent Audio on +44 (0)1902 716804, or click on [www.eminentaudio.co.uk](http://www.eminentaudio.co.uk).



## IKONIC STATUS

DALI's range of no-nonsense audiophile speakers feature the company's proprietary, hybrid high-frequency ribbon/ soft dome tweeter module and new mid/low driver unit designs, all based directly on their much more expensive Helicon and Euphonia series. The IKON series consists of the shelf/wall-hanging IKON 1 and IKON ON-WALL, the latter capable of doubling as rear-channel in a multichannel system, the IKON 2 (stand), the floorstanding IKON 5, IKON 6 and IKON 7 as well as the dedicated centre channel IKON VOKAL 1 and VOKAL 2, and finally the active 250 watt powered subwoofer IKON SUB. The speakers use, variously, a 17x45 mm ultra high-frequency ribbon tweeter with separate rear chamber, 8mm soft dome tweeter, flexible voice coil braids and magnetic oil, 4", 5", 6.5" and 12" custom-made drivers with lightweight fibre/pulp cones, low-loss suspension, strong magnet motors and airflow-optimised diecast aluminum baskets. MDF cabinetry is used, with low resonance sandwich baffles, hardwired crossovers and sturdy, gold plated biwiring terminal. Diecast aluminum feet, steel spikes and vibration-absorbing feet complete the package, along with Light Walnut or Light Oak high-grade vinyl finishes. The range starts at around £200. For more information, click on [www.dali.dk](http://www.dali.dk).

## DANCING MOOD

Black Rhodium's new Disco loudspeaker cable is claimed to transform your hi-fi through its clarity and definition. Despite of its relatively modest price, the cable is claimed to have "an impressive musical performance", thanks to "carefully chosen high quality materials and precise care and attention to detail at every stage of production". Specs include high grade 0.75mm<sup>2</sup> tinned Oxygen Free Copper Conductors insulated in Silicone Rubber 6.3mm diameter, attractive, contemporary styling. Price is £4/m, with £24 termination cost to 4mm/spades. A new, more expensive loudspeaker cable, the £25/m Salsa uses two core 19 x 0.45 Silver plated Copper Conductors insulated in Silicone Rubber 9mm diameter. For more information, call Black Rhodium on +44 (0)1332 342 233

# Walrus



11 New Quebec St, London W1

Have we got turntables? Do bears... no, forget that. Of course we have!



We don't have a problem with turntables at all (some shops seem to have - how much choice do you see in your local hi-fi store, that is if they even sell proper hi-fi any more). This venerable way to reproduce music in your home still happens to offer the most realistic sound quality of anything available today. You can spend a fortune on the latest digital components to still only get a fraction of what even a relatively modest cost vinyl front end has to offer. You probably already have the "software" for it tucked away in a corner somewhere, assuming you're not a vinyl user already. And, the best thing is, it's not going to become obsolete - you won't have to worry like the digital aficionados do about the next miracle format and having to repurchase everything again! Provided you look after them, those vinyl discs contain an almost unlimited amount of information, and as you gradually upgrade your front end, you get to hear ever more of it.

Our advice on turntable/arm/cartridge matching is second to none (provided, obviously, you purchase from us!) and our subsequent building of your turntable will ensure you get the full performance from it (we see quite a few turntables purchased elsewhere or second-hand which aren't working properly). We also don't forget about you after you walk out the door, it remains important to us to keep your deck working to your satisfaction over the years. Just thought we'd remind you that vinyl playing is still our priority!

## However...

Even we have to face the fact that more and more of (to us) people tell us they visit us for digital for analogue. Er, yes. So, we have to be very making some absolutely superb digital products example. Consonance also make some wonder-(pictured) is the latest wonder from this company. also a complete departure for this price range (the upsampling DAC and a valve output stage, all in a



you want decent digital disc spinners, and ironically players specifically because of our enthusiasm careful what we choose. The Chinese have been lately, you've all seen the success of Shanling, for full products, and the Consonance Droplet 5.0 Not only does it sound excellent, the styling is Droplet costs £1995). You get a 24 bit / 192k unit which weighs just under an astonishing 30 Kg.

But it's not only the Chinese who're making digital waves, as it were. Our own home-grown favourite, Musical Fidelity, have come out with an astonishing two box player, a new model in their acclaimed KW series, the DM 25 transport and DAC. The digital and analogue sections are both effectively "dual mono", and although you can buy the units separately, there are very few other makes you can use them with because they connect using the esoteric dual mono twin cable system, a method only one or two far more expensive units use. The outcome is sound quality well ahead of what you might expect of the price tag - both units together cost £3995. And, in case you were wondering, those things sticking out the top of the transport are levelling adjusters for the unique isolating feet, nothing more sinister!



Even when you hear them playing full orchestral music, or even rock, they are very special. Instruments sound as they were meant to, voices are utterly natural. These are a must hear design if you are a "serious" listener.

And, just a little reminder about the superb Stirling Broadcast LS 3/5a loudspeakers. Now, we know these are about as unfashionable as it gets. Modern speakers are supposed to be big, bold, full of high-tech drivers, and with a multi hundred watt power handling tag. And indeed, most modern designs are just fine for purely electronic music, where tonal accuracy, subtlety, and even soundstaging take second place to sheer grunt. For acoustic music and spoken voice, though, these BBC designed mini monitors are absolutely unparalleled.

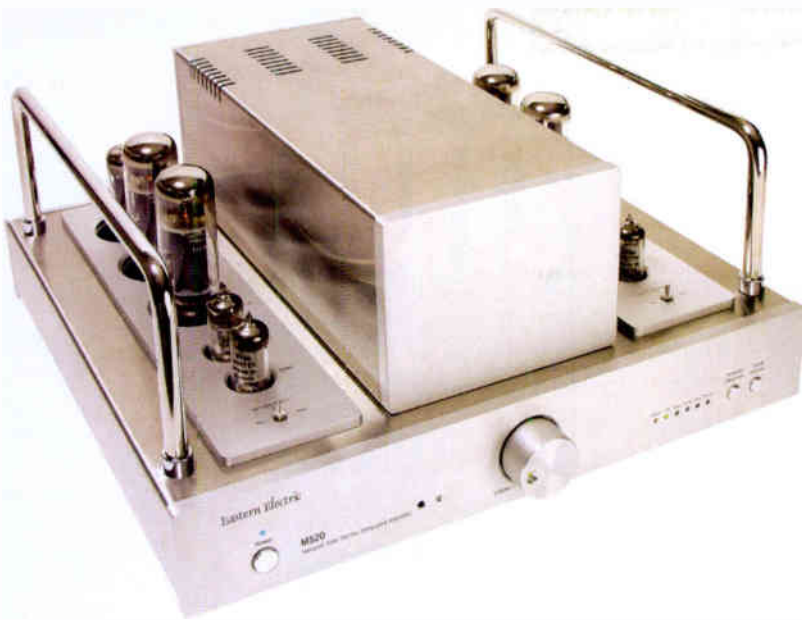


Finally, we now have the fantastic Hyperion HPS-938 loudspeakers on demo - sorry, no room for a piccie - book now for a listen.

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**WIN A FANTASTIC  
EASTERN ELECTRIC  
MINIMAX M520 VALVE  
INTEGRATED AMPLIFIER  
WORTH £1,539 IN  
THIS MONTH'S GREAT  
COMPETITION!**

**H**ere's your chance to win the superb Eastern Electric Minimax M520 valve amplifier, as tested in November's supertest by Channa Vithana; here's what he had to say:

"Eastern Electric is a joint venture between the Hong Kong based designer Alex Yeung and American Bill O'Connell of Morning Star Audio. The Minimax M520 integrated has taken its nomenclature from what Eastern Electric describes as being "inspired by the most famous Mullard 520 circuit". It is rather nicely specified, designed and built - and considering that the M520 is a new remote controlled valve integrated amplifier, it is very good value at £1,539... The Minimax has a quoted power output of 24W/8ohms in Pentode and 18W/8ohms using Ultra Linear. The Minimax can switch between the Ultra Linear or Pentode settings at the front panel or using the remote control. The Minimax powers on with Pentode by default, which indicates yellow, while the

Ultra Linear is lighted in red at the shared PE/UL LED. The all aluminium remote is a stylish affair being solidly hewn and simple to use... Measuring 412x185x415mm the Minimax is superbly constructed in aluminium and stainless steel with a very nice finish overall.

Violins had an authoritative timbre through the occasionally stark but emotionally engrossing 'Trio For Violin, Horn And Piano' by Ligeti. The horn radiated nicely into the room with very good musical timing... a pleasant surprise from a valve amplifier. The piano had wonderful tonality which was nicely deep and resonant when the appropriate keys were struck... The violins did not have a metallic edge and neither did they portray a softly diffused sweet or lush tonality either. Rather the violins were enjoyably, convincingly good with a level of neutrality that gave a balanced emotionally engrossing appeal. The languid tempo of Fleetwood Mac's 'Dreams' from the 'Rumours' DVD-A was superb on the Minimax, with a stunningly clear

treble emanating from the cymbals which illuminated a wonderful spatial quality to the rest of the musical structure. The tonality to the midrange frequencies for the drums was also really enjoyable - expressing convincing timbre that spread out across and out into the listening room. Bass lines were deep and dextrous while the melodic rhythm guitar parts had crispness adding their contribution noticeably to the musical structure.

I really enjoyed Eastern Electric's Minimax M520. It did not produce a rose-tinted 'warm', 'liquid' or 'lush' sound yet it was not clinical either. Rather as standard it was a generally well-balanced amplifier. Build quality was excellent, as was the design (two different things) and as a whole with its future valve upgradeability for the eternal tweeker, I believe the Minimax as standard is excellent value for an integrated valve amplifier of its construction and abilities. An extremely even and engaging sounding valve integrated, offering fine build and redoubtable value for money".

If you'd like to win this superb amplifier, then all you have to do is answer the following four easy questions. Send your entries on a postcard by 30th November 2005 to: **December Competition, Hi-Fi World magazine, Unit G4, Argo House, The Park Business Centre, Kilburn Park Road, London NW6 5LF.**

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- NO EMPLOYEES OF AUDIO PUBLISHING LIMITED, OR OF ANY COMPANIES ASSOCIATED WITH THE PRODUCTION OR DISTRIBUTION OF THE PRIZES, MAY ENTER

**QUESTIONS**

- [1] The M520's name is inspired by what?  
 [a] "the most famous Mullard 520 circuit"  
 [b] the weight in kilograms  
 [c] the age of the designer  
 [d] a Scottish motorway
- [2] What's the quoted power output in pentode mode?  
 [a] 24W  
 [b] 2.4W  
 [c] 240W  
 [d] 2.4kW
- [3] How did Channa describe the piano's tonality?  
 [a] "wonderful"  
 [b] "cosmic"  
 [c] "outta sight"  
 [d] "mashed up"
- [4] How did Channa describe the basslines?  
 [a] "deep and dextrous"  
 [b] "weird and wonderful"  
 [c] "hail and hearty"  
 [d] "wind and wuthering"

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**SEPTEMBER 2005 STAX SRS-4040 EARSPEAKERS WINNER:  
 Galya Etchells of Thornton Heath, Croydon**

# Chinese burns

Everybody's talking about the new wave of Chinese hi-fi, ripping through the European audio market like a forest fire, thanks to its interesting, idiosyncratic design and superb perceived value. But it's not all sweetness and light, as there's a lot of rubbish around too. John May, however, thinks Shanling's CD-T80 CD player shines brightly...

**T**he first thing that usually strikes a reviewer upon receiving something new to audition is the weight! I'm still surprised by the biscuit-tin build of many of today's so-called high-end players, some of them quite expensive. I'm happy to say that straight away the Shanling CD-T80 impressed, weighing 9kg, and measuring a respectable 430x82x370mm. The first surprise I was greeted with upon opening up the box was a black and brown speckled cobra coiled up amongst the packaging, sound asleep! Upon regaining my cool some moments later I happened to notice that this snake had an MK plug where its head should be! Yes the Shanling comes with an 'audiophile quality' mains lead as standard, and a very substantial one at that. Nothing is said about

this in the manual, though it appears to be constructed from pretty thick gauge OFC copper cable, and is shielded to keep any RFI nasties out.

The next surprise was the rather hefty remote control. No plastic fantastic parts-bin jobby this one, but proper metal guv'nor – hoorah! It's also the first remote I've ever encountered that comes complete with its own Torx screwdriver which must be used to take off the back panel to insert the batteries. Perhaps a little over the top but it still instils a sense of pride of ownership all the same...

Finish is of a very high standard for the price. The front panel is a very sturdy 11mm thick brushed aluminium slab containing the basic transport controls to the right, a centrally mounted transport tray, and the standby power button to the left.

The sides and back panel are again aluminium, with a thick aluminium top plate securely fastened to the top of the deck using eight hex-head screws. When lightly rapped with the knuckles it exhibited a satisfyingly dead 'thrum' that bodes well for vibration control at least. Not too sure about the rather garish LEDs on the front panel, but the mirror-finish LCD display is undeniably funky and works well. The display is also dimmable, if you think that makes a difference.

Around the rear of the Shanling are found some of the sexiest phono sockets I've seen to date (well... we all have our fetishes!) [less said the better, JM – ed.]. These are produced by CMC USA and appear to be pretty expensive items. We have the usual Left and Right phono sockets, plus a third for S/PDIF digital out.





In what is becoming quite common practice these days the on/off rocker switch is also located on the back panel next to the IEC input socket. This ensures that the Shanling is always warmed up, with the standby switch on the front fascia switching off unnecessary front panel LEDs and displays when the unit is not in use.

Curious about the weight of the CD-T80, and impressed by the build quality I decided to take a peek inside to see if this care and attention extended to the internal gubbins. Well, no complaints here either. I was immediately taken with the neat layout and quality construction. Of particular note are the impressive potted power transformer on the left of the transport mechanism which accounts for a fair share of the Shanlings 9kg. Also of note is the fact that the Philips CDM12.10 transport mechanism is itself housed in an aluminium enclosure, affording additional electrical shielding and mechanical damping of the delicate transport within. Such attention to detail is rarely found on CD Players with a 4 figure price tag, let alone a mere £650 machine! I was impressed to say the least.

Component quality is equally high with low-ESR Rubycon types taking care of the power supply side of things, with Nichicon 'Gold Tone' and 'Fine Gold' capacitors vying for attention elsewhere. There is also a pair of high quality film capacitors in the output section rather than the more often used but sonically inferior electrolytic types. The output stage is a delight as it features Hi-Fi World's favourite amplifying devices – valves! In this instance there are a pair of 6N3 dual triode valves on output duty.

I have a sneaking suspicion that Shanling are inveterate tweekers, for the high quality OPA2604 op-amps are housed in sockets, making them removable! This is a real bonus as it allows the owner to substantially upgrade the sound with more expensive op-amps as/when funds allow. The valves can of course also be exchanged for higher quality items (see box). More attention to detail is evident from the shielded cable with runs from the phono sockets to the circuit board – Shanling are obviously on a mission to eradicate as much RFI interference in this design as humanly possible. Even the CD-T80s feet deserve a mention, as each rest on three semi-spheres of rubber, which look not unlike those pictures of UFOs from the late nineteen fifties. Again this should bode well for



vibration control and – so the theory goes – the resultant sound quality.

### SOUND QUALITY

Most equipment needs a few days warming up to sound its best, but even from cold I could tell the CD-T80 was something special. This thing loves music – with a passion! Slipping in a CD of Neil Young's 'Decade' I was floored by the extremely life-like sounds vibrating their way out of my superb reference Mission e82 speakers. It was the effortlessness of the sound that caught my attention from the outset. The sense of acoustic space was holographic – here's a player that has the ability to transport the venue into your listening room, or you to the venue! (Depends what you're drinking or smoking at the time I guess!) The natural decay of crisply plucked guitar notes was also something you rarely hear from your average 16bit spinner. Everything just hung together perfectly and – most importantly – kept the feet tapping throughout this CD. To be honest it sounded more like SACD than ye olde 16bit. Impressive.

Something I found out early on is that the 24bit Upsampling functionality of the Shanling must be left on. Switching it out via the remote control results in a 'shutting' in of the sound, a loss of top-end sparkle and the CD-T80 starts to sound like any other moderately capable CD spinner, but with a peculiar lifeless quality about it. Needless to say I left it on for the remainder of the listening sessions. Moving onto slightly more modern

fare, I thought I'd try the Shanling out with a few tracks from Unkle's debut CD, 'Psyence Fiction'. This is a very 'busy' mix, and it takes a decent system to unravel all the different threads and present them in a coherent fashion. The Shanling handled this CD without ever breaking into a sweat. Such was the insight offered into the recording one could tell the individual sound quality of each sample used, whether the vinyl it had come from was old or new, had surface noise and so forth. However this analytical quality was presented in a natural and unforced manner. The Shanling can also boogie with the best of them, which was evident from 'The Knock (Drums of Death Part 2)'. This can sound messy and confused on even pretty good CD players, but the Shanling managed that rare trick of pulling you into the music as if you'd heard the track for the first time again.

We've all got them – those

### VALVE ROLLING

While the performance of the stock CD-T80 is undoubtedly something very special, there's always room for a bit of tweaking! The most obvious area for experimentation is the 6N3 output valves. Unfortunately the stock items had no clear markings on them so the manufacturer remains a mystery. Must users report an improvement when using quality NOS types over modern examples. Generally speaking manufacturing tolerances used in some of the older valves were a lot tighter than they are today, though there are undoubtedly some fine values being manufactured today. The GE 'Black Plate 2C51/5670W is considered by a fine replacement for the 6N3 in the Shanling, as is the Western Electric 369A. Prices vary widely – anything from £5 - £50 each! - so it pays to shop around using the internet. Happy tweeking...

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cheap bargain bin CDs you bought and played once, as the quality was so bad. In this instance the culprit was Toots and the Maytals 'Greatest Hits' CD on the Metro label. I was quite startled at how much musical enjoyment the Shanling managed to wrestle from this poorly recorded CD. For the first time the sound had depth to it, and it actually sounded like real instruments being played rather than tinny simulacra. Here is a player that absolutely excels at tonality and instrumental timbre.

Like a good stylus on a worn record, the Shanling seemed to cut through the crud and get right to the music buried within. I'm not entirely sure how much of this is due to the upsampling, and the valve output stage, but whatever the explanation the CD-T80 was performing miracles with even bad sounding discs. However this didn't appear to be a form of colouration or other devious form of trickery, it was just gathering more information off of the disc than usual and getting this out of the player through a first class output stage. Hearing a player like this reminds you how processed other CD players can sound (more of this in the proceeding group test).

Turning to a bit of classic funk in the shape of 'Easing In' by Edwin Starr had me nodding my head up and down like some reject from the Churchill Dog advert. Yes this thing can really get down and shake some serious booty folks and will have you doing the same. It had a very fluid and – dare I say it – analogue way with this track, very similar to a Linn LP12 in fact. Drums had real rhythmic snap – timing was spot on. Vocals were as smooth as silk – no hint of the digital grain demon here. Bass was deep and extended, not quite as seismic as my Naim CDI but I'd wager a little more controlled.

**CONCLUSION**

Shanling's CD-T80 is a special sounding player. The way it imbues

life and soul into just about every disc you care to play through it is really quite addictive. There wasn't one disc I played which tripped the Shanling up, and believe me I tried. Clutching at straws, and it hasn't got quite the adrenaline pumping leading edge attack or seismic bass of a Naim – for example – but other than that I have nothing but praise for the CD-T80.

"the way it imbues life and soul into just about every disc you care to play is really quite addictive..."

With some brands, one gets the feeling that their 'budget' machines are deliberately stripped down to avoid affecting sales of their pricier products. However with the CD-T80 one gets the impression that Shanling have pulled out all the stops to give you the best value for money possible; witness that audiophile mains lead which would be an optional extra with any other brand, and metal remote control; whilst tuning its performance to give as even-handed performance as possible whatever the musical style.

This isn't just a bunch of parts thrown together into a metal case – there's evidence of proper voicing going on here. The rock solid build quality, plus the fact the op-amps and valves can be upgraded if the user wishes it, is the icing on the cake.

Shanling could have asked £1,500 for the CD-T80 and it would still be something of a bargain. With machined-in lettering on the front panel instead of the screen-printed lettering, some fancy blue LEDs and upgraded valves they could ask £2,000. As it stands at £650, it's the new standard bearer at this price point, and a firm five globes to boot.

**VERDICT** ●●●●● £

Beautifully built and voiced product that offers true value for money, and an 'embarrassment of riches' for the money too.

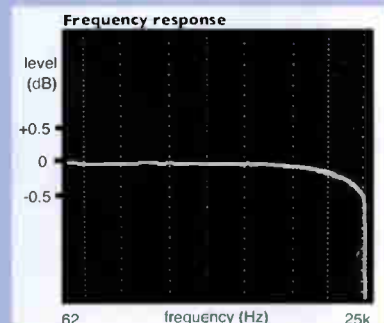
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**MEASURED PERFORMANCE**

The valve output stage worsens distortion figures at full output (0dB), but analysis showed this was due to second harmonic alone, which is aurally innocuous. This component is visible in our -30dB analysis. As level decreased so did distortion, until at -60dB the CD-T80 was returning the same measured result as any good player - around 0.2% total harmonic distortion. The EIAJ Japanese dynamic range test result reflects this in a high 111dB figures.	-6dB	0.14%
	-60dB	0.22%
	-80dB	9%
There's a little hiss, at an inaudible level, and this worsens the -80dB distortion result.	Separation (1kHz)	90dB
There was a lot of non-signal related jitter - 300pS peaks - that looked like the impact of random low frequency noise on the digital signal. Although re-clocking can minimise this, the result should have been better.	Noise (IEC A)	-97dB
Frequency response rolls down gently at high frequencies, a characteristic that will help toward an easy, smooth and cohesive delivery.	Dynamic range	111dB
The CD-T80 will sound smooth and easy, likely open and detailed too. NK	Output	1.83V



Frequency response (-1dB)  
4Hz - 21.2kHz  
Distortion  
0dB  
0.28%



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# Number Crunching

Just a few years back, it looked like the new so-called 'high resolution' formats like DVD-Audio and SACD looked set to render the humble old 16bit Compact Disc player a thing of the past. Interestingly though, music buyers are sticking with CD and there's a wealth of talent out there for sub-£1,000 CD player buyers. In this month's group test, John May put six of the best against his new fave rave, the Shanling CD-T80, with interesting results.



COMPACT  
disc  
DIGITAL AUDIO



## CAMBRIDGE AUDIO 640c V2 £250



**T**his latest variant of the Cambridge Audio 640c reviewed here boasts a fine pedigree, coming as it does from a well-respected company that has been around since 1968 in one form or another. The metal remote deserves a quick mention here as it's so well made and laid out. It has a lovely weight to it and feels like a part of the overall design of the package rather than a cheap afterthought. Vital statistics are a rack-friendly 430x310x70mm, weight is 4.6kg. The case is well screwed together, attractive, and has even been acoustically damped. The Azur 640c V2 takes engineering cues from the forthcoming high-end player, the Azur 740C. It employs a pair of 24bit/192kHz WM8740 DACs from Wolfson implemented in dual differential configuration on a perfectly symmetrical circuit board. Cambridge Audio also use their new proprietary Four Pole Double Virtual Earth Balanced filters. A toroidal transformer is used for the power supplies, employing separate supplies for the D/A converter circuits, audio filter and regulator stages. On the rear are found the usual left & right analogue outputs, plus Control Bus inputs & outputs suitable for multi-room entertainment systems.

### SOUND QUALITY

Listening kicked off the soundtrack to 'Raiders of the Lost Ark' by John Williams. I was impressed with its crisp sound and confident handling of this bombastic soundtrack. Compared to the pricier players here it suffered from a touch of upper-midrange hardness, but it rarely intruded. On some of the most frenetic tracks the Azur could become a little confused, but despite this orchestral dynamics were generally very well handled and resulted in a

suitably dramatic presentation of the soundtrack. Treble in particular had a nice sparkle to it and really brought things alive. Sound staging and imaging were also of a very high order. The performance as a whole was very even-handed and civilised.

Moving to Moloko and 'Familiar Feeling', and I was impressed by its taut and well-controlled bass performance. It really kicked some and propelled the song along at break-neck speed, resulting in a highly engaging listening session. Detail retrieval was also suitably impressive with every little studio trick being faithfully relayed to the speakers. Whilst not quite up there with the best here, it really wasn't too far behind especially taking the price into consideration. If I didn't

know the price I'd be easily fooled into believing this is to be a more expensive machine. The humble Azur actually came pretty close to the Cyrus and Musical Fidelity in terms of its neutrality and openness. They all possessed a similar type of sound, undoubtedly down to using similar chipsets.

I would characterise the sound of the Azur as being slightly on the dry side of neutral. I missed the sweetness and purity of the Shanling's treble, but considering it's nearly three times the price it managed very well indeed. If you're on a tight budget there's little around to touch it at present; and it's to its eternal credit that it held its head high in far more exalted company. Another winner from Cambridge – outstanding value.

### MEASURED PERFORMANCE

Frequency response, shown in our convoluted impulse analysis, is clearly very flat across the audio band, unusual for a UK designed player, but much like the Musical Fidelity A2.500. This will give the 640c-S a fairly bright balance, and may make treble quite noticeable. It can also enhance apparent detail and - surprisingly - give what seems to be tighter bass.

Distortion levels throughout the entire dynamic range were low, our analysis showing just 0.0039% at -30dB. This is as close to the best possible. The figures were equally impressive at -60dB when just 0.2% distortion was measured. A relatively high EIAJ dynamic range value of -111.5dB was measured, comparable with the best.

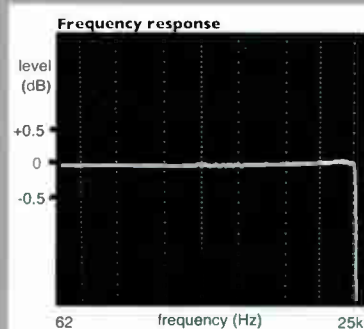
Some signal related digital jitter showed in the digital domain, measuring 30pS on a -20dB sweep. This is low, however.

The Cambridge CD640c-S measures well. It will sound bright in balance, although likely detailed and fast. NK

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

Distortion  
0dB 0.0005%

-1dB	0.0005%
-30dB	0.2%
-60dB	4.3%
Separation (1kHz)	124dB
Noise (IEC A)	-114dB
Dynamic range	111.5dB
Output	2.3V



**VERDICT** £  
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PRIMARE CD21 £800



When I finally take it out of the case, I'm greeted by a firm, heavy, metal button count (non plastic as well!) and crisp green display of the Primare CD21. It was also one of the weightier players in this test at a quoted 10kg. The case itself is a heavy gauge steel alloy chassis. Like the Shanling it has a slightly larger footprint than usual at 430x385x100mm. The Primare features an advanced "Ultra Silent" DVS transport mechanism. From this the SPDIF signal is fed to a low jitter DIR1703 digital receiver. Interestingly Primare eschew upsampling circuits citing colouration as the reason. Digital to Analogue conversion is handled by two Burr Brown PCM1738 24bit/192kHz configured in an internally balanced topology that performs a THD cancellation process. Surface Mount Technology (SMT) is used extensively to keep signal paths as short as possible. Parts quality is high with Rubycon caps used extensively and high precision metal film resistors. The power supply features a high quality R-core transformer with eight separate windings for all functions.

**SOUND QUALITY**

I found the Primare to be a rather cool sounding device. Despite a generous warm-up period it failed to gel or engage my attention when fed with Moloko's 'Familiar Feeling'. Detail retrieval was quite remarkable – but it just seemed so matter-of-fact I found my attention wandering. The laid back Soul of Marvin Gaye on his 'What's Going On' CD suited the Primare better. There was an expansive acoustic that really caught my attention. Brushed cymbals

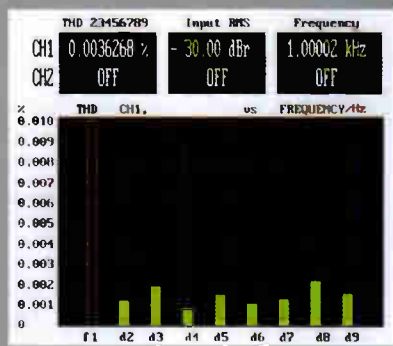
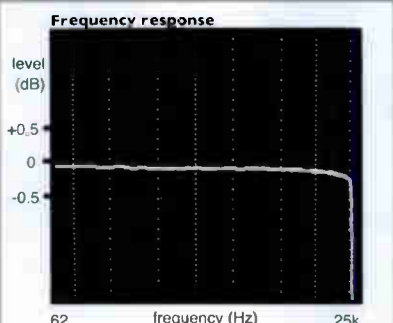
and snare drums on 'Flyin' High' sounded exquisite. Little tinkles of triangles in the mix were captured with deceptive ease and brought the track to life. Bass was reasonably well extended and controlled, but not in the same league as the Shanling or the Quad. Piano also had a satisfying weight to it, and a nice sense of existing in a real life venue rather than sounding artificial. Classical, in the shape of 'The Rite of Spring' on the Naxos label, seemed to suite the Primare down to the ground. Instrumental separation was superb, as was the sense of drama and primordial ferocity in some of the more dramatic moments in this piece.

The scale was impressive, but again I still felt that the sound was struggling to really break free of the speakers and blossom. I'm afraid that no matter what genre of music I auditioned in the Primare it never really grabbed my attention in the same way the Shanling or others did. I could see it going down a storm with fans of classical, and there's no denying the first-class build quality and finish, but ultimately compared to others in this test it just failed to engage on an emotional level. Good looks and solid build are let down by a rather cold and detached performance. Well worth auditioning for classical music lovers, others look elsewhere.

**MEASURED PERFORMANCE**

The Primare has an even frequency response that stretches from 2Hz to 21.1kHz with little variance. It is not alone in this by any means, but it is set apart from these players with falling treble for a softer and more cohesive sound. Although the case work has a symbol representing a valve stamped into it, this is an all-solid-state player. The distortion figures are one give away, especially at peak level (0dB) where a figure of 0.0008% is too low for a valve. The CD21 was very linear throughout the dynamic range of CD, being up with the best in this respect. In spite of Primare's claims for low jitter, the digital output possessed far more jitter than is common via SPDIF, a broad peak at 10kHz reaching 150pS. Internal re-clocking before the analogue output should minimise its impact through the analogue outputs though. With low noise, wide channel separation and good EIAJ dynamic range the Primare otherwise measures well in all areas. **NK**

-60dB	0.18%
-40dB	5.6%
Separation (1kHz)	127dB
Noise (IEC A)	-110dB
Dynamic range	111dB
Output	2.05V



**VERDICT** £  
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AUDIO REVIEW Italy, July 2004, Claudio Checchi

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'affordable reference amplifier'. With  
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HI-FI NEWS and record review, July 2004, Ken Kessler

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Excellent finish and build quality makes  
for a package strong on value."**

HI-FI WORLD, August 2004, Dominic Todd



# PrimaLuna

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## NAIM CD5i £825

**T**hough this is the entry level CD player in Naim's range, it is still built to a higher standard than most. From the textured black finish of the diecast zinc and extruded aluminium casework to the stylish backlit Naim logo, to the 'old skool' style dimmable display. It just screams quality. The transport is a Philips VAM1202/12 type, which is housed in a low resonance swing-out drawer and uses a low inertia resonance controlled magnetic puck to hold the CD in place – no cheap flimsy plastic trays here so you get a feel of real value for money. Replay & control software is the same as that used in the considerably more costly CDS3. The DAC used is the multibit UDA1330 - Naim believe that DAC choice is not the be all and end all of getting great sound from CD. The implementation is just as – if not more so – important. The power supply is also of primary concern to Naim and the CD5i uses a good one. SMT parts rub shoulders with through hole parts for maximum sound quality. The rear panel offers the usual 5-pin DIN socket for audio out, as well as a pair of gold-plated phono sockets. There is no digital output of any kind, Naim feeling that these compromise sound quality. Vital stats are 70x432x301mm, 8kg.

### SOUND QUALITY

I started listening to the Naim CD5i with Jack Johnson's 'On and On' CD and was immediately taken by the exceptionally crisp and upfront presentation. It's something of an over-used reviewers' cliché these days, but it sounded like Jack was in the room if I closed my eyes. The speakers melted away. It was difficult to concentrate on those typical hi-fi details one is supposed to

write about, and not just put pen aside and listen to the entire album. Bass was very tight and tuneful but – surprisingly – I felt a little on the lean side for a Naim and not as extended as I was expecting. Sound was very clear indeed, like live music. This was highlighted by the wonderful rendition of 'Taylor'. The close-miked guitar sounded so convincing and 'solid' I wondered if you'd really want for anything else.

Moving to a busier mix, I inserted Moloko's superb 'Statues' CD into the CD5i and played the first track, 'Familiar Feeling'. Again I was greeted with an extremely clear and 'tidy' presentation of the music, but one which 'breathed' and allowed it to ebb and flow, resulting in an

intensely exciting and edge-of-your-seat listening experience. Being picky there was perhaps a bit of a sting in the tail in the treble, compared with the reference Shanling, and the midband wasn't quite as open at times, but it definitely had more get up and go. The sound from the multibit converters definitely made for an exciting listen however, though with classical some of the refinement of the others here was missed. Listening to music on the CD5i is an addictive pastime; there's no doubting that as far as value for money is concerned the Shanling offers more, but if you're in the market for a CD player which brings the music on your silver discs alive then it's an essential audition...

### MEASURED PERFORMANCE

The CD5i differs greatly to the norm in just about every area. Frequency response shows unusual anti-alias filtering that peaks the response at 10kHz by 0.1dB, introducing stronger attenuation thereafter. The upper 1dB limit is a good 20.6kHz all the same. The CD5i will sound obviously a bit bright due to the peak.

Distortion figures were worse than usual as Naim use an old multi-bit converter to in order to get a sharper sound. It produces a slew of quantisation noise components our spectrum analyser showed. The distortion analysis show harmonics only where 5th dominates. This will help sharpen the sound.

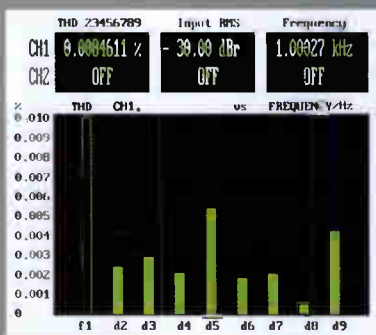
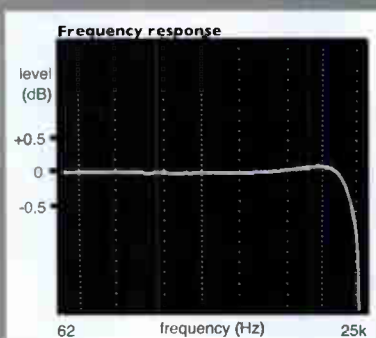
Channel separation, noise and dynamic range values were all satisfactory, but below what is possible nowadays. With no digital output it was impossible to measure jitter.

The CD5i has been built from the ground up to have its own sound. Measured performance is compromised as a result. NK

Frequency response (-1dB)  
2Hz - 20.6kHz

Distortion  
0dB 0.0035%  
-6dB 0.0028%

-60dB	0.43%
-80dB	5.2%
Separation (1kHz)	99dB
Noise (IEC A)	-99dB
Dynamic range	105dB
Output	1.94V



### VERDICT

NAIM CD5i £825  
Naim Audio Ltd  
+44 (0) 1722 332266  
www.naim-audio.com

### FOR

- brings music to life
- looks and build
- rhythmic ability

### AGAINST

- slightly course sounding

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## MUSICAL FIDELITY A3.5 £999

**H**ere's an upscaling machine in many ways with its 10.8kg weight and 440x100x395mm size. Finish is generally to a high standard. The front panel is undeniably stylish, but the simple one-piece sheet metal cover is a bit of a letdown considering the price. My other gripe was perhaps the noisiest disc tray I've yet encountered! The A3.5 is a true 24bit 96kHz upsampling CD player. Internal construction is neat and tidy, with a very small main circuit board compared to others in this test. The mechanism is a Philips sourced unit. A fairly small toroidal transformer provides the juice, along with five solid-state regulators. DAC duties are carried out by a Burr Brown PCM1738 24bit/192kHz chip with Advanced Segment DAC architecture. Upsampling is carried out by a Crystal CS8420 chip, which lifts the 16bit/44.1kHz to 96kHz.

## SOUND QUALITY

Upon listening to the A3.5 I was surprised how similar it sounded to the Cyrus CD8x. You'd be hard pressed to tell the two apart in a blind listening test! Essentially it affords an extremely clean and natural presentation of whatever is played through it, but never strays into sounding clinical or lacks emotion. Particularly noticeable is a total lack of any sense of digital 'hash', which contributes to a very open and almost analogue-way with music and vocals. Listening to Erykah Badu's 'Bump It' I was taken by the smoothness and clarity of her voice. It was very valve-like, but not quite as liquid as the Shanling with its valve output stage. The voices on 'The Grind' from the same CD also excelled, the A3.5

clearly differentiating between each individual singer and keeping all the other musical threads intact with ease. Kate Bush likewise sounded quite sublime through the A3.5 with her 'Kick Inside' CD. There was a slight touch of treble peakiness, but it rarely intruded. Rhythmic abilities were great – there was a real 'snap' to the music that kept my attention from wandering, and it majored on low-level resolution, unearthing details I'd never really noticed before. It didn't get into the groove quite as well as the Naim, the Quad or the Shanling, but still had the ability to do justice to dance music and rock alike.

Perhaps unsurprisingly (Musical Fidelity superno) Anthony Michaelson is a great fan of classical music and indeed plays the clarinet skilfully, so the Musical Fidelity excelled with Classical music. Playing 'The Rite of Spring' resulted in a truly dramatic listening experience. Most importantly the individual characteristics of each instrument were present and correct, and resulted in a believable and heady rendition of this piece. An exceedingly pure and refined performer then, whose outstanding clarity and emotive sound especially good with classical music.

## MEASURED PERFORMANCE

The A3.5D has unusually sharp anti-alias filtering, our convolved impulse analysis shows. It introduces a slight rise in output toward high frequencies, which is likely to result in quite a bright, sharp sound, albeit one with apparent precision and detail. This player certainly won't sound dull, that's for sure, but Musical Fidelity tend to err in this direction with their less expensive products.

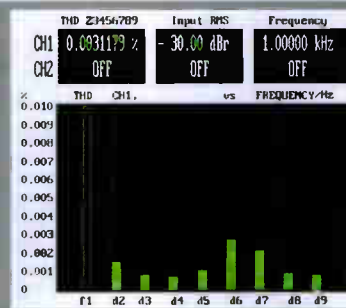
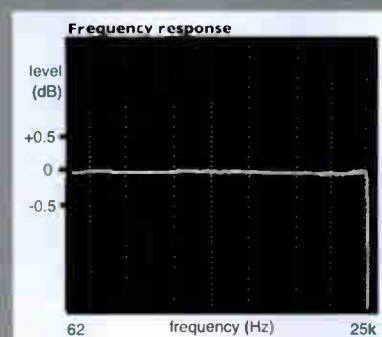
Linearity was good throughout the player's dynamic range, measuring 0.0035% at -30dB – a typical music level – and the spectrum can be seen in our analysis. The figure rose to 0.2% at -60dB, which is relatively low for CD, whilst a dithered -80dB signal came in at 1.8%, again low. So this player produces little distortion and is up with the best. Not suprisingly it returns an EIAJ dynamic range value of 111dB.

Although measured performance was all but identical to the Cambridge and Cyrus players, jitter on the digital signal was considerably higher. Musical Fidelity said re-clocking eliminated this and took the player back before we could conduct further tests.

The A3.5CD turns in a tidy set of measured performance figures, jitter apart. It will, these measurements suggest, have fairly bright sound. NK

Frequency response (-1dB)  
CD 2Hz - 21.4kHz

Distortion	
0dB	0.001
-6dB	0.0015%
-60dB	0.2%
-80dB	4.3%
Separation (11 Hz)	108dB
Noise (IEC A)	-115dB
Dynamic range	111dB
Output	2.1V



## VERDICT

MUSICAL FIDELITY  
A3.5CD £999

Musical Fidelity  
+44 (0) 20 8900 2866  
www.musicalfidelity.com

## FOR

- pure and even-handed sound
- dynamic ability
- great with vocals

## AGAINST

- noisy disc tray

## QUAD CDP-2 £1,000



**Q**uad's latest top-of-the-range silver disc spinner was well received by editor DP recently. In typical Quad style it bucks established design trends and goes for a unique look. Most impressive is the casing that – like the Cyrus – is a casting and looks very stylish indeed. Finish is also of a high standard and the unit as a whole looks sophisticated and uniquely 'Quad'. Measurements are 80x321x310mm, 7.2kg. As David mentioned last month, the CDP-2 makes use of a new bespoke transport, based around the VAM2202 mechanism. They have also reprogrammed a CD10 servo-decoder chip, dubbed the 'Lazy Servo'. Designed in consultation with Jon Green, one of the leading figures from Philips' CD transport division, the end result is about as close as you'll get these days to the legendary performance of the Philips swing-arm CD transports of yore. Unlike many other manufacturers these days who often use DVD or CD-ROM drives it is commendable that Quad have designed theirs from the ground up, and then only for the express purpose of reading the data off red book CDs as accurately as possible. DAC conversion is handled by a 24bit/192kHz Crystal Delta-Sigma DAC with x2 oversampling. It has fixed and variable outputs, plus three sets of optical and S/PDIF inputs meaning it's highly flexible.

## SOUND QUALITY

Quad products have often been regarded as appealing to the 'pipe and slippers' brigade, but nothing could be further from the truth with the 99 CDP-2. This player can rock with the best of them. In fact I was taken by surprise by this little gem, as its performance with Moloko's 'Familiar Feeling' was funkier than with the Naim CDSi! In fact the Quad sounded nearer

to my reference Naim CD! than the CDSi – crazy! My attention was drawn to the bass which sounded slightly overblown, but was undeniably capable of delivering superb subjective results. It really provided a solid foundation for the superb crystal clear mid-band and smooth yet detailed treble. The sound wasn't quite as open as some of the others here – notably the Musical Fidelity, Shanling and Cyrus – but still allowed the music free reign. Vocals sounded silky smooth and grain free.

Listening to Jack Johnson's 'Times Like These' resulted in a more laid back presentation than the Naim, but one that was – I felt – truer to what existed on the actual disc. With the Naim he was practically sitting on your lap, whereas with the Quad one

was more aware of space around the performer and the general ambience of the room. That said, I did miss the excitement of the Naim somewhat. Trying the 'Raiders of the Lost Ark' CD next I was aware of a more well rounded presentation of the music than the other players. It was also slightly less open sounding than the others here. An accomplished performer by any standards, I still found myself missing the extra degree of insight afforded by some of the other machines here. The Quad is a fantastic 'compromise' between the punchy and upfront sound of the Naim, and the more ultra-neutral performance of the Cyrus and Musical Fidelity. For rock and dance music in particular there's little to touch it at the price.

## MEASURED PERFORMANCE

Our convolved impulse analysis showing frequency response clearly reveals a lift toward low frequencies, plus a small amount of shelving at high frequencies. Put together, these characteristics will provide the CDP2 with a full bodied sound a good sight warmed in nature than usual - never a bad thing with CD.

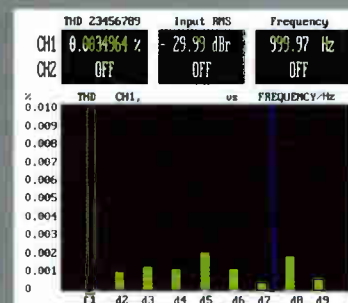
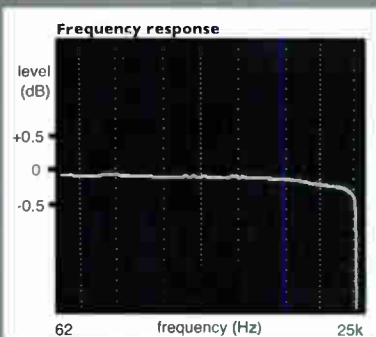
Distortion levels throughout the entire dynamic range were amongst the best, our analysis showing just 0.0035% at -30dB. This is a low value, and results were equally impressive at -60dB where just 0.2% distortion was measured. This helped toward a high EIAJ dynamic range value of -112.5dB, which is as good as it gets. So the CDP2 will gain no undue harshness from non-linearities.

Jitter was minimal across the audio band, with peaks no greater than 10pS. Again this is a good result, one that contributes to an easy delivery.

The CDP 2 measures well in all areas. It will sound full bodied and smooth, possibly quite atmospheric. NK

Frequency response (-1dB)	
4Hz - 21.25kHz	
Distortion	
0dB	0.00095%
-6dB	0.002%

-60dB	0.2%
-80dB	4.3%
Separation (1kHz)	115dB
Noise (IEC A)	-112dB
Dynamic range	112.5dB
Output	2.4V



## VERDICT

QUAD CDP-2 £1,000

Quad Electroacoustics Ltd.

☎ +44 (0) 1480 447700

www.quad-hifi.co.uk

## FOR

- awesome rhythmic ability
- dramatic bass delivery
- see-through midrange

## AGAINST

- nothing



## CYRUS CD8x £1,000



**T**he Cyrus CD8x is a stylish looking machine. Cyrus are almost unique in realising the benefits of using diecast alloy enclosures, in addition to looking superb, such attention to detail results in a non-resonant enclosure and is also effective at screening the internals from RFI. The CD8x measures a diminutive 78x215x360mm, weighs 3.5kg and is available in both silver and black. It's very cleanly laid out, with a lovely green back-lit LCD display, minimal button count and a thankful absence of any tacky screen printed legends. The transport is a triple-beam type and the CD8x uses dual balanced differential 24bit DACs in tandem with a high precision quartz anti-jitter circuit which re-clocks the digital signal and results in fewer timing errors. The unit is powered via two toroidal power transformers with specially selected reservoir capacitors and power regulators. Further improvements may be wrought (for a price) by the addition of the PSX-R external DC power supply at a later date. The new copper and silver bottom also deserves a mention, providing additional electro-magnetic shielding from outside disturbances.

## SOUND QUALITY

My time with the Cyrus CD8x got off to a bad start open pressing the Eject button, in the shape of a rattly plastic disc tray! Surely for £1,000 one deserves better than this? Thankfully the sound quality more than made up for any cosmetic or ergonomic foibles. The CD8x is probably the most even-handed performer here. No matter what I played through it one got the sense you were getting exactly what was recorded on the disc – nothing added nothing

taken away. Listening to the second movement of Debussy's 'Le Mer' I was greeted by a panoramic window onto the performance. Low-level resolution was quite superb, as was its sense of depth. It became evident from this piece that the little Cyrus has a flare for the dramatic. Strings on this peace were exceptionally pure and never became shrill or pinched sounding when the going got tough. Music just blossomed out of the speakers without any hint of strain. Orchestral crescendos were thrilling to listen to, and kept my attention riveted throughout the entire piece. Treble was neutral (although not clinical) without the slight warmth to the sound that the Shanling imparts.

Moving onto Lamb Chop and their classic 'Nixon' CD revealed more of the same as far as sheer musical involvement and glass-clear reproduction were concerned. This disc did however highlight a slightly dry bass performance in comparison with the Shanling and the Quad, but other than that the performance was beyond criticism. I'd say that of all the players on test here the Cyrus was just about the most neutral, though the Musical Fidelity came pretty close and – to a lesser extent – the Cambridge Audio and Shanling. To those that are solely concerned with getting the most from their discs the Cyrus deserves a definite recommendation; the superb build and style is a bonus.

## MEASURED PERFORMANCE

Frequency response of the CD8x is all but identical to the Cambridge Audio Azur 640C-S, and unlike earlier Cyrus players. It has a wide, flat frequency response out to 21.2kHz, with just a slight lift above 10kHz. As CD players go this is an unusual characteristic, favoured most notably by Sony in the past. It usually gives a bright, fast, detailed sound but also one that can seem glassy and hard. Musical Fidelity's CD3.5 is very similar.

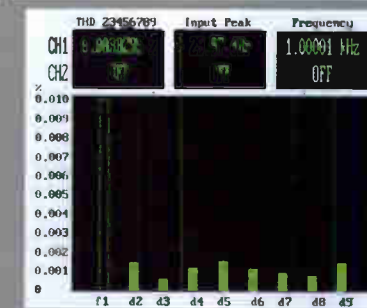
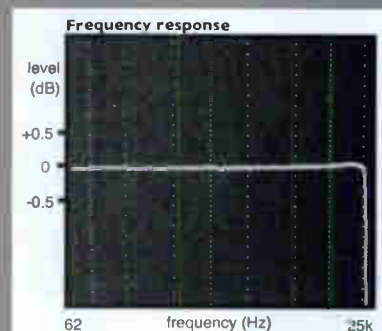
The distortion figures are very good through the entire dynamic range of the player and again look much like those of the Cambridge and Musical Fidelity products. The -60dB result is a low 0.21% which results in an EIAJ dynamic range value of 111dB.

There was no measurable jitter on a -20dB sweep.

The CD8x measures well in all areas, with broad frequency response and low distortion. Plentiful output at high frequencies will likely give it a bright sound, very much like the Musical Fidelity A3.5 and Cambridge Audio Azur 640C-S. NK

Frequency response (-1dB)  
2Hz - 21.2kHz  
Distortion  
0dB 0.0003%

-6dB	0.0005%
-60dB	0.21%
-80dB	4.6%
Separation (1kHz)	125dB
Noise (IEC A)	-110dB
Dynamic range	111dB
Output	2.2V



**VERDICT** **£**  
CYRUS CD8X £1,000  
Cyrus Audio Ltd  
+44 (0) 1480 435577  
www.cyrus.co.uk

**FOR SUPREMELY MUSICAL**  
- even-handed performance  
- upgradeable

**AGAINST**  
- cheapo disc tray



**Hi-Fi World** writers have extensive audio industry experience - from designing the best valve amplifiers, engineering bespoke pro audio installations and mastering digital discs to classic and modern hi-fi retailing. No other magazine has such a diverse wealth of editorial talent. No other magazine is able to combine the new and the old, the classic and the modern, the affordable and the expensive, the raw and the cooked, with such authority:

**DAVID PRICE**

A passion for music from an early age got DP hooked on hi-fi. His writing career began in 1990 with *New Musical Express*, and after writing for *Hi-Fi World* he joined the Doors team at *The Sunday Times*, and now edits the Home Entertainment section of *The Month* alongside this magazine. A compulsive record collector, vinyl is David's favourite tipple, and he's crazy about classic audio too - as his encyclopaedic knowledge of Japanese high end attests.



**NOEL KEYWOOD**

A leading technical journalist, his rigorous reviewing - informed by empirical measurements - has made an indelible impression on the UK hi-fi scene. After editing *Hi-Fi Answers* in the 1970s and contributing to *The Flat Response* and *Hi-Fi Review* in the 1980s, Noel went on to launch *Hi-Fi World* in 1990. His challenging approach has famously seen him expose digital audio's technical failings, and champion the cause of his beloved valve amplifiers and high sensitivity loudspeakers.



**DOMINIC TODD**

Working in hi-fi retailing since 1991 - at all levels including sales, management, purchasing, training and marketing - has given DT a forensic knowledge of modern audio and video equipment. Living at the 'coal-face' makes him brilliantly placed to comment on what kit works best and why, and to explain the politics behind it.



**HADEN BOARDMAN**

His knowledge of classic kit is almost unmatched - doubtless helped by him getting bitten by the hi-fi bug at the tender age of 9! Haden's tastes are very much of the 'valves and vinyl' ilk, his system displaying a welter of British names from the 1960s to go with his 1980s Marantz CD spinner. He's also a keen kit builder, and is not afraid to wield a soldering iron in the noble cause of superior sound.



**PATRICK CLEASBY**

After a stellar career in IT, Patrick's love of music drew him to the field of multichannel music mastering, which is now his vocation. His exhaustive knowledge of digital audio and surround sound theory and practice makes him perfectly placed to assess the latest DVD-Audio and SACD hardware and software alike.



**STEWART WENNEN**

A professional audio engineer since the 1970s, SW is still constantly amazed by the poor quality of kit that some manufacturers foist upon the buying public - but is also delighted when he finds a bargain. His redoubtable experience of designing and building his own turntables, electronics and loudspeakers through the years makes him an ideal *HFW* scribe, along with his obsession with music.



**WHAT IS HI-FI WORLD?**

An independent hi-fi magazine of fourteen years standing, founded by Noel Keywood - one of the UK's leading technical hi-fi writers.

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Almost all hi-fi and home entertainment magazines are owned by large media corporations that publish anything that makes money, be it caravan, computer or mobile phone titles. But we're different! As the only magazine published by Audio Publishing Ltd., a small independent specialist publisher, hi-fi isn't just a business for us, it's a way of life.

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We don't print reviews of bad equipment - what's the point? So everything inside these pages is interesting or excellent, and usually both. Yet still we don't pretend everything is fantastic. Not even the best equipment is right for everyone - which is why go to great lengths to explain the respective strengths and weaknesses of each bit of kit. We don't knock stuff, we say why it will work in some systems and why it won't in others - so you can make your own mind up.

Unlike some titles, we don't delude ourselves that we're the ultimate authority on everything, but the huge experience of our team ensures that we're invariably pretty close to the mark. Importantly, we back our subjective findings with technical measurements - which ensures that everything we review is a representative sample, and that we know what ancillaries are best.

We don't pretend that every new product is better than its predecessor. We're happy to recommend classic hi-fi when it's better than modern stuff. This doesn't help our advertising revenues, but it gets you closer to getting a superb sounding system for the lowest possible price.

**WHAT'S THE HI-FI WORLD SOUND?**

Go into your local high street electronics emporium, and you'll hear no end of cheap, forward, hard and showy sound bits of audio kit. As we listen to music hour after hour every day, we're not into this. We go for hi-fi - at any price - that has the ability to communicate what the musicians are trying to say. This means it must be rhythmically engaging and dynamically expressive - but must also be able to recreate a believable soundstage and a wide and varied range of tonal colours. We don't like a hard sound, nor do we enjoy the soft. It's got to be open and organic. Interestingly, there is kit at all price levels that offers this quality - although it often takes some finding. So we're happy to recommend anything from an old, long-discontinued £30 amplifier to a brand new pair of £6,000 loudspeakers - if they sound right!



# Conclusion

**T**his proved a hugely enjoyable group test. The surprises came from the cheaper contenders who – frankly – showed the more expensive offerings a thing or two especially in terms of value for money and even build. Without a doubt a budget price no longer equates with a budget performance, and likewise spending a fortune on a CD player is no guarantee of class...

The Primare CD21 was a bit of a mixed bag. It's certainly one of the best-looking CD players in this test, and is very well screwed together so I was hoping for more than I got. While it is undeniably impressive in many ways I'm afraid that it just didn't engage me emotionally with the music, which – in my opinion – is what it should all be about in the first place. There's no doubt in my mind that there's a potentially cracking CD player in here waiting to break out, and I'm sure with a bit of component tweaking it has the makings of a very special indeed, but as it stands I'm afraid I find it hard to give it the thumbs in its current guise.

The Cambridge Audio Azur 640c V2 really was a star performer and deserves every accolade that's been heaped upon it. As far as its sound quality is concerned it came uncomfortably close at times to both the Cyrus and the Musical Fidelity, and actually had a better standard of construction than the latter in my opinion. The more expensive machines did ultimately sound better, but not as much as their prices would have you believe. The remote control also deserves a special mention, and if there were a group test for remotes the Cambridge would win hands-down!

As mentioned above the Cyrus and Musical Fidelity CD players were very similar in their overall sound, with only their different

approaches to construction, power supply topology and so forth to subtly influence the sound in their respective ways. Of the two I found the Cyrus more predisposed to playing any genre of music with superb fidelity, while the Musical Fidelity felt more at home with Classical, Jazz, and so forth rather than anything too frenetic in nature. The Cyrus also had a touch more

away from it.

The Quad was also a star performer for the same reasons, but brought with it a more solid bass response (a slight lift here is visible in the measured performance section) and a more fluid presentation to the music. Its midband performance was also a tad cleaner and open sounding than that of the Naim.

Ironically, the star performer of

"budget price no longer equates with budget performance, and spending a fortune is no guarantee of class. . ."

body to its sound than the A3.5 which meant it sounded more confident with Rock and Dance music, for example. I have to say at this point I was disappointed with the build quality of the disc loading trays. £1,000 is a lot of money to spend on a CD player for most people, and a lot of mini-systems and even cheap DVD players often manage better in this respect. Surely it wouldn't take much effort to find some way of damping the tray, and using a quieter motor to open/close the drawer?

The Quad and the Naim were the most 'charismatic' performers in this group test, and win top marks. The Naim was an amazingly musical and involving listen, and got the toes tapping in the way that only a Naim can. Tonally a little leaner than Naim's of yore, it was still a riot to listen to, and sounded equally at home with anything from Van Morrison to The Pixies. There was a slight suggestion of roughness around the edges at times – possibly due to the use of multibit converters and a peaking of the treble – but the Naim's ability to bring music alive was very addictive and I had a hard time drawing myself

this month for me turned out to be the reference machine tested in our lead review on p12 – the Shanling CD-T80. It offered the best of what each of the other CD players here had to offer in terms of sound quality rolled into one package. It had the sweetness and purity of sound necessary to do justice to Classical and simpler acoustic music. It also possessed the low-down clout, speed and crispness of sound to do justice to Rock and Dance music. It could also wrestle music out of discs I previously thought unplayable due to their appalling sound quality. Not only this but build quality is absolutely top-notch putting others to shame here, it measures well, plus it's also upgradeable and even comes with a superb audiophile mains cable and remote. Plenty of choice then; audition with glee!

#### REFERENCE SYSTEM:

Exposure XXXV integrated amplifier  
Mission e82 loudspeakers  
Cables: DNM, Van Den Hul



# SEVENOAKS

## SOUND & VISION

With over 30 years experience, **SEVENOAKS SOUND & VISION** is one of the largest and most respected Audio/Visual retailers in the country.

Each Sevenoaks Sound & Vision store stocks a wide range of quality products, covering all categories of specialist home entertainment, from Hi-Fi separates and systems to DVD recorders, widescreen plasma televisions and projection systems.

Our fully trained installation experts can neatly and seamlessly integrate a home cinema or hi-fi system into your home. All electronics can be hidden away, speakers discreetly mounted either in the wall or ceiling and the complete system operated via remote control.

Whatever your requirements, Sevenoaks Sound & Vision has a diverse range of products and the expertise to advise, demonstrate and guide you through the home entertainment jungle.



## Specialist hi-fi & home cinema

**Contemporary hi-fi** is constantly setting new standards in sound reproduction and design. Whatever you listen to, Sevenoaks can recommend separate components that will bring your music collection to life and complement your home. We're enthusiasts and experts, passionate about helping you build (or upgrade) a system that will delight for years to come.

**The recent growth of DVD** has led to a huge rise in demand for home cinema equipment - DVD players, AV receivers, projectors and plasma screens but, with so many options, it's not easy to know which ones will suit your needs. Indeed, in the face of this quickly evolving and often bemusing array of products, we aim to assist you in assembling a home cinema system to be proud of - one that achieves outstanding picture and sound quality.

## NEWS

### NEW STORES

#### YEovil

We are pleased to announce that the new Yeovil store is now open.

#### YEovil

14 SILVER STREET • 01935 700078



#### OPENING SOON\*

#### LOUGHTON

7-9 GOLDINGS HILL  
020 8532 0770



\*SUBJECT TO LEGAL COMPLETION.



WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
CD PLAYER  
R0212/RA-02

## Rotel

The 02 Series is Rotel's entry-level range. The RCD-02 CD player combined with either an RA-01, RA-02 or RA-03 integrated amplifier represents true audiophile performance at an affordable price. For increased high-end performance, the RC-03/RB-3 pre/power amplifiers are available. The RT-02 tuner completes the range.



WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
TURNTABLE  
R0212/RT-02

## Roksan

Roksan designs and manufactures some of the most acclaimed hi-fi equipment currently available. All Roksan products are carefully evaluated by experienced engineers at every stage of the design process with the emphasis on performance and build quality.

## B&W

The focus of Bowers and Wilkins Loudspeakers has always been to offer the best possible musical experience. With a combination of the latest R&D techniques and a passion for music, B&W produces a diverse range of products befitting the largest audio manufacturer in the UK.

## Cyrus

If you've enjoyed listening to music before, try listening to it through a Cyrus system. With every product tuned by ear, Cyrus represents a quality of sound, which is rare at any price. Invest in a Cyrus system and you'll be rewarded with a wealth of sound you wouldn't have thought possible.



## Audiolab NEW 8000 Series

Audiolab's new 8000 series offers a definitive and genuine hi-fidelity performance from a no-nonsense approach to engineering. These famous products have all been re-engineered to create a complete two channel range, including the 8000S, 8000Q, 8000M and 8000P models plus a all new CD player. A 7.1 channel pre and power amplifier completes the range.



## Project

Project is currently one of the world's leading suppliers of turntables, with a range of models designed to satisfy all levels of expectation and budget. The range is simple to use, maintenance free and will function for a lifetime.



## B&W MINI THEATRE MT-30

"Talented, covetted and worth every penny, the MT-30 (and PV1 especially) could well be heading for iconic status."



WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
CD PLAYER  
C0212/RA-02

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
CD PLAYER  
C0212/RA-02

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
CD PLAYER  
C0212/RA-02

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
CD PLAYER  
C0212/RA-02

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
CD PLAYER  
C0212/RA-02





WHAT HI-FI? AWARDS 2004  
BEST STEREO SPEAKERS  
K130-4000  
Quad i-Fi

## Quad

Founded in 1938, Quad's history is one of audio excellence. Today's range includes both electronics and speaker systems.



i-Deck

WHAT HI-FI? SOUND AND VISUAL AWARDS 2005  
PRODUCT OF THE YEAR  
MONITOR AUDIO i-DECK

## Monitor Audio

Since 1972 Monitor Audio has been developing and perfecting the implementation of metal drivers, innovative crossovers, and exemplary speaker cabinet construction and finish to further the ideal of achieving sound which is to the original "as close as it gets". The range includes - **GOLD, SILVER RS, BRONZE** and **RADIUS** speakers, plus the exciting new **i-Deck** docking station, an excellent any-room companion for your iPod.



Silver RS6 AV Package

WHAT HI-FI? AWARDS 2005  
PRODUCT OF THE YEAR  
MONITOR AUDIO SILVER RS6



Silver RS1

## Digital Radio

With Digital Audio Broadcasting (DAB) capability, these high-quality tuners deliver more stations and offers pure, distortion-free, CD-like sound, while providing useful radio and data services.



WHAT HI-FI? AWARDS 2005  
BEST DAB TUNER  
DENON TU-1800DAB

Pure DRX702ES & NEW Denon TU-1800DAB

## Wharfedale

### Diamond 9.1

"Wharfedale has been updating and tweaking its Diamonds for 20 years - and rough they're not! Tight bass, clear midband, and sparkling treble for not a lot of cash."



WHAT HI-FI? SOUND AND VISUAL AWARDS 2005  
WHARFEDALE DIAMOND 9.1



### Diamond SW150

"Considering the price, the detail and definition to the bass are controlled and cohesive - equally adept with movies and music."

WHAT HI-FI? SOUND AND VISUAL AWARDS 2005

## KEF

Replacing the highly successful Q Series, KEF's New iQ line-up comprises eight models from the entry-level iQ1 bookshelf to the impressive iQ9 floorstander. All models incorporate



WHAT HI-FI? AWARDS 2004  
BEST BOOKSHELF SPEAKER  
KEF iQ1

KEF's Uni-Q driver technology and are available in a variety of finishes.

Other KEF ranges include XQ, KHT and the Award-winning KIT100 Home Cinema system.

KEF KIT100 "Creating a virtual surround sound experience has never been simpler or more effective, thanks to this two speakers plus subwoofer concoction from KEF."

## Acoustic Energy

Established in 1987, Acoustic Energy is one of Britain's premier loudspeaker manufacturers offering one of the most targeted range of hi-fi and home cinema loudspeaker systems on the market today.

"The legendary AE1 lives on in this groundbreaking new version... It sets a new standard for small speakers."



WHAT HI-FI? AWARDS 2004  
BEST STEREO SPEAKERS  
ACoustic Energy AE1



KEF iQ5

"The iQ5s are one of the best KEFs we've heard in years - we can't wait to hear the rest of the range."

WHAT HI-FI? AWARDS 2005  
BEST FLOORSTANDING SPEAKER  
KEF iQ5



KEF KHT1005

"Superb value for money at its new price"

WHAT HI-FI? AWARDS 2005  
BEST HOME CINEMA SYSTEM  
KEF KHT1005



WHAT HI-FI? SOUND AND VISUAL AWARDS 2005  
BEST AV RECEIVER  
ARCAM AVP700

NEW to the DiVA series is the **AVP700** processor and the **P1000** seven-channel power amplifier.

## Arcam

Arcam has spent more than a generation building some of the finest high fidelity products the world has ever seen. Whether you're interested in two channel or a complete multi channel AV system, the Arcam DiVA series offers the music and movie lover the most complete range of high performance home entertainment solutions from any specialist manufacturer.



Arcam Solo Music System

"Excellent all-round sound combined with the convenience of a one-box product."

## ESSENTIAL ACCESSORIES

The right accessories can make or break your system. Our carefully selected range, including **QED, SOUNDSTYLE** and **GRADO**, will ensure you get the very best performance from your system.



WHAT HI-FI? AWARDS 2005  
BEST CABLE  
QED

WHAT HI-FI? AWARDS 2005  
BEST SPEAKER  
GRADO

## Marantz

Marantz is introducing a host of new products ranging from high-end hi-fi to HD-ready DVD players and AV receivers. The two main products groups are the 'premium' and 'range' series.

The SR9600THX Ultra2 AV receiver offers seven channels, each 140w, and features HDMI inputs. The groundbreaking DV9600 is one of the first DVD players capable of upscaling images to 1080p and is fully prepared for the high-definition future.



NEW MARANTZ SR9600 AV RECEIVER

HOMECINEMA Best Buy

## Musical Fidelity

Musical Fidelity's A3.5 Series amplifier, using circuitry closely related to A5's, and upsampling CD player combine high end performance, visuals and finish at a competitive price.



A3.5 SERIES

WHAT HI-FI? AWARDS 2005  
PRODUCT OF THE YEAR  
MUSICAL FIDELITY A3.5



PLEASE NOTE Some products/brands are not available at all stores. Please call to confirm or visit our website before travelling.  
\* Added Value Offers - From range available in-store. Not in conjunction with any other offer. ADVERT VALID UNTIL AT LEAST 17/11/2005, E&OE.





## Denon

Denon, Japan's oldest audio company, has established an enviable reputation for the performance of both its hi-fi and home cinema products, winning numerous awards and accolades over the years. Its stylish systems have succeeded in becoming the benchmark by which all other are judged.

**DVD-A1XV** "The most obvious winner of any category this year has to be Denon's evolutionary step in DVD deck design, the landmark DVD-A1XV... An astonishing piece of kit that has no equals."

**AVC-A1XV** "It's not often we can't find fault with a product, but as we said in our review, "It not only expands the home cinema envelope, it shreds it and then nukes it for good measure." HOME CINEMA CHOICE • AWARDS 2005



WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
BEST DVD PLAYER

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
BEST SURROUND SYSTEM

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
BEST DVD DECK

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
BEST DVD DECK



## Yamaha

Yamaha is recognised as a world leader in the fields of musical instruments and audio equipment, and in more recent years, home cinema. New models for 2005 include upgraded AV receivers, amplifiers, and DVD players plus the innovative YSP-1 virtual surround speaker.



YAMAHA'S DVD-S2500, DSP-AX7575E & RX-V4600



Onkyo DS-A1 iPod Connector Dock

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR



## Onkyo

"A Dinky design that offers a vigorous listen, plus reassuringly solid build... Onkyo's CR-505DAB is a fab buy."

## Pioneer

Pioneer has introduced three new DVD players. The super-slim (49.5mm high) DV-2850, DV-380 and DV-585A. All models are DivX compatible and deliver exceptionally high-quality pictures using a 108 MHz/12-bit Video D/A Converter. The **DV-585A** (Below) is a universal player, compatible with both DVD-Audio and SACD music discs.



## REL

In a market packed with subwoofers claiming to deliver the ultimate bass experience, only one brand of sub-bass system can prove its supremacy. With a record of review success stretching back over a decade, REL is acknowledged as the leading provider of deep, clean bass frequencies.



M&K MS "Wonderful surround sound performance, agile and deep subwoofer."

## M&K

Enjoy cinema as the director intended with a speaker system that is genuinely designed for surround sound. Every Miller & Kreisel surround sound system is designed around the highest quality centre speaker available, as this critical speaker will reproduce more than 70% of a film soundtrack.

Partnered with two identical main speakers, this produces seamless panning across the front soundstage, combined with the remarkable clarity and effortless dynamics that has made M&K the first choice in recording studios worldwide.



## Harman Kardon

Harman's 7.1-channel DPR 2005 and DPR 1005 digital path receivers take Harman's groundbreaking digital path receiver platform to new levels of performance and functionality utilising a fully digital signal path from input to output, along with advanced features and technologies.



## DVD Recorders

Although making digital recordings of TV broadcasts isn't new, the choice, versatility and quality of recorders keep getting better. Our product selection includes DVD only, hybrid DVD/hard-disk and multi-format models.



## ESSENTIAL ACCESSORIES

The right accessories can make or break your system. Our carefully selected range, including QED, SOUNDSTYLE and GRADO, will ensure you get the very best performance from your system.



WHAT HI-FI? SOUND AND VISION AWARDS 2005  
CABLE OF THE YEAR  
BEST VIDEO TV

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
PRODUCT OF THE YEAR  
BEST VIDEO RECEIVER

WHAT HI-FI? SOUND AND VISION AWARDS 2005  
CABLE OF THE YEAR  
BEST VIDEO TV

## £ PRICING POLICY

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.

## FLEXIBLE FINANCE OPTIONS\*

Spread the cost of buying. Flexible finance options are available on the majority of products we stock. \*Written details on request. Licensed credit brokers. Minimum balance £400. Subject to status.

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## Specialist home cinema

At the heart of any home cinema is its screen: Sevenoaks Sound & Vision can put you in the picture with a selection of flat-panel displays and projection systems. LCD and plasma screens are just a few centimetres thick and come in sizes from a 13inch portable to over 60inches.



## Sharp Aquos

Only Sharp Aquos LCD TV offers so much perfection. With supreme styling, the appeal of the Aquos range is obvious. The Titanium Series combines Sharp's sixth-generation LCD panel with stunning, angular-styling, titanium colour-finish and superb build quality to produce a premium class of LCD idTVs

### TITANIUM SERIES LC-45GD1E LCD TV with integrated FREEVIEW

"Sharp's mammoth 45in LCD TV is a testament to the growing viability and performance of large-scale LCD. Its 1,920 x1,080 resolution panel allows high-definition pictures to be viewed without compromise and when exploited to its full potential, the results could see this screen hung in a gallery. Images are so crisp and sharp, it almost makes reality look dull. We think it's inspirational. Go pay homage." HOME CINEMA CHOICE • AWARDS 2005

FREEVIEW channel and service subject to coverage. Aerial upgrade may be required.

## Loewe

### Concept L32 32" LCD TV

With its minimalist, functional design, slim profile and ease of operation, the Concept L32 exudes all of the classic Loewe virtues.

"This HD Ready set boasts 1366x768 resolution and plenty of inputs, including HDMI, component video and two Scarts. It also packs an integrated digital TV tuner, and - as ever with Loewe sets - its speaker set-up is a cut above most rivals... The Concept L32 is immensely attractive; it deserves to sell very well indeed."



## Hitachi

### PLATARA 42PD7200 42" PLASMA TV

"Alright, we admit it, we rather like this screen. In fact, it's very difficult to find a reason why anyone hankering for a 42in plasma shouldn't go out and buy one. Five stars for Hitachi and a new standard for affordable excellence for everyone else." WHAT VIDEO • ISSUE 294

# SEVENOAKS

SOUND & VISION



## Pioneer

Following its highly successful '5' series, Pioneer has unveiled its sixth generation of plasma TVs. The 43" PDP-436XDE and 50" PDP-506XDE models include built-in digital tuners plus dual HDMI inputs.

### PDP-436XDE PLASMA TV

"Pioneer's latest is also its greatest: this is a truly wonderful HD-Ready TV."



## Panasonic Viera

There seems little doubt: that the future of television is flat, and the future of flat is the award-winning VIERA range from the world leaders in screen technology, Panasonic. The VIERA range consists of both LCD and Plasma televisions. New additions to the range include 37, 42 & 50in PV500 models with support for both high-definition and MPEG-4 recording.



### TH42PV500 PLASMA TV

"All told, Panasonic's new TH42PV500 is a stunning set that's clearly the new class leader."



## Toshiba Stasia

### 37WL56 37" LCD TV

Boasting HDMI connectivity, this new model also features Toshiba's impressive Active Vision LCD picture processing technology, whereby detail is improved by increasing the pixel count of the screen by three times that of a conventional LCD TV.



"Fine picture with both DVD and High-Def imagery; good with off-air TV, too... A very solid LCD buy - and fine value."







## Projection

If you'd prefer to measure your screen-size in feet, how about one of the new generation of projectors? The latest designs are delivering superb results at increasingly affordable prices - and they're more home friendly than previous projectors, too.



**SP7210**

"The new projector's picture is just phenomenal... Looks like ScreenPlay's success story is set to continue."

## ScreenPlay

From the worldwide leader in digital projection technology and solutions, InFocus® ScreenPlay® DLP™ projectors are changing the face of home cinema offering market-beating performance, specification and value at every price point.



**SP4805**

"Another stunning success from ScreenPlay - there's never been a better time to take the big-screen plunge."

## Sim2

Sim2 Multimedia is a world-leading manufacturer at the forefront of home cinema technology and a name synonymous with high-end home-cinema projection.

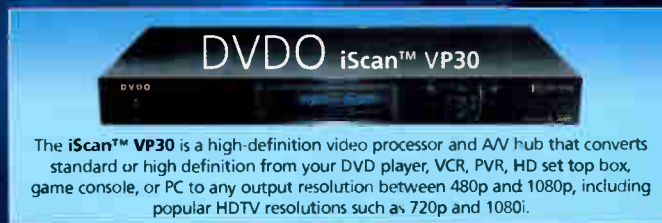
**MT300E** "Spectacular, in a word... Another terrific projector from Italy's finest." WHAT VIDEO • ISSUE 292



## Themescene

Since its launch, the multi-award winning ThemeScene™ brand has rapidly established a five-star reputation for uncompromised image quality.

**M30A** "There are so many good points it's hard to know where to start... Just how much better can budget DLP projectors get?!" WHAT VIDEO • ISSUE 292



The **iScan™ VP30** is a high-definition video processor and AV hub that converts standard or high definition from your DVD player, VCR, PVR, HD set top box, game console, or PC to any output resolution between 480p and 1080p, including popular HDTV resolutions such as 720p and 1080i.

## £ PRICING POLICY

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## Product Selection

Listed below is a small selection of our extensive product range. Please note: Some products/brands are not available at all stores. Please call to confirm or see the brand locator at [www.ssav.com](http://www.ssav.com) before travelling.

### TURNTABLES

Goldring GR2	£ CALL
Linn RANGE	£ CALL
Michell RANGE	£ CALL
Project RANGE	£ CALL
Roksan Radius 5	£ CALL

### TUNERS

Arcam RANGE	£ CALL
Cyrus FM'X	£ CALL
Denon TU260L MKII	£99.95
Harman Kardon RANGE	£ CALL
Linn RANGE	£ CALL
Marantz ST4000	£99.95
Pure DRX-701ES DAB	£179.95
Pure DRX-702ES DAB/FM	£229.95
Rotel RANGE	£ CALL

### CD PLAYERS

Arcam RANGE	£ CALL
Audiolab RANGE	£ CALL
Cyrus RANGE	£ CALL
Denon DCD485	£119.95
Linn RANGE	£ CALL
Marantz CD5400	£119.95
Meridian RANGE	£ CALL
Musical Fidelity RANGE	£ CALL
NAD RANGE	£ CALL
Quad RANGE	£ CALL
Roksan RANGE	£ CALL
Rotel RANGE	£ CALL

### CD RECORDERS

Yamaha CDR-HD1500	£469.95
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### AMPLIFIERS

Arcam RANGE	£ CALL
Audiolab RANGE	£ CALL
Cyrus RANGE	£ CALL
Denon PMA355	£159.95
Linn RANGE	£ CALL
Marantz PM4400	£139.95
Marantz PM7200	£239.95
Meridian RANGE	£ CALL
Musical Fidelity RANGE	£ CALL
NAD RANGE	£ CALL
Quad RANGE	£ CALL
Roksan RANGE	£ CALL
Rotel RANGE	£ CALL
Yamaha AX396	£169.95

### HI-FI SPEAKERS

Acoustic Energy Aegis Evo One	£119.95
Acoustic Energy Aegis Evo Three	£229.95
Acoustic Energy Aelite RANGE	£ CALL
Acoustic Energy AE1 MKIII	£ CALL
AVI Neutron IV	£ CALL
B&W RANGE	£ CALL
KEF RANGE	£ CALL
Linn RANGE	£ CALL
Meridian RANGE	£ CALL
Mission RANGE	£ CALL
Monitor Audio RANGE	£ CALL
Quad RANGE	£ CALL
Ruark RANGE	£ CALL
Wharfedale RANGE	£ CALL

### HI-FI SYSTEMS

Arcam Solo Ex Speakers	£ CALL
Denon RANGE	£ CALL
Linn Classic Music Ex Spks	£ CALL
Monitor Audio I-Deck	£249.95
Onlyo CR505DAB Ex Spks	£ CALL
Teac RANGE	£ CALL
Yamaha CRX-M170 Ex Spks	£ CALL

### DVD SYSTEMS

Denon RANGE	£ CALL
KEF KIT100 Inc Speakers	£ CALL
Teac RANGE	£ CALL

### MULTI-ROOM AUDIO

Cyrus Link RANGE	£ CALL
Living Control RANGE	£ CALL
Yamaha MusicCast RANGE	£ CALL

### DVD PLAYERS

MAKE & MODEL	REGION 2	MULTI REGION
Arcam RANGE	£ CALL	£ CALL
Cyrus RANGE	£ CALL	£ CALL
Denon RANGE	£ CALL	£ CALL
Denon DVD-A1XV	£ CALL	£ CALL
Harman Kardon RANGE	£ CALL	£ CALL

Marantz RANGE	£ CALL	£ CALL
Meridian RANGE	£ CALL	£ CALL
Panasonic RANGE	£ CALL	£ CALL
Pioneer RANGE	£ CALL	£ CALL
Samsung DVD-HD945	£129.95	£129.95
Toshiba SD350	£79.95	£89.95
Yamaha RANGE	£ CALL	£ CALL

### DVD RECORDERS

MAKE & MODEL	REGION 2	MULTI REGION
Panasonic RANGE	£ CALL	£ CALL
Pioneer RANGE	£ CALL	£ CALL

### AV AMPLIFIERS & RECEIVERS

Arcam RANGE	£ CALL
Audiolab RANGE	£ CALL
Cyrus RANGE	£ CALL
Denon AVC-A1XV AV Amplifier	£ CALL
Denon RANGE	£ CALL
Harman Kardon RANGE	£ CALL
Lexicon RANGE	£ CALL
Marantz RANGE	£ CALL
Onkyo RANGE	£ CALL
Pioneer VSX-1014s AV Receiver	£399.95
Pioneer VSX-2014i AV Receiver	£499.95
Pioneer VSX-AX5Ai AV Receiver	£749.95
Pioneer VSA-AX10Ai AV Amplifier	£1799.95
Pioneer NEW RANGE	£ CALL
Rotel RANGE	£ CALL
Yamaha DSP-AX757SE AV Amplifier	£399.95
Yamaha RX-V357 AV Receiver	£149.95
Yamaha RX-V557 AV Receiver	£299.95

### AV SPEAKERS & PACKAGES

Acoustic Energy Evo 3B	£679.95
Artcoustic RANGE	£ CALL
Audica RANGE	£ CALL
B&W RANGE	£ CALL
B&W Mini Theatre RANGE	£ CALL
KEF KHT1005	£299.95
KEF KHT2005.2	£599.95
KEF Q7 AV	£ CALL
M&K RANGE	£ CALL
Mission M Cube	£ CALL
Mission Elegante RANGE	£ CALL
Monitor Audio RANGE	£ CALL
Mordaunt Short Genie	£649.95
Quad L-Series	£ CALL
Wharfedale Diamond 9 HCP	£ CALL
Yamaha YSP RANGE	£ CALL

### SUBWOOFERS

B&W RANGE	£ CALL
M&K RANGE	£ CALL
MJ Acoustics RANGE	£ CALL
Monitor Audio RANGE	£ CALL
Quad L Series	£ CALL
REL RANGE	£ CALL
Wharfedale Diamond SW150	£ CALL

### PLASMA

Fujitsu RANGE	£ CALL
Hitachi RANGE	£ CALL
LG RANGE	£ CALL
Loewe RANGE	£ CALL
Panasonic RANGE	£ CALL
Pioneer PDP435XDE 43" (Ex Display)	£1999.95
Pioneer PDP505XDE 50" (Last Few)	£2999.95
Pioneer PDP436XDE 43"	£ CALL
Pioneer PDP506XDE 50"	£ CALL
Samsung RANGE	£ CALL

### LCD TV

Hitachi RANGE	£ CALL
LG RANGE	£ CALL
Loewe RANGE	£ CALL
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# Three decades

**Much as diehard 'turntablists' may pretend otherwise, digital is where it's at these days, and so the mass manufacturers' marketing budgets follow, with the promise that digital disc players are – as someone famous once said – 'getting better all the time'. Well, David Price decided to try to put it all into perspective...**

**R**egular readers will know that yours truly is, shall we say, a trifle 'digital averse'. This doesn't mean that I burn effigies of the Dutchman who productionised CD, or sit there fuming about the way it's robbed us analogue addicts of the ability to buy our prized vinyl from the local High Street. But it does mean that I'm not an uncritical friend of digital audio; unlike many. In truth, I use it every day, live with it, sometimes love it, and am often disappointed with it – especially when I've just spent twenty minutes in the company of an original nineteen fifties Blue Note LP (all analogue, recorded on to 15ips open reel with a crossed pair of mics, in one take)...

Still, anyone of the Luddite persuasion who insists that it must be wiped off the face of the Earth doesn't get my vote; like Nuclear power stations and automobiles, you've got to accept that actually it really does serve a use – much as you'd stay away in an ideal world. The fact is that digital audio has done an awful lot to bring high(ish) quality music to the masses. However redoubtable Ivor Tiefenbrun's marketing prowess was (is), he'd never have got LP12s into umpteen billion homes. But Philips and Sony did it with CD, though – and good luck to them.

The question, of course, just how good is digital? And, more appositely, given that CD is – to all intents and purposes – what digital is in the marketplace, how good is Compact Disc? Well, no small amount of testing serious high end CD spinners for many years has revealed that actually it can be very good indeed. The confusing thing for buyers and journalists alike is that, with every

new model, every new chipset, transport and great discovery, Compact Disc is touted by those who sell it as being better than ever.

If you think about it, this shouldn't come as a complete surprise (it would be rather odd if Sony launched its new SCD 9999ES – or whatever – as being 'errr, not quite as good as the last one, actually, because we can't get the transports'...) Yet this tendency rather creates the impression in buyer's minds that their five year old machine is, by today's standards, fatally flawed, because it lacks the new transport, DAC or digital filter that, daaarling, everyone's talking about...

The great sausage machine that is marketing has a real vested interest in claiming the new is better than the old, and that's it, end of story. Well, a lot of audiophiles have got savvy to this, and there's now a sort of guerilla, insurgent movement that claims precisely the same - in reverse. Of late, folk can be found scouring ebay for machines which are as close as possible to CD's 'Year Zero' (i.e. 1982), when everything was (allegedly) fantastic and players weren't 'built down to a cost'. For every action, there is a reaction...



The purpose of this feature was to take an unsentimental look at three decades of digital; a machine from 1983, one from 1994 and another from 2005. Well, of course, we could have chosen anything, so I decided to stay at least reasonably consistent, and use Marantz machines as a gauge. Although there will doubtless be thousands of emails pointing out the 'methodological inexactitudes' of my choice of machines no sooner than subscription copies hit doormats, I think this is valid as a general 'Litmus test'.

Marantz machines, you see, have always been very fine sounding variations on a Philips theme, using the same transports and chipsets as their Dutch 'uncles', but with a few little tweaks under the bonnet that really raise their game. They've been extremely strong sellers in the UK, and always a good gauge. Although



# of digital

the machines here are not 'the best CD players in the world of their time', they're very representative of 'affordable best practice', so I think this experiment is worthwhile.



## 1983: MARANTZ CD63

March 1983 saw the introduction of the Philips CD100 to the UK market; anoraks will point out that in Japan it reached the shops in November 1982, but suffice to say that 1983 was 'Year Zero' for UK CD buyers. It was the first ever CD player, long in gestation. Readers of Hi-Fi Answers would have seen something looking not too dissimilar back in 1981, going by the name of the CD333, I believe. It used the first Philips TDA1540 14bit, 4 times oversampling DAC and the (now) legendary Philips CDM0 'swing arm' transport. Marantz's CD63 variant followed very soon after; almost identical apart from the Marantz moniker. In Japan, it retailed for ¥189,000 – close to £800 in those days, and you can double that (at the very least) to account for inflation.

To anyone used to modern silver disc spinners, the CD100/CD63 is prehistoric. It's a tiny but stocky (weighing in at 5kg) top loader. You press down on the disc bay cover and it rises up (damped, but only

slightly), then you insert the disc, close the disc cover and press play, then wait... Until the advent of DVD players, this wait would have seemed hours (for a while in the early nineties we got used to fast access times, before DVD-ROM transports graced us with their presence), as the laser ambled its way towards the disc's Table of Contents, had a little think and then displayed the number of tracks, not digitally (hey, digital LED displays cost a bomb back then) but by a row of green LEDs! Then you pressed 'play', went away to put the kettle on, and hey presto, it was playing music digitally!

The Philips/Marantz was always regarded as the best sounding first generation machine, and you can hear why. Even by 2005 standards, this thing really sounds nice. And that's the right way to put it – it sounds 'nice'. That horrible, acerbic top that many vinyl diehards identified was half down to the fact that their Linn/Naim systems were 'voiced' for the then dull and sumptuous sounding LP12, Grace arm and Supex 900 cartridge (a delicious device, but not neutral to say the least), and half down to those rival Japanese 16x2 machines (PCM53/54/63 and CX200017 DACs take a bow!) with a top end that could skin a cat. Through a well balanced 2005 system, the TDA1540 sounds – if anything – fluffy, wallowy and indistinct.

It's very 'fluffy' alright. Just listen to that treble; it's almost like someone's sucked out all the air and space, like a bad valve amp but without the euphonic, silky highs. It's quite Supex SD900-like in fact (classic MC anoraks will know what I mean), minus that delicious sepia tint. By the vinyl standards of 1983, the Marantz CD63's treble is poor; perfunctory, decently crisp but devoid of air and space. The midband isn't much better in 'hi-fi' terms. Back then most people would have been amazed by its 'solidity', which is to say that it is

(obviously) speed-stable and great at throwing strong, well defined images forward. In this respect it surpassed an LP12, but a 2005 Michell GyroDec makes it sound vague and indistinct – as does any decent modern DAC such as the NET Audio Sonance tested in this issue.

Still, what you can't criticise is its fluidity. The Philips TDA1540 chipset was a musically lucid thing, able to 'sing', able to carry a song and make a nice, musical noise. In this respect it was virtually unique: the Sony CX20017 in the rival CDP-101 was less fluid, and quite mechanical sounding. Indeed, there's something about the 1540's midband that's really nice. Analogue addicts who moved from the altogether more impressive sounding Linn Ekos tonearm to Naim's more 'woolly', fluffy ARO for precisely the same reason will know what I mean. You put a disc in and it sings, despite its myriad hi-fi failings. It's this 'romantic' sound that marks out 14x4; nothing else came close, for my money.

Bass too is rather nice, but don't go thinking it's accurate. It was warm, fruity and bouncy like a valve amplifier, but put on a modern CD spinner and it sounds embarrassingly vague. Still, it's more than the sum of its parts: it bounces along, integrates seamlessly into the lilting midband and the overall effect is very nice. It doesn't go down so low (a 1983 LP12 would easy better it), but it's still a big, fat, mellifluous thing that makes listening to whatever silver disc you slot inside an enjoyable experience.

By 2005 standards, the Marantz CD63 is awful in some respects; a £50 Sony Discman has more insight, more dimensionality, more zing, more air and space, but by the same token nothing but nothing made now sounds so, errm, analogue. It just plays music – it bounces and boogies in a vague and wobbly yet oh-so-enjoyable way – and that's what we're here for.

*[now read on for the 1994 Marantz CD52SE...]*

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## 1994: MARANTZ CD52SE

Launched at the beginning of the nineties, this machine was just being replaced by the CD63SE, but bucketloads had been sold and it was still in shops. It was Marantz's first ever Bitstream machine, and for this reason a very significant bit of kit. The 1991 CD50SE that preceded it was almost visually identical, but sported a Philips TDA1541 16bit, 4 times over-sampling chipset that had first appeared as early as 1986 in the Philips CD304 mkII (which was virtually a first generation player, albeit with a fancy digital track display). This chipset was a high point in 16bit design, according to most, possessing almost all the liquid musicality of the original 14bit machines with extra bit, incision and detail. The 1541 was also expensive to manufacture and complex, and wasn't very user friendly; many cheap machines with this inside sounded truly painful (i.e. forward and relentless), others like Naim's CDI were legendary.

The Philips SAA7350 'Bitstream' DAC was the beginning of modern digital audio: cheaper to make with far lower measured distortion, it ushered in a whole new 'sound' for CD. One that, instead of causing offence, could actually make digital audio sound a little bland and lifeless. The wonderful improvements it brought to cheap machines made the breed acceptable on a consumer level, and if properly implemented by serious hi-fi manufacturers (i.e. Marantz, Meridian) could sound very, very good. At the time, we all breathed a massive sigh of relief, as this was digital without tears; no more tinnitus, no more bleeding ears, headaches and dizziness after an evening's heavy listening. Digital had come of age.

The Marantz CD52 was the first cheap mass market machine to exploit it (using the SAA7321 GP derivative); Philips had fitted it to

the CD850 mk II but by 1989, the company was rapidly losing credibility as a high end CD brand. The CD52SE touted the Philips CDM4 mech; a long way from the swing arm CDM0, this was faster in disc access but not quite the legend its predecessor would later become. Still, in these days when even most high end CD spinners sport tweaked DVD-ROMs, it almost seems like 'the golden age of wireless'... Together, this transport and DAC was a special combination, one that designer Ken Ishiwata cites as one of his favourites even today...

Considering that this cost some £300 in 1994, this is one heck of a CD player; the Marantz CD63 would have cost four times as much in real terms some ten years earlier, and although the '52 isn't comprehensively better, it brings a lot that's different to the party. It's obviously a cheaper machine in the marketplace than the original CD63 was in its day, but it does so many things so much better. So much so that it's not far off my Sony CDP-X77ES (Sony's first ever high end Bitstream machine, from 1989, and a stunningly well built £1,200 machine too), which cost almost four times as much. Impressive stuff, and indeed the CD52SE must have stunned many. Back then, What Hi-Fi (which was a champion of serious sounding budget two-channel at the time) would regularly run out of superlatives, which wasn't something this journal did easily...

Essentially, the CD52SE is a step change; it's clean, clean, clean. It scavenges the disc and tells you what's on it. Now, by today's standards, it's not so amazing in this respect (just listen to how a £250 Cambridge 640C v2 beats it) but back then it was (to use the What Hi-Fi vernacular, "awesome"). The nineties Marantz has a fascinating combination of detail, musicality, smoothness and self-assuredness. Now, today's machines have all this

and more, except the last – which I (and it's just my hunch) put down to the CDM4 transport. It gives the CD52SE a very 'up for it' sound; it's bouncy, good-foot-forward, engaging, challenging and just dives into music (vinylistas think: Linn Ittok LVII). It really pushes the song along, and leaves the olde CD63 sounding ponderous and fluffy (apologies for my overuse of this term, but it's so right). However, there's one way the CD63 whips it, and it's that awesome solidity in the bass; the CD52SE is close, but you get the feeling that it's ever so slightly lighter and less committed; the CD63 is looser, fuller and more reassured sounding.

In other respects, the CD52SE is very different; it's plasticky and clunky and built down to a price, but has fast disc access (by Philips standards; it's geriatric by Sony standards of the day). The disc tray is a big nasty plastic moulding and the display's a crude fluorescent blue that's neither dimmable nor defeatable – and boy, how I'd love to switch the flipping thing off! The remote (wow – it's remote controlled!) is an unlovely thing. The machine is cheap as chips in every way except sound, where it's surprisingly good, even by modern standards. To coin a phrase, there's 'something in the way she moves' that the new sub-£1,000 machines can't manage, despite being light years ahead in so many ways. Stereo imaging; so-so, soundstaging; so-so, detailing; good, bass; light but propulsive, treble; okay – but despite all this it swings and grooves in a way that even the new Shanling CD-T80 can't quite manage. Pardon the car analogy, but in the same way that no car on 'low profile' tyres ever rode as good as an old seventies Jaguar XJ6 on big rubber doughnuts, so nothing quite gets up to an early Philips mech for sonic self-assuredness, I reckon.

*[now read on for Dominic Todd's review of the 2005 Marantz SA-15S1...]*

# Two's Company



**The new SA15S1 from Marantz is SACD-capable, but strictly two-channel only. Stereophile Dominic Todd listens in...**

**A**round a year ago Marantz committed themselves to two-channel stereo. With the likes of the SA11 S1 they showed the world that although committed to SACD, they were still very much dedicated to stereo as well.

The new SA15S1 follows on from this but, unlike its name suggests, it actually falls lower in the hierarchy, rather than above. Although adopting the same 'premium' design as the SA11 S1, it's actually designed to replace the well-loved CD17 rather than simply being a stripped down SA11 S1 per se. Nevertheless, comparisons will be made, so it's interesting to see what has been lost in the cheaper version...

At first sight, there certainly doesn't appear to have been much at all. The SA15 S1 looks every bit as stunning as its bigger brother, right down to the gentle blue floodlit fascia. Combined with the silver finish, double layer chassis and solid feeling buttons it has a certain retro feeling about it, but definitely looks and feels more expensive than its actual price. Take a look inside and the differences between the two models

become clearer. The new model lacks the Super Ring power transformer - instead using a more conventional frame type that Marantz call 'E1'. The OFC wiring has gone, and the jitter clock is of a simpler design. Take a look at the DAC and you'll see a Crystal CS4397 in place of the more expensive model's SM5866AS - the adjustable DSP filter has also been left off. Finally, whilst the SA11 S1's chassis is copper plated, the newer model's is simply raw steel.

If all this sounds rather a lot, then it's worth bearing in mind that the newer model is a full £900 less than its bigger brother, and still has plenty going for it. First off, the Crystal CS4397 is actually still a very decent DAC and, combined with the excellent component quality typified by the Elna capacitors, it actually makes for a sound basis for an £1,100 machine. Moreover the SA15 S1 makes full use of Marantz's excellent HDAM output devices. By using HDAM modules the output stage offers current feedback topology that is said to improve dynamics. Other nice touches include the machined brass RCA outputs and zero impedance plate.

Rather than being a noisy fluorescent design the switchable display is LCD based and, it should be said, of excellent clarity. These days there isn't a CD manufacturer that doesn't realise the importance of reducing jitter and, although lower in spec' than the SA11 S1, the clock in the SA15 S1 is still of a high quality, low jitter design.

In addition to the RCA phono sockets there are both optical and coaxial digital ones. Unlike its big brother there's also a D-bus link that can be handy if you have other Marantz components. Finally the headphone socket features a dedicated current buffer amp' and its own, analogue, volume knob. Rounding off the package is a chunky remote control and, least we forget, the ability to play SACDs, albeit in stereo only.

## SOUND QUALITY

Beginning with Tipper's 'No Dice', I found the Marantz to have a very open and broad soundstage. The sheer expanse of sound was reminiscent of many other Marantz products, but the transparency is not a quality I would have previously



associated with the brand – at least not at this price point. Also rather impressive, given the price point, was the bass response. Not only was it imbued with depth and a taut quality, but it also had a greater level of extension than I'd been expecting. Certainly compared with most other CD players at this price, the SA15 S1 simply goes down lower. So, with excellent staging, separation and control it was hard to fault the new Marantz. Up against the SA11 S1 there were differences, but only of degrees. Next to its bigger brother, the treble did just lose a little focus. It's not scrappy – indeed it's still smooth by class standards – but it's just not quite so crystalline clear.

Despite the strong bass extension, Natasha Bedingfield's, 'Size Matters', proved that the SA15 S1 could still muster a pacy timing ability. Once again there was excellent separation, with a strong vocal projection to match. It handled the complex, multi-layered vocals with ease and proved articulate and in command throughout. In addition to this, it also came as a relief to find that the upper-mid range didn't harden, as can sometimes be the case with lesser machines playing this song.

Peter Cincotti's 'On The Moon' was portrayed in the smooth, well-integrated way that it should have been. There was fine articulation and texture with the lead vocal and a good orchestral timbre too. Even the piano, which previous Marantz's have struggled to get right, sounded wholesome, if still not quite as full bodied as, say, the Quad 99CDP-2. Again, against more expensive machines, the treble quality could be criticised for sounding a trifle loose, but in the context of its rivals, it still sounded detailed yet refined.

The previous discs had all been conventional CDs, but seeing as the SA15 S1 also plays SACDs, I decided to test this facility using David Bridie's 'Dive'. Straight away there was the sense of relaxed, unforced fluidity that DSD seems to bring out in music. At first the switch to SACD can seem unremarkable, but go back to 16bit PCM and you'll find it rather forced and crude by comparison. With the SA15 S1 in particular, the move to SACD brought about an improvement in focus, whilst still retaining the excellent projection. Bass wasn't quite as effortless as its bigger brother this time around, but it was still more than class competitive and still more textured than with conventional CD. Finally, another benefit of SACD appeared to be a particularly hushed

background. The lack of noise meant that the notes appeared to form more organically and thus sounded more natural. Back to CD, and Vaughan Williams' 'English Folk Song Suite' still impressed. Even at low levels there was vigour and attack to the sound. Dynamic control was excellent with plenty of scale and power when needed, but also subtlety, such as the delicate texture of the flute, when required. Brass would have benefited from being presented with a little more crispness, but other than that, the fine timing meant that there was little to fault.

**CONCLUSION**

When Marantz produce a new CD player it can be taken as a given that it will be at the very least very good. With so many greats from the past, including the SA15 S1's predecessor, this new model certainly has a lot to live up to. The good news is, then, that the SA15 S1 not only lives up to expectations but comfortably exceeds them. First off is the styling and finish. Whilst the heavy, chunky silver finish may not be to everyone's taste there's no denying its presence. That blue display, floodlighting and button layout are also evocative of former Marantz triumphs. Build quality is certainly consummate with the price and there can be no quibbles to be had with the spec' - especially with the SACD decoding. Yet, even with just plain old CD, the SA15 S1 has



a spacious, refined yet powerful sound that is hard not to warm to. Against its big brother it may lose a little focus at frequency extremes, but the differences aren't that great. With Classical music it could also be argued that the Quad 99CDP-2 just pips it for realism, but again the two are close. The automatic first choice at the price, if SACD is important for you.

**VERDICT**

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- bulky styling not to all tastes

**MEASURED PERFORMANCE**

This player offers a smooth, ripple free response with CD, plus good bandwidth extension to 21.25kHz our convolved impulse analysis shows. This will give an even tonal balance with CD, with no apparent softening of upper frequencies. Marantz tend to a brighter balance and I'd expect that to be obvious here. SACD, as usual, does roll off at high frequencies, in contrast to CD. However, it is well above the conscious hearing limit, the -16dB point being at 40kHz, an octave higher than CD. Output then rolls away smoothly to measure -14dB at 100kHz. This roll down keeps super sonic noise levels – a problem with SACD - in check.

Again in line with the results usually achieved by good players, distortion from SACD was up to ten times less than CD, with just 0.38% at -80dB against 4.3% from CD. This is one reason why SACD sounds so silky smooth in contrast to CD. With a miniscule 0.0003% distortion measured at -6dB, SACD provides great results on this player.

Distortion levels on CD were as low as is possible and within a hair's breadth of the best, giving a high EIAJ dynamic range figure of 111dB.

There was a trifle more uncorrelated jitter than the best players, with peaks reaching 25pS or thereabouts, up to 20kHz. This is a satisfactorily clean performance all the same.

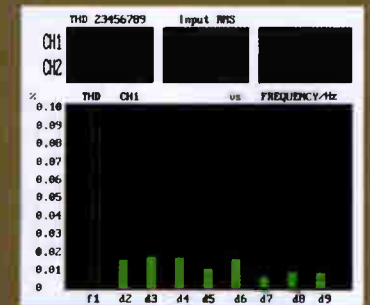
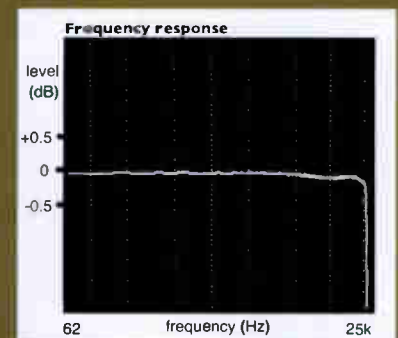
Much as expected from Marantz, the SA-15S1 turns in a good measured performance in all areas. It's a well designed player. NK

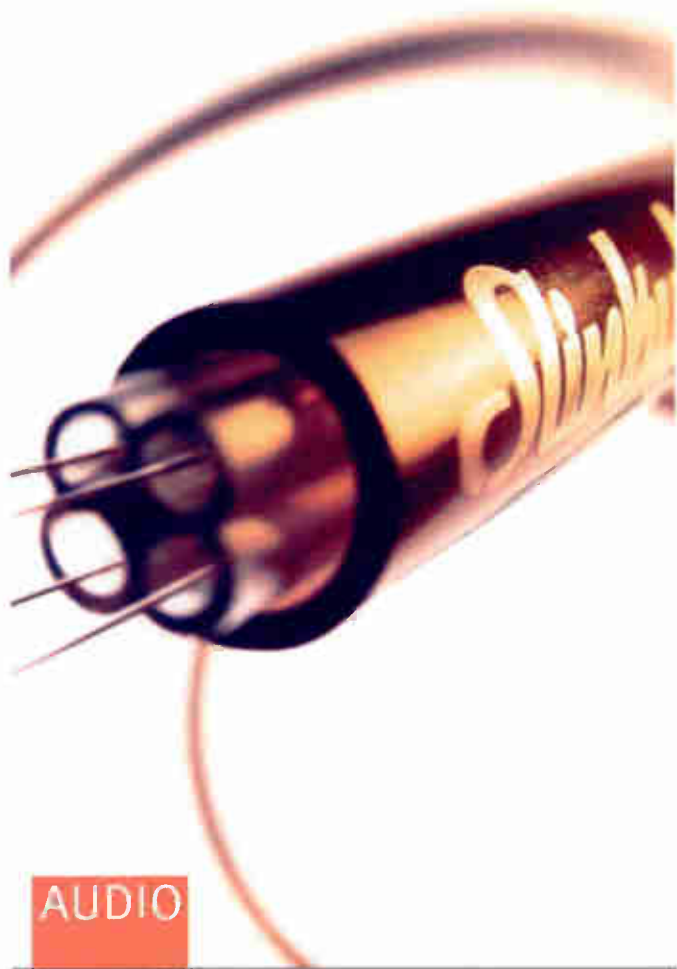
**Frequency response (-1dB)**

CD	4Hz - 21.25kHz
SACD	2Hz - 40kHz

<b>Distortion</b>	<b>CD</b>	<b>SACD</b>
-6dB	0.001%	0.0003%
-60dB	0.24%	0.04%
-80dB	4.3%	0.38%
-100dB	-	2.2%

Separation (1kHz)	120dB
Noise (CD, IEC A)	-110dB
Dynamic range (EIAJ, CD)	111dB
Output	2.1V





AUDIO

42

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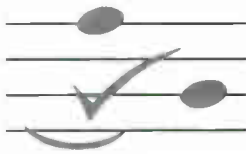
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**CD:** ACCUSTIC ARTS, AUDIO SYNTHESIS, BEL CANTO, dCS (P8), ELGAR, DELIUS PURCELL, VERDI, VERONA), STELLO, WADIA. **VINYL:** AVID, BASIS, CLEARAUDIO, DNM, GRAHAM, THE GROOVE, LEHMANN, MICHELL, ORIGIN LIVE, SUMIKO BLUE POINT SPECIAL, TRANSFIGURATION. **TUNERS:** MAGNUM DYNALAB. **AMPLIFIERS:** ACCUSTIC ARTS, BEL CANTO, CAT, DNM, DK DESIGN, GAMUT, HALCRO, HOVLAND, SONNETEER. **LOUDSPEAKERS:** AUDIO PHYSIC, DALI, ETHOS, GAMUT, NEAT, TOTEM. **CABLES:** ARGENTO, CHORD Co., DNM, NORDOST, SILTECH, VERTEX AQ ETC. **MAINS:** Vertex AQ. **SUPPORTS:** ARCICI, STANDS UNIQUE, VERTEX AQ

## The Right Note

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## 2005 MARANTZ SA-15S1

At just over £1,000, this machine is just a little cheaper than the 1983 CD63, and just a tad more expensive than the 1994 CD52SE in real terms – so it's a very valid tool for comparison purposes. The first thing that strikes you is that massive advance in build quality over the 1994 CD52SE; it's in another world; it's so much better built; no cheap plastic mouldings, no crude styling, horrible displays, rubbishy fascias, fiddly buttons. If you'd been back in 1994, it would have seemed like 'superfi' before you so much as powered it up – the things that digital dreams are made of...

If you'd been a 1994 *What Hi-Fi* reader, your mind would have been truly bent out of shape by the SACD legend on its fascia. If a white suited angel had flown down from Heaven to explain it was the 'successor to CD, with a bandwidth of 100kHz', you'd probably have had to be wheeled off to a convalescent home in Switzerland for some fresh air and natural spring water to get over the shock. "What's this; something 'even better than CD? But the hi-fi magazines keep telling me that CD is perfect... I don't understand", said he. Indeed, our 'dazed and confused' nineties audiophile would have regarded the SA-15S1 just as his father viewed the Commodore PET microcomputer back in 1977, with a sense of "I never knew this was possible".

Well, before we get too excited, let's listen to the SA-15S1's CD sound; the SACD thing we'll return to later. Against the CD52SE, the '15 is impressive. There's more of everything, more bass, more midband, more treble; it's like someone's opened the window and let the fresh air breeze in. Bass is slightly stronger, and obviously more accurate; lots more detail there about the recorded acoustic. Midband is – wow – ever so much more open. The CD63 sounds like dual mono by comparison, while the CD52SE sounds like cooking stereo, but a bit digital in the way it throws out the recorded acoustic. The SA-15S1 sounds 'widescreen'; it's all there, the whole of the studio, with all the elements in the mix in their proper place. The only thing obviously better is – dare I say it – half-decent vinyl, which is on another level altogether (just listen to Marantz's own £1,000 TT-15S1 for proof of this).

The SA-15S1 is big, open, relaxed and yet detailed. There's oodles of detailing there, and a genuinely warm tonality to the proceedings,

which sort of reminds one of tube amplification. It also harks back to the CD63, but is conspicuously less (pardon me) 'fluffy'; it's warm, tonally rich and red like autumn leaves and full of "mellow fruitfulness" (as an Englishman once said) which is more redolent of classic seventies Supex moving coil cartridges than nineties digital. Music is a true pleasure to listen to; in some respects it's closer to the CD63 (the CD52SE sounds a bit too exacting, in your face), but you get so much more than ye olde TDA1540 DACs were able to give. Its Crystal CS4397 DACs, complete with the latest and greatest digital filtering and Marantz HDAM analogue output stages give a truly large, almost engulfing window on the world – and very nice it is too. Indeed, I'd say it's

improvement on what came before – by a country mile – but some will lament its lack of 'that certain something' that money (these days) just can't buy. But factor in its build quality and ergonomics that make the oldsters look positively geriatric (I'm sorry all you 'olde worlde' geeks, but waiting half an hour as the CD63 crawls from track 1 to track 6 has lost its appeal for me – maybe I'm getting old?), and that 'something for the weekend', Super Audio Compact Disc, and it's a persuasive package. The SACD functionality is its master stroke; several of our group test contenders (Quad, Naim) would run the Marantz very, very close on CD playback, if not beat it – but lo and behold – it has a party piece!

For my money, SACD playback

"by most people's standards, the SA-15S1 is an improvement on what came before, but some will lament its lack of that certain something..."

better than all the machines in our group test in this respect, only the tube-assisted Shanling CD-T80 has a hope; but it's that more of an 'octane booster' than real cubic capacity (for which, any fule know, there's no substitute).

The Marantz SA-15S1's musical style is interesting; it's almost like Marantz started with a super-analytical state-of-the-art digital chipset and engineered in some euphony. The 1983 CD63 had way too much euphony in there by default, whereas the CD52SE was all about getting the euphony out in a bid to give it a thrusting, state-of-the-art digital sound. Very impressive then – the '15 – but it still lacks the CD63's rock solid fundamentals; that immutable 'oak tree-like' self-assuredness that (despite all its other myriad failings) takes you to the spirit of the music. The CD52SE also has something the SA-15S1 lacks, which is that 'up-for-it, go-get 'em' musicality. The SA-15S1 makes up for these 'deficiencies' by getting other things bloody well right.

So yes, by most people's standards, the SA-15S1 is an

is genuinely worthwhile. It's just a shame that – unlike those living in the Far East – you can't get more than the odd 'audiophile remaster' on this great format. For my money – despite its obvious theoretical drawbacks – this format still sounds the better of the two hi res options. For my money, this is a real and tangible benefit, and all the more so because Marantz has – brilliantly IMHO – eschewed multichannel SACD for the original two channel stereo variety. SACD properly done sound superb, as the SA-15S1 shows, but that's another story...



# computerwelt

Have Hermstedt struck gold with their all singing, all dancing HiFiDelio audio computer music centre? Neal Gibbons reports...

It isn't often that I get excited about a product just by looking at the spec sheet or sales brochure, but the HiFiDelio wireless music centre from Hermstedt certainly pressed all the right buttons for me. The feature list seemed to go on forever. If the sound quality was as good as the feature list could the HiFiDelio be the Holy Grail of computer audio music centres?

It is designed to be either the centre of a home computer audio network or to supplement an existing one. Music can be stored on its internal hard disk drive or played directly from the internal CD drive. It can replay Internet audio streams and also play music from other MP3 devices such as an IPOD. It interfaces with iTunes allowing direct playback from an iTunes library and it also allows iTunes to play back the audio stored on the HiFiDelio. Up to five different streams of audio can be played at once to 'clients', i.e. a PC or Mac. It can digitise audio via its analogue input (play from an LP phono stage or cassette player). A maximum of 70mins can be stored in this way and the resulting audio file can be edited into separate tracks and then stored on the hard disk or burnt to the internal CD-R.

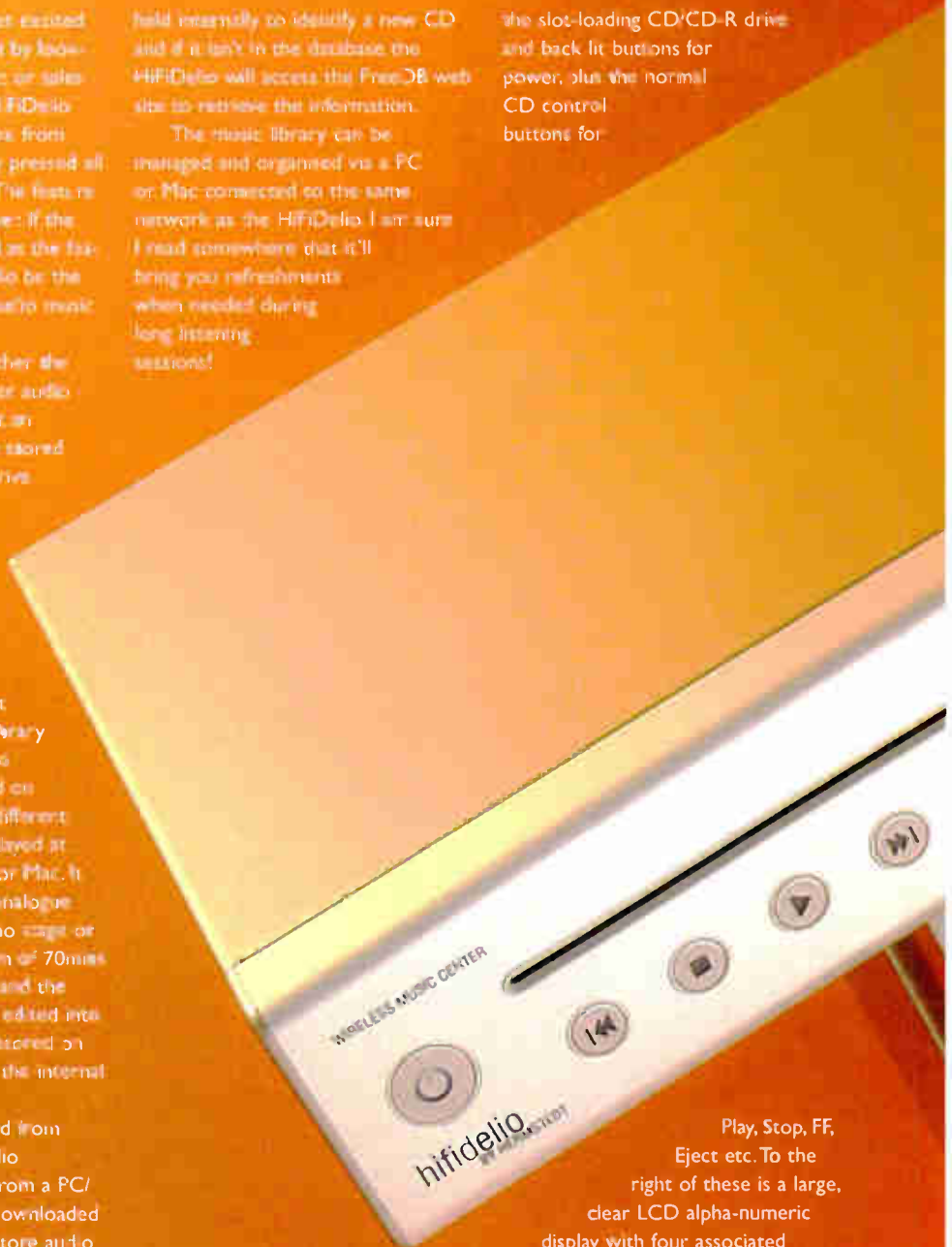
Music can be imported from a CD directly (Digital Audio Extraction) or imported from a PC/Mac or the network or downloaded from the Internet. It can store audio in raw data formats such as WAV, AIFF or compressed formats MP3, OGG, FLAC, AAC and WMA.

On the fly conversion and compression of the audio stream can be performed into MP3 (user selectable quality level) and FLAC. Any stored music can be burnt to the internal CD-R. A version of the excellent FreeDB CD database is

held internally to identify a new CD and if it isn't in the database the HiFiDelio will access the FreeDB web site to retrieve the information.

The music library can be managed and organised via a PC or Mac connected to the same network as the HiFiDelio. I am sure I read somewhere that it'll bring you refreshments when needed during long listening sessions!

the slot-loading CD/CD-R drive and back lit buttons for power, plus the normal CD control buttons for



## IN USE

Measuring 435x85x290mm and weighing 6kg, the HiFiDelio could be mistaken for any standard CD or DVD spinner. Closer inspection though reveals it to be somewhat different...

Available in black or silver brushed aluminium, it looks smart and sleek. On the front panel resides

Play, Stop, FF, Eject etc. To the right of these is a large, clear LCD alpha-numeric display with four associated option selector push buttons and on the far right is a dual 'turn and select' wheel very similar to that found on VCR machines for FF, Rewind and frame advance. Here it is used to scroll the cursor up, down, left and right in the display. I have to say this is one of the best user interfaces I have come across on this type of product.



Finally, there is a headphone jack located to the right of the 'turn and select' wheel.

At the rear is the power inlet, four auto-sensing 10/100Mbit Ethernet switched ports, two USB v1.1/2.0 ports, RCA and Toslink S/PDIF outputs

over the network to a PC or Mac.

My other concern is one of expansion. The HiFiDelio cannot be user upgraded to the larger disk version, a missed opportunity in my opinion. This, and the 'lock in' with the Hermstedt supplied backup disk drive, takes the shine off the feature list for me. I would like to see Hermstedt address this.

to something else (i.e. WAV file into a FLAC file). Having to perform a second user action to copy the files to hard disk did not make sense to me.

Also, it would have been neat if the HiFiDelio could have played the files from its network volume directly, or perhaps have been able to play from a volume on another PC.

Extracting audio from CD was way easier. I copied a number of test tracks and CDs in both MP3 and FLAC. The user can set the mp3 quality level to 'Good' 128kb/s, 'High' 160kb/s or 'Higher' 192kb/s. FLAC is loss-less and should provide sound quality as good as WAV. Archiving an LP was also painless.

It's simplicity itself. I took the output from my WAD Pre II / Phono II directly into the input of the HiFiDelio and selected 'Analogue Recording'. Press 'New' and the screen shows a level meter for Left and Right channels. Cue up an LP and adjust the record levels so the uppermost bar on the scale does not illuminate. Replay the LP and press the record button underneath the CD slot to start recording. The resulting file is in AIFF uncompressed format. The file can then be split into tracks and the tracks and album named.

All track editing is performed via the 'turn and select' wheel. I used a pair of headphones to assist in locating the gaps between tracks. This is done by playing the track while listening and using the inner 'frame advance / frame rewind' wheel to locate the gaps. Once located, you 'mark' the gap and carry on to the next. When all have been 'marked' you press 'cut' and the file is divided into individual tracks.

At this stage a user can burn the tracks to CD-R or import them into a music library in a chosen format e.g. MP3, FLAC etc.

I imported them using FLAC, which would also allow me to burn to CD-R at a later stage with the best quality possible. I found the easiest and best way to perform the track and album naming was to use the Web interface as it gives direct access to the music library in an

A reasonable quality remote is also included, but I rarely used it.

I decided to connect the HiFiDelio to my home WLAN first and came across a setup issue. A quick e-mail to Hermstedt confirmed that the HiFiDelio does not support WAP encryption which my WLAN was configured for, only the earlier WEP standard, not a serious omission but a puzzling one given all the other great things built into the device.

To get up and running I connected it using Ethernet cable and left the re-configuration of my WLAN to WEP for a later date.

Once connected I set about getting some CDs and WAV files onto the hard disk. The HiFiDelio acts as a Windows file server when connected and publishes a network volume that can be accessed from other PCs. This lets the user 'drag and drop' stored music from a PC directly into the HiFiDelio. However, it didn't quite work that way in practice. Dropping files into the volume was okay, but then they had to be 'imported' by the HiFiDelio. Importing copies the files to the music library in the file's native format or, if wanted, by first performing an on-the-fly-conversion

and Stereo Analogue input and outputs. Also located on the rear is the antenna for the 802.11g compatible

Wireless Network. Internally, the main board features a power PC processor, memory module and an 80GB 2.5in hard disk drive. Hermstedt say they have paid special attention to the linear power supply using 'soft' switch mode rectifiers and a low leakage mains transformer to improve sound quality, we shall see!

A 160GB hard drive version is also available.

One of my big concerns with devices like this is what happens if the internal hard disk crashes? Hermstedt have thought of this and can supply a backup external hard disk drive that plugs into either one of the USB ports on the rear, allowing a 1:1 backup of your music library. However, you can't use any old external USB drive, you have to use theirs and you can't backup





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# T+A

## VERDICT ●●●●●

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G10



D10



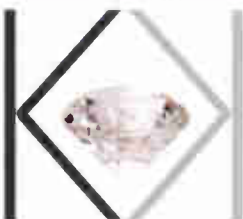
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'empty form' soft. This is so much easier than using the 'turn and select' wheel.

Unfortunately, there is no noise reduction or 'click and pop' removal process for your LPs, so what your deck plays is what you get,warts 'n' all!

## SOUND QUALITY

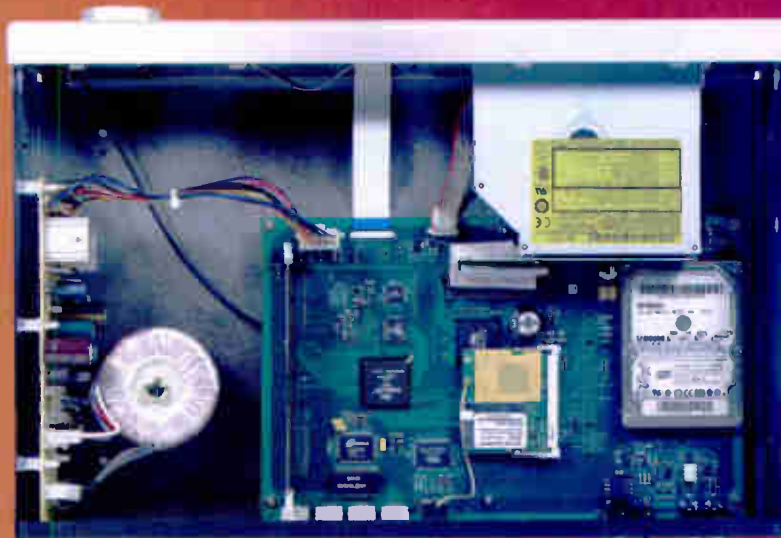
I allowed the player to warm through and run in for 48 hours before listening. I started off by comparing playback from the CD player and hard disk via the analogue 'out' connectors. The sound was very reminiscent of the SqueezeBox MkII in that it sounded okay and performed well on studio produced Pop material like Dido. Unfortunately, it did not stand up to scrutiny with more demanding material.

Compared to my highly modified SB MkII, I detected a narrowing of the soundstage and an edge to the treble, plus some muddle and lack of low level detail. Bass was uncontrolled and overblown!

Playing the same tracks from the hard disk improved things, opening the stage out a little and improving the overall clarity with better bass control. Next, I took the SPDIF output into my MF A3.24 and the sound took on a whole new performance level. I still preferred playback from hard disk, however.

Now the performance approached the sound quality available from the very good SqueezeBox MkII, and also my Pioneer DV-S75 DVD player. The sharp edge to the treble was greatly reduced and now there was 'air' and space around percussion. There was also less muddle, with instruments more easily discernible in the recording. The sound stage opened out further and began to take on depth. Bass started to play tunes, as well as tightening up nicely.

Comparing FLAC to MP3 coded at the 'High' 160kb setting, it was clear that the FLAC files were superior when played via the SPDIF interface. However, via the analogue out connectors the difference was less discernible and at the 192kb 'Higher' setting I could not tell the difference at all, having to go back to the SPDIF and MF A3.24 to be able to detect any differences.



Playback of my 'archived' LP proved interesting and very pleasing. The digitising process seemed to have captured all the right ingredients of the LP sound. Detail was good, as was the bass and soundstage. Treble showed just a hint of grain and there was some loss of low level detail and 'air' around vocals. Overall, it was less warm, but still a very good recording.

## CONCLUSION

The HiFiDelio is a flawed gem. It has so many great features and functions that are missing from other similar products that the omissions noted here seem even greater than those of the opposition.

Take the Windows file server feature. If you can import from the network directory then why can't you play the audio directly from it? The 'Hermstedt only' backup disk and the lack of a user upgrade feature are also curious design choices.

However, on the upside the HiFiDelio offers so much and does so much, it's really hard not to like it and recommend it. The LP archiving feature is a real gem. It's quick and easy to use and provides great sound quality with digitised LP. The ability to burn a CD-R from an LP or burn any stored music is also such a neat feature that I can see people buying the HiFiDelio for this alone.

I would have hoped for better sound quality from the analogue out connectors, but the use of an

external DAC brings improvements that stand up to critical listening. The limitations are only really apparent under close examination and that is me being a little picky! Overall, I think the HiFiDelio is a desirable product with many features, one that deserves auditioning.

### PRO TIME

The £799 HiFiDelio Pro is the big brother to the unit reviewed here. It features a larger 160MB disk drive, said to store up to 40,000 MP3 songs at 128kps and can encode MP3 to 320kps. There is a better display with a 400x160 resolution and four grey scales and the analogue RCA connectors are also gold plated. The sampling rate is also selectable between 11.025kHz and 48kHz. Hermstedt are also working on a bespoke keyboard interface to allow direct manipulation of the music library. The onboard FreeDB database can be kept up to date via the Hermstedt £30 subscription service.



### VERDICT

Capable and versatile music player with an excellent user interface, but onboard DAC could be better.

HERMSTEDT HIFIDELIO £599.00

Hermstedt UK

T +44 207 368 3333

www.hifi-wifi.co.uk

### FOR

- Feature List
- LP archiving
- fine user interface

### AGAINST

- analogue sound quality
- Hermstedt only backup
- no HDD upgrade

# Cost No Object

**What happens when serious, no holds barred analogue faces off state-of-the-art 2005 digital audio? Channa Vithana throws financial caution to the wind in a bid to find the answer...**

## ANALOGUE

**L**adies and gentlemen, in the red corner is the £6,039 Origin Live Resolution turntable with Encounter II tone-arm, Ortofon Rondo Red moving coil cartridge and Chord Electronics Symphonic MC phonostage combination. The belt-driven £1,979 Origin Live Resolution Modern turntable it is now an even more elegant engineering solution than in the past, as it is no longer sprung-suspended (previous versions featured three springs and then one for the suspension). Instead the Resolution features a subchassis designed in the manner of lightweight aerospace engineering where "the overall shape is designed for minimum weight to reduce resonance and energy storage but at the same time to resist torsion and bending in the areas that matter". It is a beautiful design of necessity and aesthetics

- reminiscent of a more fluid abstract expressionism in engineering art.

It uses two sets of upper and lower pods which Origin Live says that "the idea is to float the subchassis via interfaces". The screw-in (former) spring adjuster, which is a sound quality enhancing decoupling and level adjustment device, now houses a new metal cylinder. Origin Live states that, "springs introduce too much lateral compliance so we wanted to get away from some of the problems they introduce". Additionally the metal cylinder procures, "a faster energy path than a spring". The finely toleranced bearing assembly, damper and arm board remain the same. The subchassis is located semi-floating (via the pods) on the strikingly designed plinth which is beautifully crafted from a secret material. The plinth also evokes modern art design sensibilities that in combination with the acrylic

platter, sub platter and spindle and subchassis that form, in my opinion, is a truly eye-catching piece of design through engineering by Mark Baker from Origin Live. The Resolution Modern is also available in a new striking white finish. For those not interested in the 'Modern' versions there is a Resolution Classic with a finely crafted solid cherry-wood plinth.

The DC200 motor, isolated in its own pod, is cogless and also ironless, which Origin Live says "means that flux residue which occurs in cheaper motors is eliminated. Smoother, more efficient operation is the result. The Origin Live motors are also fitted with precious-metal brushes and are highly reliable. The bottom line is that the major source of vibration in any turntable (i.e. the motor) is dramatically improved". It is powered by the £570 DC Ultra Motor Drive which is housed in a black aluminium



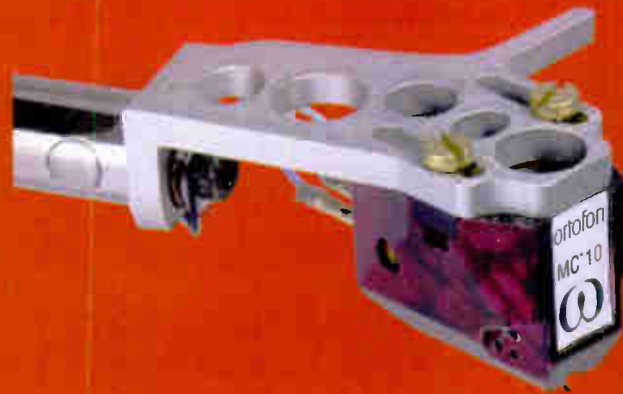


case with blue LED and has recently been upgraded with a better current delivery for superior sound-quality. It can switch electronically between 33 and 45 RPM. The infinitely adjustable external preset dial resistors at the back are a delight to set platter speed in enjoyably minute graduations. The Ultra Motor Drive gets its power from an Upgrade Transformer which is separately housed and replaces the standard plug-in type; it is priced at £160 with the motor drive.

The new £970 Encounter II tonearm features an arm tube made from a secret material and incorporating damping technology and featuring a beautifully polished surface. It is fitted with Origin Live cable (including separate earth lead) which is internally a high grade copper Litz and cryogenically frozen; externally it is a coaxial cable, also cryogenically frozen. The cable is bookended with excellent robust headshell wires which allow precise positioning into the cartridge and Bullet phono plugs at the preamplifier end. It is fully VTA adjustable via an Allen-head grub screw in the Acrylic arm board and its side bias force is set via a thread and ball weight. It comes with all the tools necessary for set up.

I have assessed in direct comparison, the new MKII Encounter Arm, new spring replacement metal cylinder and new Ultra Motor Drive with their predecessors and in each case the differences in improved sound quality of new over old were immense. The new Ultra Motor Drive and mkII Encounter Arm both offer a massive upgrade in terms of much higher resolution and spatiality. In particular the mkII Encounter is a night and day transformation. Original Encounter owners can upgrade to a new mkII for £150. The difference the spring replacement metal cylinder makes is in taking the already excellent musical timing of the Resolution even further with less subjective distortion and noise. Additionally the metal cylinder provides superior instrumental and vocal timbre. Both the Resolution and Encounter mkII come with utterly straightforward instructions with photographs and drawings; they are well written and easy to follow.

The Ortofon Rondo Red MC cartridge at £300 is excellent value for money and features a body made of a ground wood resin composite and a nude elliptical aluminium cantilever. It has a tracking force range between 2-2.5g and a recommended setting of 2.3g. Its recommended load impedance



is between 10-200ohms. The Chord Electronics Symphonic MC Phono cartridge retails for £2060 in black or satin anodised finishes. It is also available in the new 'Brilliant' which is an extremely reflective finish at £2460. The 'Brilliant' finish entails gloss hand-polishing the aluminium case and then electroplating it with nickel for reflectivity and durability. Chord says nickel-plating gives improved skin conductivity, hence improved shielding and a subtle improvement in noise performance. The Symphonic has multiple permutations of cartridge load and gain on its back panel through selectable switches. It has a switchable rumble filter and both input/output in balanced or normal phono sockets which are rare. The top panel has two clear windows

which are illuminated and also show which loading you have set for the cartridge through LEDs.

which are illuminated and also show which loading you have set for the cartridge through LEDs. The Blu features special twin digital BNC Dual Data 176.4kHz outputs for the best connection to the DAC64 as well as a BNC digital, twin AES/EBU and Optical digital outputs for other DACs. There is a clock switch to adjust between 44.1kHz, 88.2kHz or 176.4kHz depending on which digital output is chosen. A dither selector can be used to change the sound quality to taste with different DACs and a BNC word clock input. Regarding the Blu's connection to the DAC64, Chord says, "The WTA filter in the DAC has 1024 taps. The Blu improves on this with its 4096 tap WTA Filter,

there's no doubt that analogue still has the 'X Factor' that digital lacks...

which are illuminated and also show which loading you have set for the cartridge through LEDs.

### DIGITAL

In the blue corner, we bring you the £6,190 Chord Blu Transport and DAC64 CD Source. The Chord Electronics Blu CD transport comes as standard for £4,195 or 'Brilliant' finish for £4,795. It uses a Phillips Pro 2 transport, but Chord uses only the drive electronics because all other transport circuitry is designed in-house by Chord. Chord says the transport mechanism is mounted on a stiff, decoupled suspension. It's accessed by a manual lid which houses a floating magnetic puck to secure the CD in position. The lid is eye catching and even on its inside features beautifully machined circular grooves surrounding the substantial

we upsample the digital data from 88.2kHz to 176.4kHz with 80bit precision. This allows the DAC to partner with the Blu using the dual data links. There is no need to use the DACs buffering as both the upsampler and transport are run from the same master clock, absolute jitter-free". The Blue measures 335x105x170mm and weighs 7kg.

The DAC64 costs £1,995 as standard or £2,295 in 'Brilliant' finish. The DAC64 was designed by Chord's John Franks and Robert Watts. Briefly, Chord says that the DAC64 is the first of its type to feature, "a radically new type of filter called the Watts Transient Aligned filter (WTA); improved fourth generation Pulse Array DAC; 64 bit filter and DAC architecture; and a new all digital DAC receiver chip". It has both balanced and phono analogue

# *The colouration's in the finish*



# *Not in the music*





outputs, RAM Buffer switch, digital input selector and Dual Data, AES/EBU or Optical digital inputs. The DAC64 has a single window on the top panel which indicates blue illumination and then turns to purple with a set of red LEDs when a digital lock is detected.

The Chord Electronics Blu CD Transport, DAC64 and Symphonic phono stage are all flawless in finish and appearance. The aesthetics by John Franks is jewel-like in its intricacy with many machined details across the top panels unique to each model. Chord says that each of these units is machined from a solid billet of aluminium, using multi-access milling machines. The milling process from start to finish takes about one hour per unit. The unit is then anodised or nickel plated. The interiors feature separate compartments from the machining and the walls are a minimum of 10mm thick to keep the power supply separate from other internal components.

## SOUND QUALITY

The audience will doubtless waste no time pointing out that this contest cannot possibly adjudge whether digital is better than analogue (or vice versa) per se, because this is

only one digital source against one other analogue one, and so is rather arbitrary. Of course, this is quite right; we have neither the time nor the inclination to try every possible permutation of each against the other. So for the contest, we've taken excellent 'representative samples' of each, costing virtually the same (high) prices to see what is generally possible. We'll await the flurry of letters pointing out our 'methodological flaws' (etc.), but in the meantime we hope you understand it's done in the spirit of enquiry, and we're not claiming it's the last word on the subject. Heaven knows, even our choice of arm/cartridge would warrant a 'War and Peace'-sized treatise, if we were so inclined!

Seconds out, round one then, and the vocals on 'Maybellene' from the Chuck Berry LP were beautifully rendered, nicely rounded and of very high resolution. Musical timing was excellent with clearly delineated instrumental separation. The sound as a whole was rhythmical, tight yet fulsome with the bass being particularly dextrous and harmonically sophisticated. The beat was infectious and conveyed brilliantly the heretical nature this song must have had to a 1955 listening audience. The guitar and piano solos were a delight as

they were framed within the insistent percussive melodies. On the CD version of 'Maybellene' it was quite a dramatic change in emphasis to the LP. Here the vocals were more forward, though interestingly they did not, in isolation, come off any worse to the LP. However, the fabulous bounce and swagger of the LP that I so enjoyed was a little minimised in comparison.

The music of 'The Dream Of Gerontius' from 1965 had superb musical timing through the LP version as the power and dynamics were stunning with orchestrations exploding in and out of crescendos. The vocal placement was also extremely enjoyable as the layering and overlapping between the male choir, female choir and lead vocals was just right as you could appreciate clearly each and every voice or set of vocals through the inherently good musical separation. The crashing of the percussive instruments was particularly good on the LP version. The instrumental timbre, especially the horns was also first-rate, revealing a sophisticated full-resolution, three-dimensional feel. 'The Dream Of Gerontius' on CD was a little internalised in comparison to the LP version where there wasn't quite the same widescreen



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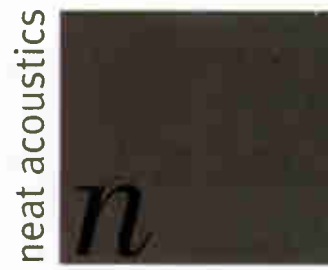
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presentation. However the vocal and musical separation was still stunning and the timbral qualities of the CD version were different, being more fulsome. The brooding power of the low-frequency decay was also present on both the CD and LP versions as the notes were able to linger and then fade with alacrity.

The bass dexterity and extension to Tracy Chapman's 1988 release of 'Talking About A Revolution' on LP was deep yet beautifully nimble, just the way I like it, it was very convincing. Tracy Chapman's vocals were stunning, free-flowing and escaped the speakers into the listening room. Her vocals did not have the occasional lower-mid coloration that I have heard on this LP before either. She was deeply affecting, emotionally conveying the still relevant message contained in the lyrics. The CD version of 'Talking About A Revolution' was almost completely different. I believe many would prefer the CD version (though I preferred the more nimble LP) for the reasons that it had better bass extension and Tracy Chapman's vocals were more rounded and broad with the accent on deeper timbral acuity. The sound ironically was the stereotypical vinyl sound, being lush and deep.

Moby's 'Lift Me Up' from 2005 on CD had excellent instrumental separation, with everything clearly defined yet beautifully in time. This is an exhilarating song and the CD version had widescreen dynamics, taking me further into the heart of its upbeat message. The surging eastern-like chanting was also rather good in the chorus parts, thus augmenting the upbeat feel. Interestingly Moby's vocals were further within the mix on the CD in comparison to the LP which was the opposite of Chuck Berry's 'Maybellene'. On the cover of New Order's 'Temptation', Laura Dawn's striking lead vocals were allowed to resonate deep within the listening room. It was a beautiful rendition through the CD version. There was excellent resolution, emotional feel and atmospherics. Bass dexterity and extension was very good and this helped emphasise the intimacy of the song. On the LP version of 'Lift Me Up' it had a clear and widescreen sound quality. On 'Temptation' the sound opened out beautifully and Laura Dawn's vocals were very similar to the CD version in resolution but had extra textural detail such as a more pronounced breath inhalation which gave it a finer three-dimensional feel. Though the wonderful intimacy of the CD version was a little lessened, the



LP version gained in transparency. Both the CD and LP versions ably demonstrated, in their resolving,

surprisingly engaging sound quality of the £6,190 Chord duo pretty much matches the £9,000 Esoteric

"the fabulous bounce and swagger of the LP that I so enjoyed was slightly lessened from CD..."

textural and communicative abilities - what an amazingly written song 'Temptation' actually is.

## CONCLUSION

You will not be disappointed with these two analogue and digital sources, and if you're serious about LP or CD, you cannot go wrong with either. The Origin Live Resolution turntable is easily one of the best turntables in pure design terms I have yet seen. The latest iteration of the Resolution has become a simpler more elegant solution to high-end LP replay rather than getting more complex and bulky unlike some other high-end designs. It has a stunning sound quality that simply keeps every recording's identity intact (very important to me) and has excellent musical timing, resolution and spatiality. It does not sound smooth, soft or warm - rather it is completely musically credible. The Resolution in conjunction with the Encounter MKII arm, low cost Ortofon Rondo Red MC and Chord Symphonic Phonostage proved itself admirably in this review through the Densen amplification.

The Chord Blu Transport and DAC64 (like the Symphonic) are stunningly designed, flawlessly built and smaller than the majority of their competitors. The

X-01's CD ability minus £2,810 and SACD replay! Both sources are high-end cost but with commensurate sound quality. You can build up to and beyond the full specification of the Resolution through the excellent Origin Live upgrade path and for CD I would recommend starting with a £1995 Chord DAC64. Either way, you'll be happy. Which of the two was better; well, there's no doubt analogue still has the 'X' factor that digital lacks, but these days, properly done digital is oh-so close in this respect and pulls ahead in others. Ultimately it's up to you; this isn't a cop out; in the absence of a knockout blow from either, it's absolutely down to personal preferences.

## MUSIC

Chuck Berry 'Maybellene' (1955)  
Elgar/Barbirolli 'The Dream Of Gerontius' (1965)  
Tracy Chapman (1988)  
Moby 'Hotel' (2005)

## CONTACTS:

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www.originlive.com

Ortofon  
+44(0)1235 511 166  
www.ortofon.com

Chord Electronics Ltd.  
+44 (0)1622 721 444  
www.chordelectronics.co.uk

## REFERENCE SYSTEM:

Waterfall Victoria loudspeakers (£2,000)  
Densen B-250 pre & B-330 power amplifiers (£6,000)  
The Chord Company Signature interconnect (£500)

# jet streaming

The future of high quality digital radio - and TV - lies in Broadband internet, Steve Green suggests. Here's what the BBC and other broadcasters are planning for us.



*Get radio from the Internet with Slim Devices Squeezebox. New broadband technologies could transform quality to real hi-fi.*

If you've ever watched a video clip or listened to a radio station via the BBC website you'd be excused in thinking that the Internet only offers poor quality fare: the audio quality you get on the BBC Radio Player is dire, and the majority of the video clips available look like they were shot on a mobile phone, and not a particularly good one at that. But with analogue TV switch-off approaching, and with the rapid take-up of broadband, broadcasters have started to look more closely at broadband as an alternative distribution method for their content, and the future looks promising.

The problem broadcasters face at the moment is that the technology used to deliver live streams to users is badly suited to catering for mass audiences. Currently, live streams are delivered using a technology called unicasting, where each user receives his or her own individual stream, and all user streams are delivered in parallel. This means that the amount of Internet bandwidth the broadcaster requires depends upon the bandwidth

of each stream and the total number of users.

To give you an indication of the level of bandwidth that might be required: if one million people wanted to watch a live TV show over the net, where the TV show is using a bit rate of 2 Mbps, the broadcaster would require a bandwidth of 2 tera-bits per second (2,000,000,000,000 bits per second), or the equivalent of almost 4 million standard speed (512 kbps) broadband connections.

Clearly, this would be extremely expensive, and the current method doesn't scale well for large audiences or high bit rate streams. It is for this reason that the BBC uses such low bit rates for its radio station streams, and offers very little streaming video.

Thankfully, a solution to this bandwidth problem does exist in the form of an alternative method to distribute live streams, called multicasting. Multicasting only requires broadcasters to send one stream to each Internet Service Provider (ISP), instead of the tens or hundreds of thousands of streams it has to send to individuals using unicasting.

Before broadband took off few ISPs saw the need to convert their networks to support multicasting. Since 2002, however, broadband has grown phenomenally, and now almost a third of all UK households have a high-speed connection – the number of broadband connections overtook the number of dial-up connections earlier this year.

Such growth has caught the attention of the big TV broadcasters, and all now have plans of one sort or another. For instance, a live stream of Channel 4 is planned to be available by the end of this year, and the BBC is currently testing live streams of BBC1 and BBC2, with a view to launching one or both of the channels next year. Crucially, the BBC channels will only be available to users of ISPs that support multicasting in an attempt to encourage more ISPs to convert their networks to support the technology.

A small but growing number of ISPs already do support multicasting, and Branden Butterworth, who is in charge of multicasting at the



BBC Research & Development department, is hopeful that one of the big ISPs will decide to support the technology in time for the launch of the BBC1 and/or BBC2 live streams next year. This would dramatically increase the number of users with access to the multicast streams, and would also encourage other ISPs to make the move for fear of losing customers to their rivals.

The BBC does, in fact, already use multicasting to deliver higher bit rate streams of Radios 1—5, 6 Music, 1Xtra, BBC7, a few versions of the World Service in different languages, and the only live version of a BBC TV channel, BBC News 24. All the streams use Real Player, and I'm told the audio quality of the radio stations is good.

Encouragingly, though, the BBC is planning to change the format used for the radio streams to AAC (Advanced Audio Coding) at a bit rate of 128 kbps, which I know from experience is capable of providing very good audio quality – about on a par with FM with good reception, and certainly far better than you get on DAB.

The live TV and radio streams form one part of what the BBC is calling the MyBBCPlayer, which it plans to launch next year. One of the other elements of the MyBBCPlayer is the iMP, or interactive media player. The iMP will allow users to download TV programmes and radio shows to their computers to view or listen to them for up to seven days after they've been broadcast.

In a small trial of the iMP the Windows Media Series 9 Video (WMV9) and Audio (WMA9) codecs were used. The audio bit rate for the radio shows was 128 kbps, which, again, is capable of providing good audio quality, although not as good as AAC at the same bit rate. The TV programmes, however, used a lower screen resolution than you get on digital TV, but the quality should be good enough for watching a repeat of a programme on a computer monitor, and the screen resolutions of programmes might be higher by the time of the full launch.

The iMP uses peer-to-peer network technology, which is the same technology that the famous MP3 file sharing networks use, where users download parts of files from other users on the network that have the required file on their computer. The reason for using peer-to-peer technology for the iMP is the same as the reason they want to use multicasting for the live streams: it vastly reduces the amount of bandwidth the BBC itself needs to

be able to provide the service.

A second, larger trial of the iMP with 5,000 users began in October this year to assess users' viewing habits, and the BBC is hoping for a full launch next year, government approval permitting.

The final element of the MyBBCPlayer is content from the BBC's vast archive for which they've been able to obtain rights clearance for.

Although listening to the radio via the Internet has been steadily increasing for many years, and especially since the rise of broadband, I would expect that accessing live broadcasting content via the Internet should really start to take off over the next year once the live TV and higher quality radio streams become more widely available.

Currently, the vast majority of people with broadband have connection speeds of 512 kbps, 1 Mbps (1 meg) or 2 Mbps (2 meg). These speeds can easily provide very good audio quality radio streams, but to provide a TV channel stream with good picture quality a bit rate of around 1.5 – 2 Mbps is required with modern video codecs. Consequently, only those with 2 Mbps or higher connection speeds would be able to receive such streams.

However, a few ISPs have already started offering reasonably priced 8 Mbps connections, and the Be Unlimited ([www.bethere.co.uk](http://www.bethere.co.uk)) and Bulldog ([www.bulldogbroadband.co.uk](http://www.bulldogbroadband.co.uk)) ISPs are in the process of introducing 24 Mbps connections using new ADSL2+ technology.

Once a lot of broadband users have these 8 and 24 Mbps connections speeds, then we should start to see the really exciting applications that broadband can offer, such as high-definition TV (HDTV) with surround sound. With modern video codecs, such as the new MPEG-4 H.264/AVC (Advanced Video Coding) codec, HDTV requires bit rates in the region of 8 – 12 Mbps, and the difference in picture quality between HDTV and standard-definition TV (SDTV) that we have now is impressive.

And if broadcasters are delivering 8 – 12 Mbps HDTV streams, I see no reason why they couldn't use bit rate levels of 256 kbps or 384 kbps AAC for the radio stations. Even lossless-encoded audio would be feasible, where bit rates typically vary over the region from 600 kbps to 1 Mbps. Unlike 'lossy' audio codecs, such as MP3, MP2 and AAC, lossless audio codecs use data compression techniques that don't

throw away any information, and, after decoding, a perfect copy of the original digital signal is restored. Lossless audio is comparable to Zip files, only for audio data instead of data files. Other formats that could be envisaged would be streams that use surround sound and/or high sampling frequencies.

One of the huge advantages of using the Internet for distributing broadcasting content is that media players, such as Winamp, Windows Media Player and foobar2000, add support for new codecs as and when they become available. This allows broadcasters to use newer and better codecs for their streams in order to improve the quality.

In comparison, traditional digital broadcasting systems, like DAB, have to stick to using the same codec once a large number of receivers have been sold, and the longer the system has been in use the more out-of-date the codec becomes in comparison with the state-of-the-art codecs.

Overall, the combination of high-speed broadband connections, state-of-the-art codecs and the enabling of multicasting, will, in years to come, deliver higher-quality TV and radio streams than are currently available on any of the current distribution platforms, and the Internet will become a fourth distribution method in its own right.

If you would like to try out the higher-quality BBC radio station or BBC News 24 streams, you will need a recent version of Real Player, and have a broadband connection with one of the ISPs that support multicasting. A full list of ISPs that currently support multicasting can be found on the BBC Multicast web site: [www.bbc.co.uk/broadband/info/multicast.shtml](http://www.bbc.co.uk/broadband/info/multicast.shtml).

You may also need to contact your ISP to get your line enabled for multicasting, and go into Properties for your broadband router to enable multicasting. If your ISP is not on the list but you would like your ISP to support multicasting, then I suggest you contact your ISP to ask them to do so.

To see what all the fuss is about with HDTV, you can download short HD samples from the WMV HD Content Showcase: <http://tinyurl.com/dn8l> (the format most likely to be used in the UK is 720p).

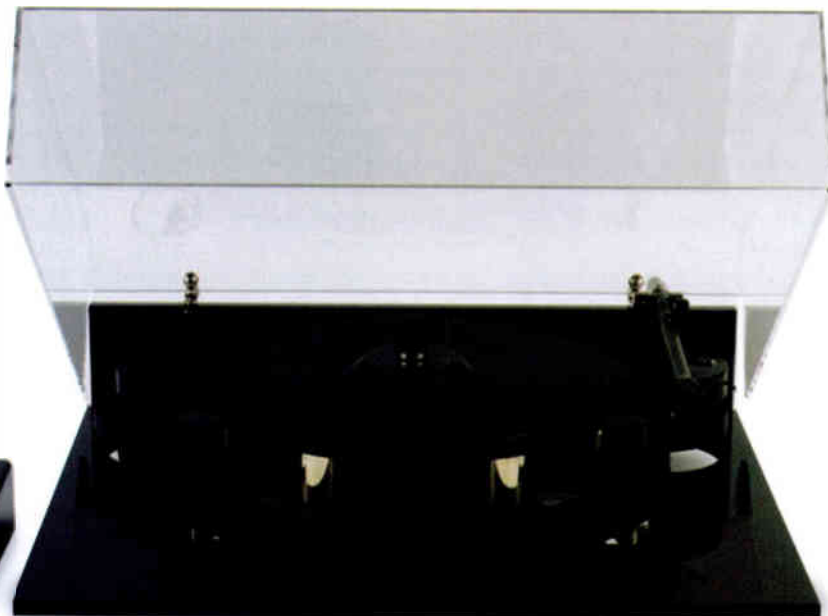
The BBC internet Radio Player may be dire at present, but the rapid take-up of broadband, and new broadband technologies could change everything. High Definition Television may be closer than you think and high quality audio a possibility too.



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NET Audio Sonance

# A Sonance

Delicious digital dreamboat or mediocre music maker? Noel Keywood puts Net Audio's new Sonance digital to analogue converter through its paces...

**E**ver elusive, CD seemingly has all the ingredients to sound fantastic and often I can convince myself it really is very, very good - but then I'm not so sure. A vivid performance from LP or the breathtakingly natural sound of a live broadcast puts it all into question. Even a walk in the park the other day, where a small band was playing unamplified one Sunday morning was enough to remind me that we've still got a long way to go before even the best recordings on CD start to approach reality. It's a good simulacrum, but that's all it is. The often crude circuits within commercial CD players don't help, as their colouration does nothing to balance out the blemishes of digital; both seem of a similar nature and push toward an extreme that can have me reaching for the off button...

Does the antidote to budget CD lie in a good external DAC like the Sonance from Net Audio? Can it wring from CD that little bit extra to make it sound more palatable and entertaining? Could this be a Sunday morning walk in the park?

It's a walk in the park to set up, that's for sure. With a normal IEC mains socket, rear panel power switch, Left and Right audio outputs and just one digital input, there's little room for confusion! The sockets are all nice quality, gold plated, turned brass (I'd guess) RCA phono types.

No problems using these, and no wobble either as the plugs go in. You get zero options on the digital side of things: it's SPDIF (Sony Philips Digital Interface) via an electrical cable only. Optical connection can sound a little gentler and balanced connection has yet to convince me, but you get neither as an option with the Sonance. Most CD players will interface properly - I used four and had no problems - and I don't feel the single connection standard is any limitation.

Net Audio say this digital converter does not re-clock the digital signal, in order to maintain fidelity. Reclocking on a noisy or jittery digital signal will result in errors that fall through into the analogue domain and there is some debate about the wisdom of expecting reclocking to solve everything. Eliminating re-clocking improves basic fidelity, Net Audio state, but resistance to the effects of noise and jitter diminish, so a reasonably good transport, or CD player acting as a transport, are necessary. Our jitter measurements show that most budget hi-fi CD players are of a high enough standard to suit this DAC. Perhaps really cheap players may not fare so well; I didn't test

this. David Pritchard of Net Audio told me the Sonance is an improved version of the MicroClone, tested several months back. However, it measured quite differently and has an internal power supply. A Burr Brown PCM1716 chipset is used with an AD8065 line driver stage.

## SOUND QUALITY

I used the DAC with many players, including a budget Rotel RCD-02, a Denon DVD-2900 DVD player, Quad 99 CDP2 and Cyrus CD8x. It maintained a consistent sound between them and worked without flaw. It was also a charismatic performer that had me undecided 'til the last about its sound. The Sonance drew me in from the very start with a strong sense of insight across the

"this is no flat and sterile sounding CD converter..."

midband that put singers into good relief against the background. It let the way Stevie Winwood controls and changes his vocal force on 'Don't You Know What The Night Can Do?', come through clearly, with the emphasis intended. Maintaining the strong dynamic contrasts used by forceful vocalists was a strength that followed through to all the CDs I used. It was an impressive



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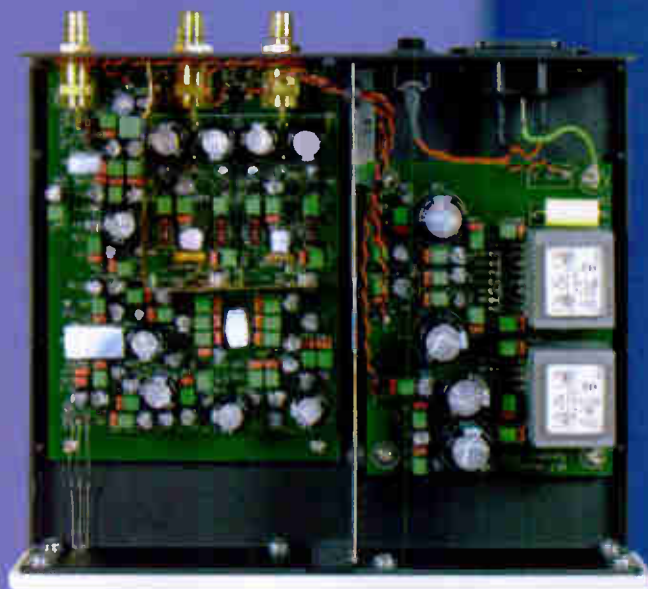
performance in itself and one that had the listening intent straight away.

This is no fat and starchy sounding CD converter for crisp and insightful midrange not only had Winwood in full voice, but his characteristic Hammond twirled around with all its richness and harmonising background singers were succinctly portrayed. With detail aplenty and no sign of aggressive treble, this is a DAC that delivers. A sharp crack from rim shots, the gentle jangle of tambourine rings clearly in the background was a delight on 'Just One More Morning'. Horns had a lovely rasp and again the Hammond twirled around delicately.

A long night of listening, accompanied only by a bottle of Pinot Grigio and a Denon DVD-2900 DVD player, brought up one feature of this DAC that remained through all subsequent listening tests. The Denon is somewhat fast and mechanical in its delivery, but it is dynamically strong and well focused. Drums have real power and sound profound. I noticed the Sonance, by way of contrast, was less able to convey the very lowest frequencies with real force. It was supple and fast with percussion and extremely insightful. I could hear the smack of stick against skin in a way few CD players can manage with drums, but equally there wasn't the bottom end rumble behind single drum strikes on Angelique Kidjo's 'The Sould of the Djembe' that the Denon managed. By default this focused my attention to the midrange and at times its extreme sense of insight was accompanied by what seemed like a little over emphasis in the upper midrange. It was small and partially responsible for the tremendous delivery of detail I enjoyed, but there is a little bit of a trade off here.

I used the Sonance against the best of the CD players in the group test this month and it held up very well indeed, always showing a clear lead in its deep midrange resolution, tubey nature and easy treble, with a light, clean quality. Tight, speedy bass lines were astonishing too, but the loss of force from the lowest octave left it sounding a little light on the ground at times. The extreme precision of its sound made for images outlined with razor sharpness across a wide and stable sound stage, an effect that added the overall impressiveness of its delivery.

This DAC is a great performer. I was intrigued by its sound and impressed too, it advances the sound of CD, although it doesn't make it sound like LP or a live radio broadcast. The Sonance extracts more from what is there, rather than expand the palette of the medium. It is a highly tuned and optimized product able to make CD sound entertaining, that's for sure. At £750 I would not quite call it a bargain, but as an upgrade it still comes in much cheaper than a new player able to match its strengths. This is a formidable digital converter able to cure many of the ills of CD. Nothing's ever quite perfect, not a sunny Sunday in the park nor CD from a DAC as good as this one, but it was both enjoyable and entertaining - and that's good enough.



### MEASURED PERFORMANCE

Fed from a digital signal generator, the Sonance displayed a gentle high frequency roll down, measuring -0.5dB at 20kHz. This is shown in our analysis. It doesn't seem much, but this is detectable as a lack of hardness or brightness in the sound. Frequency response measured 2Hz-21kHz within 1dB limits.

Distortion levels were as low as possible with 16bit resolution. At -30dB our analysis shows just 0.0034%, a very low value. Down at -60dB distortion rose to 0.24%, still a relatively low value for CD whilst at -80dB the figure was 9%, a bit higher than usual. However, with dither applied, this fell to less than 1%.

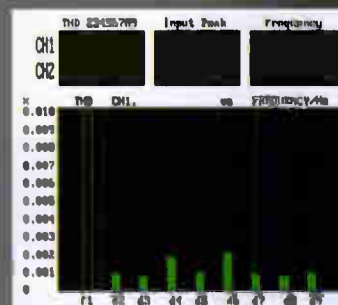
Channel separation was very high, especially at 20kHz where no residual was detectable. Output was a trifle low at 1.865V. The Japanese EIAJ dynamic range test returned a figure of 110dB, just below the best.

The Sonance is neatly engineered. Measurement suggests it will have a clean and easy sound. NK

Frequency response (-1dB)  
CD 2Hz - 21kHz

Distortion  
0dB CD 0.0009%

-6dB	0.0005%
-60dB	0.24%
-80dB	4.5%
Separation (1kHz)	116dB
Noise (IEC A)	-104dB
Dynamic range	110dB
Output	1.865V



### VERDICT

A digital converter with superb dynamics, insight and detailing. Crisp and clear it's a delight to use.

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# Flash Medium

**Apple's stunning looking new iPod Nano 2GB digital audio portable is like an iPod, only smaller, says Patrick Cleasby...**

**T**here's a joke which goes around among the Mac geeks in our office that one can be guaranteed to be incommunicado when Steve Jobs drops one of his big announcements. (Generally at the end of a keynote, with the customary 'and one more thing...' smugness of a man who knows he has this game nailed). You then arrive back and get teased for not knowing the latest genius move. In my case I was out in Amsterdam for the IBC when some colleagues told me of the arrival of the Nano, impossibly tiny and available in black and white, and 2 and 4 gigabyte versions (at £139 and £179 respectively). According to Jobs its *raison d'être* is simply that they looked at the late unlamented iPod Mini and decided they could do it better.

Despite the somewhat superficial storm which blew up in the news media recently concerning the propensity of iPod's to get scratched, (No! Really? Doesn't everyone who cares get a case or cover?), it has to be said that your man Jobs really has played another blinder. Apple have jammed all the necessary circuitry for a flash memory-based player into an impossibly thin and small enclosure. Jobs may have said he didn't believe in flash players only a year ago, but the Apple machine can turn on a sixpence, and with Apple having rapidly grown to dominance in the flash market with the iPod Shuffle, the Nano is set to completely revolutionise that market.

So why is this? Well in short, it's all about style. Despite instinctive concerns about the durability of something so tiny, such thoughts are easily forgotten when you clap

eyes on the Nano and the sheer desirability of it as a majestic piece of 21st Century design consumes your thoughts and hits the 'want one!' button. For some reason the black version (the first black iPod other than the black and red U2 edition – although rumours are that a black 80GB 5G is soon to follow) really does it for everybody.

Of course you should know all about this after that ubiquitous news coverage and the clever 'hands' Nano advert - which ably demonstrates just how tiny the machine is. But that isn't what the more discerning audiophile needs to know. After all, we don't all have to be up to date with the latest trendy gadget do we? Well, in this case - depending on what you want to do with your mobile music, data, photos - you probably do need to get in line with the other ten million people who are going to buy a Nano before the end of the year.

How have Apple raised their game yet again? Well, it all starts with music, and the Nano is the ultimate refinement in the gradual path the iPod has taken towards its present position as the unsurpassably perfect ideal of a mobile music player. Heck, it can even play 1700kbps plus lossless files encoded from 24/28 PCM, a vast improvement on the 'Lossless? Nein Danke!' position of Apple's previous flash player, the Shuffle.

Using the usual Sennheiser MX500s as a benchmark, once we revert to basic 16/44.1 CD rip material 'The Rumor' from the exemplary 'The Band - A Musical History' boxset demonstrates that the 192 kbps AAC performance of the Nano is plainly superior to the

same version on the iPod Shuffle. The new player even makes the step up from 192 AAC to lossless more noticeable and worthwhile when compared with the same pairing on an iPod Mini - the improvement is there on both, but much more marked on the Nano, where the lossless version sounds fuller and more true to life. This is impeccable mobile sound.

A few months ago we learnt that there was no longer such a thing as an iPod photo as all 'grown up' iPods would have the colour interface and the photo functionality. In replacing the relatively shortlived (only two iterations) iPod Mini the Nano has scored in almost every area: better design, better interface (including Photo functionality!), better compactness, better battery life (claimed to be up to 14 hours). Even its maximum capacity at 4GB matches the original Mini - and current rapid developments in flash capacity should mean that the 6GB the Mini ended up at is rapidly outstripped...

As ever an essential part of the iPod experience is that piece of commercial and software engineering genius that we call iTunes. Just to prove that they aren't infallible Apple have done one of their periodic 'it isn't broken but we're going to fix it anyway' overhauls to the iTunes interface and come up with the unloved iTunes 5. Under the covers the foundations are being laid for video downloading and iPodding, but why did that make it necessary to remove the old borders and look and feel of iTunes 4 after more than two so successful years? Worse than that the 'point zero' release for PC was suspected of blowing away



PICTURE COURTESY OF APPLE



some people's music libraries, and a 'dot one' version was hastily made available.

The one positive aspect of iTunes 5 is the previously mentioned 24/48 lossless capability. I have previously mentioned that there was no proof that previous versions were successfully encoding such files due to the lack of a 24bit re-expand function. It now appears from inspecting the bitrates that some truncation to 16bits resolution may have been happening in earlier versions – the lossless bitrates obtained by re-encoding in iTunes 5 are much higher – although I have yet to go as far as finding out how to reconstitute the original PCM file from the lossless version (if such a thing is possible) and doing a file comparison to prove this finding.

Once you have a colour iPod, be prepared for yet another iTunes drain on your time. It is nice to have sleeve art on the machine seeing as you can, and so if you encode rather than buy your AAC files you have to drag and drop JPEG images to your iTunes. That is, unless you use either an automated freeware application like the Mac-based FetchArt 1.2 – currently broken under iTunes 5 – (thanks Apple!), or the useful 'Find Art Using Google' Applescript.

If you are interested in using your precious 1.8 GB (usable) for photos the good news is that since the later versions of iTunes 4 the photo update control has been added to one of the sub-tabs of the iPod tab in iTunes preferences. Contacts and Calendar have also been added directly to iTunes, whereas they were previously updated via iSync. As ever, Apple attention to detail ensures that the machine icon appears in the Finder and iTunes in the correct colour.

"I'd have loved to disabuse Apple disbelievers of the notion that I'm an incorrigible Mac evangelist, but the innovation of the Nano just cannot be denied..."

As far as the Nano's own interface is concerned it is fundamentally the same as that of the iPod Photo with the minor additions of world clocks, stopwatch and code locking. Once you've fiddled with the new bits it's down to actually using the thing for its prime purpose

– the music. As ever the Apple track count estimates are based on 128kbps files – so that makes this 2GB model a 500 song machine (as long as your not too much of a Genesis fan...!). The only real loss, after Apple's pioneering early endorsement of Firewire technology, is that if you plug a Firewire cable in a polite message tells you that it isn't supported anymore. Of the view accessories supplied, (useless headphones, unfathomable dock adaptor, er, that's about it), the standard USB2 iPod cable is essential for both transfers and charging – no mains adaptor is included.

It did seem that the news media were desperate to see the Nano fall on its face. However the irresistible lure of that style cachet was demonstrated by the youth filmed outside the Apple Store Regent Street, holding a defunct old-school iPod, but still insisting that he desired a Nano. I believe 'cool' was the word used,

and 'cool' is indisputably what it is. But just like every iPod ever it is also excellent in its core area of functionality, and that is music handling and playback. Any device which is used in its millions worldwide is going to suffer from some defective models – it just



PICTURE COURTESY OF APPLE

remains to be seen if the Nano improves on the record of its antiquated disk spinning predecessors, or whether its incredible miniaturisation is a step too far. If the gambit works, which it certainly appears to be doing, I can't imagine you could want a smaller non-video iPod. As it is the menu and notes fonts are just about readable and the sleeve art is discernible, but any smaller would make such classic iPod functionality unworkable.

I would have loved to be able to disabuse the disbelievers of the notion that I am an incorrigible Apple evangelist, but the market-leading innovation which the Nano demonstrates just cannot be denied. If Apple execute their video iPod strategy with such insouciant perfection there is a serious risk that Jobs will not only have the record industry dancing to his tune, but he will also be dictating how films come to be purchased and watched for the next several years.

#### VERDICT ●●●●●

As long as Apple's claim that less than one percent of early production models are actually susceptible to screen cracking holds true, the Nano is an inarguable five worlder. No surprise, but if we had six, I'd give it six!

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# BIG Spendor

Want a seriously sized speaker that gets the best from digital? Noel Keywood has found one in the not inconsiderably sized Spendor S8e...

I'm fascinated by early black-and-white movie film showing a world very similar to the one we know, but incomprehensibly different too. Why is it that everyone wore a hat at the start of the twentieth century, even children? What unspoken code or view was the cause? Spin forward to mid-century and the hat is still pretty popular, but the cigarette and pipe have appeared too; meetings are conducted in a fog of tobacco smoke. By the end of that century both have left the silver screen; hats and cigarettes have almost vanished, now only the bad guys smoke...

The end of the twentieth century brought us digital and that is equally changing perceptions too, it seems. No longer are loudspeakers voiced to sound smooth and easy, almost transparent. Digital sound always was clear, but stark and none-too-easy to live with. Increasingly I'm finding loudspeakers being voiced to sound very similar. Metal cones and domes give a bright, hard sound, strong in clarity of presentation, vividly fast and dynamic even, but hardly easy to live with and, like digital, curiously short of any ability to resolve the real timbral qualities of musical instruments. It's a new aural fashion.

Why this has become acceptable I don't know; the violin in particular is a hapless victim. Against this background Spendor's S8e comes as a pleasant surprise. It reels back in time to rediscover a world before the screech of poor digital wreaked havoc on people's ears and expectations. At the same time it avoids old weaknesses, like the coloured and turgid sound of past analogue. This loudspeaker brings the best of the past forward, whilst leaving the worst behind. That clearly differentiates it from the rest of the herd, which has enthusiastically entered the twenty first century in much the same way behatted Victorians entered the previous: idiosyncratically, and in a way that will likely amuse or confuse anyone looking back in future.

Spendor put their finger on the reason. It is down to the old, but new, clear polymer cone of the bass/midrange unit. As I recall it the original BC1 used a similar cone. Spendor say the polymer has been updated - now it is called ep38. Doubtless the voice coil, magnet

and chassis have all improved too, as these days loudspeaker design is a well understood art conducted using software, techniques and materials understood and available globally. What catches the eye about this cone is its transparency - visual transparency that is. You can see through it. A light flick of the fingernail brings forth that characteristically damped, almost dead sound that you get from damped plastics, a world apart from today's metal cones, that clink when you flick them. Bextrene, Plastiflex and various other heavily damped plastics developed a reputation, back in the late seventies, for often sounding either dead or quacky when pushed hard. They seemingly

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lacked the speed and zest of a good, light paper cone and eventually fell out of fashion as a result. Cone materials come and go like hats! Raising the question, is the S8e a little old fashioned?

This is a big, floorstanding loudspeaker, weighing 25kgs (51 lbs). It stands 925mm high, 226 wide and 320mm deep. The base is a wooden plinth with a black crackle finish, fitted with screw inserts for spiked feet. Remove the front cloth grill and there is no port, nor is there one on the rear panel, so this would appear to be a closed box speaker, but that isn't so. There is a port but it vents onto the floor at the rear, an increasingly popular idea. It drives the room better in this position, reinforcing upper bass. It helps a loudspeaker sound fast and dynamic lower down the frequency scale, because frequencies around 90Hz are boosted by room gain. Castle's bigger loudspeakers have long benefited from this idea and now others are following.

Above the bass/midrange unit sits a coated fabric dome - and thank heavens it isn't a metal dome! As much as I stare at those Victorian hats, such as Brunel's stove pipe, I'm not sure I could ever take to them. Turn of the century - 21st that is - metal domes are much the same. They're here, they're currently the fashion but they're slightly laughable. Spendor stay in the BCI 'neutrality' idiom by using a dome material known for its neutrality; this is no confection on top. It's worth noting our measurement shows the dome runs smoothly right up to 20kHz, giving the S8e exactly the same frontal energy balance as any modern loudspeaker, the point being that the engineering is the same, only the sound is different.

Like most of today's loudspeakers the S8e cabinets are well made and very well finished with real wood veneer. Cherry, Rosenut, maple and black ash finishes are available, our samples being in a light Maple veneer.

## SOUND QUALITY

You might hope a big cabinet with a floor port would give decent bass - and in theory it will. In practice a lot of manufacturers still seem to have difficulty getting it to happen though, in spite of computer modeling. One of the more successful features of the S8e is that it does reach downward in an obvious and satisfying manner, befitting such a large cabinet. No large cabinet / small bass here. I heard the sort of deep rumble that World Audio's sizeable

KLS9 was able to produce, and it entertainingly underpins both Classical and Rock, bringing a good sense of physical scale to performances, as well as acoustic power to instruments. Pianos were large and full in body, seemingly with enough strength to move the room when the lower end of the keyboard was used.

I was aware that the big cabinet was bolstering things a little, especially with instruments that themselves rely on structural colourations for their unique character and timbre, notably piano, string bass, the larger woodwinds, violin, viola, et al. The S8e added a little extra depth here with the almost inevitable touch of box resonance, or 'whoomph' as I prefer to put it, but I know from my own prototyping of such loudspeakers that this is a euphonic addition you're best advised not to eliminate by the addition of too much internal damping. I think Spendor have it just about right, although some of the better miked-up male radio announcers, on Radio 2 and Classic FM for example, did reveal the S8e as a little too resonant for comfort at times; deep make speech excited the box. This sort of programme material invariably upsets bigger cabinets.

Music was as revealing of the Spendor's bass, if a little less critical. In a large room able to support full output down to 24Hz these loudspeakers sounded fulsome, but even and well controlled in their bass. Nowadays it is possible to tune loudspeakers so they deliver even bass, the room often being the most limiting factor on what we finally hear. The big Spendors measured well here and in use striding electric bass notes from Angélique Kidjo's 'The Sound of the Drums' were accurately defined in pitch and level. They carried the sort of weight and punch I expect, sounding fluid and dynamic. This is a good, big cabinet at work and it is satisfying to hear. Mind you, I could hear the box, but if you want generous bass that sounds unforced, this is the price you pay.



What drew me to these loudspeakers in the first place, however, was their silky smooth, almost warm sound under test. Years of measuring loudspeakers with a spectrum analyser have aligned my ears and senses to recognise certain properties, and how they fall through into the subjective realm. With today's crop, flat frequency response of the standard reached by this loudspeaker usually relates to a punishingly bright sound, but measurement told me that the S8e was different. And in use this was the case. Its beautifully even natured handling of female vocals, for example, was a treat. From Toni Braxton's rich, heavy tones, singing 'Spanish Guitar', to Renee Fleming singing 'Madame Butterfly', the S8es were deliciously creamy and easy on the ear, yet they also had a relaxed sense of insight that brought out all the wealth of activity within a complex performance. Classical enthusiasts will appreciate this; in large orchestral works the sections were clearly differentiated, instruments within them sounding alive and clearly separated.

Strings get special treatment; the S8es arguably offer the smoothest, most natural treatment I have heard for some time. There is a technical reason: the bass/midrange unit has no dust cap, only a stationary dispersion cone. So high frequencies are handled by the e38p polymer alone, not a semi-rigid dust cap, and there's no cap to emphasise to cone breakup. This produces a warmer off-axis response too, and so less reflected

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energy in the room - audible as you walk around the S8e. Its vertical integration is fine, minimising image change with listening height.

Loudspeakers of this calibre should have high quality crossovers able to resolve spatial information, in order to bring a sense of both clarity and focus. I noticed how well the S8es resolved a wide variety of differing performances while listening to Classic FM, surprisingly, and was impressed by the rich variety of timbral variation and colour on offer when the programme is heard through a top notch hi-fi system working properly, in this case the Denon TU-1800 tuner I review in this issue, electrified by a large roof aerial, and feeding a Sugden A21a.

I like the way these loudspeakers handle Rock. Their smooth clarity, allied to broad frequency response, made for a crispness suggestive of speed without colour. No hard metallic edginess here to add incision to the vibrant plucked guitar strings of 'Spanish Guitar', yet they still had plenty of bite. Instead, I better heard the instrument itself. Billy Idol's vocal theatrics on 'World's Forgotten Boy' were real enough, his snarls, sneers and inflections all there in full, glorious Technicolor, guitars phasing and flanging all around on a large, deep and convincing sound stage. Bass was full and deep and Idol's performance about the best I've ever heard it. Sounding rich, yet strong and completely without muddle on what is a complex mix, the Spendors lack nothing here. From vocal fidelity, through stage depth on to deep resolution of dynamic contrasts and

changing timbral properties. They also go loud and stay clean whilst doing so, a sign of excellent cone behaviour. I couldn't fault the S8es after hours of punishing 'Planet Rock' either; with great performances from the likes of the Floyd, they were great. This is a loudspeaker revealing of subtleties, yet it does so in an unforced manner - and that is rare. Loudspeakers able to do this without the glare of a metal cone are getting rarer than the Capercaillie these days.

The tweeter integrates into proceedings smoothly enough; I was rarely aware of its presence other than to affirm the fact that the

low (24Hz in our room) smoothly up to 20kHz with hardly a glitch - and it sounds like it. There's no holding back; this isn't a retentive loudspeaker. It's large hearted, dynamic, delightfully clear and easy to listen to, soft or loud. I would have damped down the box a little to tame the warm thrum. And the driver combo is good enough to warrant an external crossover, a sand damped enclosure and a few other tweaks to tease more out.

But as it stands the S8e is a lovely listen, for both Rock and Classical. One of the best loudspeakers I've heard for many a year now, it's a beauty and should be on any "must hear" list. Whilst not perfect - no loudspeaker is - I have to give the S8e full marks for sheer entertainment coupled with real fidelity.

with a generously large, silky smooth delivery, this dynamic sounding monitor suits both Classical and Rock. Top notch results."

Spendors leave nothing out at high frequencies. By no means is this a dull loudspeaker. At the same time it's plentiful high frequency energy makes itself known without emphasis.

The S8e is a very easy loudspeaker to understand and summarise, partly because it is conceptually pure. Spendor have traditionally made a conservative product, originally following BBC monitor requirements with the famed BCI. The S8e is not old fashioned. It is a thoroughly modern, even sassy update of the BCI. By that I mean it takes on board all good modern engineering ideas, such as a top quality crossover (vital), bi-wiring and what have you, to give a sound of unparalleled smoothness, with no compromise to accuracy. It's broadband, stretching from very

#### VERDICT

With a generously large, silky smooth delivery, this dynamic sounding monitor suits both Classical and Rock. Top notch results.

**SPENDOR S8E** £1,895

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## MEASURED PERFORMANCE

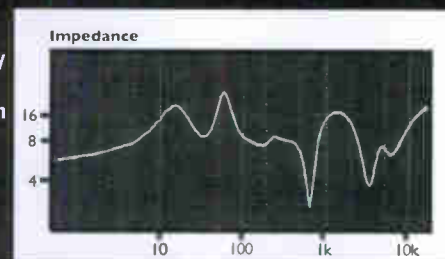
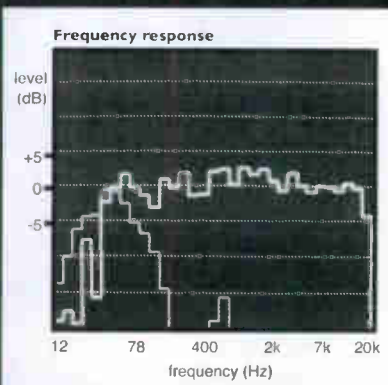
**Under test the S8e sounded smooth - almost dull against its metal coned and domed competitors. In fact it reaches smoothly up to 20kHz with no attenuation at all. The tweeter looks like a good one. As is usual the bass/midrange unit produces just a little more output, in the midband at least, which should enhance vocal projection a little.**

**This is another floorstander to reach almost flat down to 50Hz, a slow roll off below this frequency reducing output to around -6dB at 31Hz in our test room. This is a very good result from a cabinet of the size; the S8e goes low smoothly. In a large-ish room it will deliver real lows. The floor port damps resonance well, our impedance curve shows. It's centred at 35Hz - relatively low, not surprisingly. The S8e is a wideband loudspeaker, that's for sure.**

**The impedance curve is a surprise. It has some violent impedance / phase changes, likely caused by notch filtering. It is also very high; the S8e is an 8ohm loudspeaker. As a result voltage sensitivity was low at 84dB. The S8e will need a powerful amplifier, 60W-200W, to get enough voltage swing to drive current if it is to go loud. As a**

load this one isn't the best.

**Not quite a text book job, but the S8e looks strong in certain important respects: it is very smooth and also wideband. I suspect it will impress. NK**



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# IN TUNE?

After decades of dominating the British 'budget tuner' market, Denon is going digital with the new TU-1800DAB. Can it compare to the company's classic? Noel Keywood decides...

**D**enon have a tried and trusted tuner in the long running TU-260L, a budget VHF/FM design that seems to make everyone happy. All the same, it lacks DAB. So recently Denon released the TU-1800DAB reviewed here, which brings Digital Audio Broadcasting to the party. Having a proven track record in VHF/FM, can Denon earn a similar reputation with DAB? There's no shortage of competition here from Pure, Cambridge, Arcam and others, all of whom have

more experience, selling DAB tuners for many years now.

Coming in at around £230 or so, the TU-1800DAB is a mid price tuner, meaning it should offer real hi-fi quality, together with a good set of facilities, if not top of line tiddly bits such as narrow/ wide selectivity and suchlike, the sort of thing buffs may crave, or those suffering difficult reception conditions.

Like most modern all-electronic tuners and unlike those of yore with lead weight spinwheels in their tuning mechanisms, the Denon

is manageably light at 3.8kgs and compact enough to fit most shelving systems, measuring 343mm wide, 74mm high and 286mm deep. More space is needed depth wise to accommodate an AM loop aerial for Medium Wave reception, and as the VHF input is a panel mounted coaxial plug (i.e. male), a female-female adaptor will be needed by anyone having a coaxial plug on their download. As Denon do not supply a wire VHF dipole, this band will not 'work out of the box' unless an aerial already exists.



The DAB aerial input is a separate F connector, but Denon supply a small whip aerial with magnetic base for those without a Band III DAB aerial array. As DAB is supposed to work with car aerials and short whips, this should do, but don't bet on it! The TU-1800 uses a normal enough construction comprising steel base tray, steel cover and extruded front panel. Denon have curved the front panel extrusion to add a little visual interest and given it a nice brushed aluminium finish. A gold Denon badge lifts the appeal a little; it looks classier than screen printed graphics.

## TUNING TRIALS

The large central window carries a blue fluorescent display that runs text messages from DAB, with artist and track info comprising typically 4 words on screen within a scrolling message. You get all the usual display info, like station frequency on vhf/fm, or station name on DAB, plus

the usual additional data such as Ensemble number and frequency, etc. I could not, however, get Signal Strength to display, as stated in the handbook, which was disappointing. Denon UK were unable to explain why the handbook depicts such a display but the tuner does not have it. Usually, this is down to regional differences or last minute design changes. Only a BER (Bit Error Rate) reading is provided, which wasn't especially useful in light of the tuning problems I encountered. The display did tell me I was getting a "digital station" though, which was interesting - all digits I suppose...

The handbook is written in awkward 'japlish', describing operational sequences that were opaque, I felt. To change tuning modes you must press a Menu button, find Search Mode menu, select it, scroll through three options, manual, auto or preset, then select one of these before tuning can

start. Fiddly. A dubiously engineered auto-tuning system locked to noise because the sensing threshold was too low. This made manual tuning to the published station frequency the only option when setting up, which introduced another issue: manual tuning switches the tuner to mono, as well as lifting noise muting. This wouldn't be a problem in itself, except it stores stations into the presets as mono too. As a result, when station selecting from the presets they all come up in mono, even though stereo is being transmitted. Another handbook error added to the confusion: "when manual tuning mode is set, FM broadcasts are received in manual" it says. It should read "received in mono"!

There is a tune accuracy indicator, but I could tune across two, three, sometimes four different frequency steps, each of 50kHz (i.e. 0.05MHz tune steps) and it stayed



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lit, so was unable to identify the right one. Usually it was the middle of three, but not always. With a good aerial, the problem was worse, especially with Classic FM and Radio 2, both of which come in strongly on two different frequencies in London. The TU-1800 is surprisingly rudimentary in this area. An Arcam DT91 and a Pure DRX-702ES had no such problem. The Denon isn't a tuner to be driven; it's best set up and left alone.

There are 100 presets for analogue, meaning they are shared between VHF/FM and Medium Wave, and 100 for DAB. This tuner does not have Long Wave, by the way. Once preset stations are chosen by using large Channel Select buttons on the remote control. On DAB this selects only the station name, not the station, as usual. The Enter button must be used to select a transmission, as always with DAB.

In a poor location, our London office on the ground floor of a concrete and steel frame building, not so far from the local DAB transmitter at Alexander Palace, North London, DAB as usual was at its limits; we received a wide range of stations, but often with burbling, a sign of marginal signal strength. DAB has this problem country-wide; NTL have suggested transmitter powers must be raised considerably to eradicate dead areas, so don't bet on an indoor aerial being adequate.

## SOUND QUALITY

On VHF/FM, BBC stations from Wrotham thirty miles away were inevitably very noisy, but those from the visible Crystal Palace transmitter, like LBC, were reasonably strong. All the same, reception on VHF was patchy as expected, and noisy, using an indoor dipole. In this circumstance DAB gave superior reception and choice, if not better sound quality. Sadly, even in such gruesome reception conditions the gulf between the two was at times horribly obvious. Piano on Classic FM was reproduced with a wondrous sense of fullness and body, plus a timbral richness that filled the room in a delightfully natural and engaging manner. Classic on DAB sounded thin, characterless and slightly coarse,

even if superficially clean and noise free. Whilst I turned off Classic FM on DAB, it sounded glorious on VHF even with interference in the background. I switched between the two as they played Wagner's 'Ride of the Valkyries' and VHF sounded overwhelmingly alive and wonderful. Results were very similar with Radio 2, the DAB version sounding short on ambient information, lifeless and focused on the midband, frequency extremes falling away into obscurity.

All the same, with DAB the Denon managed better than I have come to expect, delivering a precise and relatively dynamic sound, in comparison with a Pure DRX-702ES and an Arcam DT91 revealed. The Pure in particular was different rather than better, its equalisation giving more body to the sound, but it was a little less analytical. Although VHF offers better sound quality, much of the time this advantage is academic, because DAB is surprising for its broad range of stations, for example classic rock from Planet Rock, Virgin Classics and Capital Gold. On VHF I found this tuner's character similar to that with DAB. It sounds wide and open, tonally even, precise and clean. The Bee Gees' 'How Deep is Your Love' from Magic struck me as atmospheric and natural, for example, a strong analogue presentation with that characteristic ease of delivery.

Bass sounded firm and dynamic, vocals clearly defined, whilst cymbals had an unforced purity that was at ease with the rest of the performance. Arcam's DT91, with its unique Software Defined Radio VHF section offered a stark clarity that had me equivocating, until the violins appeared. All the same, Rock enthusiasts may well love the tight bass of the Arcam and its acerbic delivery.

Pure's DRX-702ES was a trifle less refined at high frequencies; cymbals displayed a tad of emphasis. But there wasn't much in it, sound quality wise. However, the Pure is easier to set up and use and it has more and better facilities. So whilst the TU-1800's sound was classy enough, rivals are snapping at Denon's heels in this respect, but offering more elsewhere.

On sound quality the TU-1800DAB is a lesson in balance. Denon adopt a conservative and traditional approach to tuner design and it works. The result is a tuner that is relaxing, yet accurate and detailed. It conveys the life in music, getting the best from DAB and doing a good job with VHF which makes it an entertaining product. But it isn't easy to tune in, set up or drive, to a degree that is obstructive to getting the best from it. In this respect it could be better thought out – competition is strong.

## VERDICT

Impressively tidy and dynamic sound with DAB, and civilised with FM too, but ergonomics and feature count detract.

**DENON TU-1800DAB** £230

Denon UK

+44 (0)1753 888447

www.denon.co.uk

## MEASURED PERFORMANCE

Frequency response of the VHF section reached 14.7kHz at the upper -1dB limit, although there is a dip before this, our analysis shows, likely due to inaccurate mpX filter termination. It causes response to dip down and will ensure the tuner doesn't sound sharp or bright. The dip isn't large enough to be obvious. The TU-1800 performs well enough in frequency response terms.

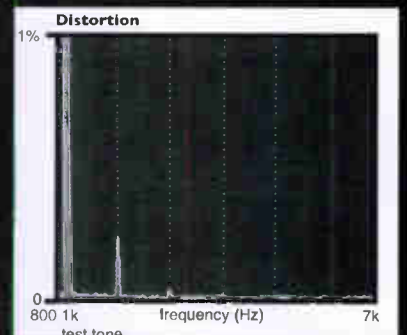
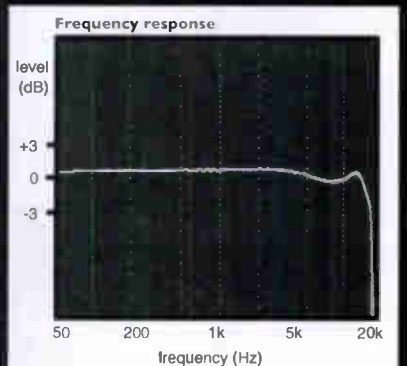
Distortion levels were not the lowest possible, but they were respectable all the same, around 0.4% at full modulation and 0.2% at 50%. Our distortion analysis shows predominantly second harmonic on a 1kHz tone at 50%, via R+L, the mono component.

At -71dB (IEC A weighted) hiss was low enough to be just inaudible. In practice transmitted noise usually exceeds this. The tuner needs 900uV or more from the aerial to deliver this performance, a normal result. It needed 40uV to give a -50dB noise figure (IHF) with stereo, and 3uV on mono, putting sensitivity on par with normal budget tuners.

The TU-1800 turns in a tidy set of figures on VHF/FM, if a little down on the category best in most respects. NK

Frequency response	5Hz-14.6kHz
Stereo separation	48dB
Distortion (50% mod.)	0.3%

Hiss (CCIR)	-71dB
Signal for minimum hiss	mV
Selectivity (at 0.4MHz)	dB
Sensitivity	
mono	µV
stereo	µV
signal strength meter:	none





# Bit Parts

David Price rounds up three essential accessories to help you get the smoothest and most musical sound from digital audio sources...



## MISSINGLINK ORBIT MAINS CABLE £65/M

Back in the early eighties, I found myself very impressed by the packaging on the Rega R100 cartridge I bought, which was – to be frank – awful. There was the sense that here was something that was truly brilliant, and as such the manufacturers couldn't be bothered to waste time and money on fancy boxes. The same impression is given by The Missing Link Orbit mains cable, which wins no prizes for presentation (quite the reverse), but works amazingly well for the money. Whereas most cable manufacturers sell their stuff in a manner akin to 'male jewellery', this company stuffs it in a bit of polythene and a padded bag. Having had great results with the Supplier 6 mains outlet bar, the Orbit gives more of the same, which is a brilliant sounding £65 mains cable complete with silver plated mains plug and silver plated Marico IEC. Missing Link rightly believes in silver – it has far lower resistance than gold – and has been silver plating the Marico plugs (£26 each) as well as

their own EPS-500 (£10) mains plug for over two years now. The company even offers silver plated fuses, which also offer a small but worthwhile upgrade. The Orbit is refreshingly easy to use; it doesn't have shielding that weighs ten tonnes and is impossible to bend; rather its silicone rubber shielding makes it a simple, unresonant, fit and forget affair. The cable claims to offer low inductance (for fast transient response) and to minimise electro-motive cable resonance, and also to minimise line noise and contact generated noise and attenuate RFI without adversely affecting cable inductance. First time you power up your CD player, phono stage, pre and/or power amp (even your Quad Electrostatics, as I found), you hear obvious sonic benefits, not just over the bundled IECs that come with everything these days, but over any £100-plus 'audiophile' rival I've heard to date. It is super clean, uncluttered and three dimensional – it lets your system soundstage like few others, and has all the grace and subtlety to let instruments hang in space, rather than being squashed up against one another. There's little of the 'clang' of cheaper interconnects, and no artificial grain or 'hash'; instead you get a very natural, neutral, easy sound that lets the tonality of the instruments flood out. Missing Link claims to be the only UK company

that designs its own cables from the ground up, from dielectric selection to material treatment and inspection – and the excellent sound certainly bears out such attention to detail. Superb value.

[tel: 0115 8779089]

[[www.the-missing-link.net](http://www.the-missing-link.net)]

## CLEARER AUDIO SILVER-LINE OPTIMUS REFERENCE LOUDSPEAKER CABLE £2,150 PER 2M PAIR

Clearer Audio isn't a well known name, but since reviewing the company's Silver Line Optimus interconnect over a year ago (a cable I still use between my pre and power amps to this day), I've had real respect: think of them as the audio equivalent of Morgan (or suchlike) making low volume, ultra high performance products without the marketing budgets of the 'big names'. At this frankly silly price, the Silver-line Optimus Reference is of course the company's top loudspeaker cable, and comes as four mono runs. This is chosen





for its resistance, capacitance and inductance qualities. Using an individual run of speaker cable for each of the negative and positive lines also significantly reduces interaction effects, says designer Darren Smith. The cable uses "the very best" six-nines (99.9999%) silver multi-strand-solid conductors, totalling 42 individual conductors per mono-run. Each mono-run is comprised of 6 individual cores of multi-strand-solid conductors with 7 multi-strand-solid conductors per core. The conductors in each core are arranged concentrically, as are the 6 cores. Each individual core of conductors is insulated in low-loss foamed polyethylene insulation, and each mono-run is shielded with the company's triple braid 'Triangle Shielding Technique' which provides excellent EMI and RFI shielding. Its shiny metallic finish gives the cable a superb 'technical' appearance and feel, but don't expect to bend it easily, or hide it under the carpet; 'her indoors' would not approve... Each run is fitted with ferrite rings which suppress Radio Frequency Interference (RFI) and the cable is terminated with either spades (WBT 0660 / 0680 Ag Spades) or banana plugs (Eichmann Silver Bayonets), although the supplied cables were unterminated at one end to fit directly into my Yamaha NS1000M's bare wire spring clip connectors. Sonically, I have to say these are the best loudspeaker cables I've yet heard. Most striking – compared even to the dizzy heights of Chord's

Signature speaker cable – is the speed and clarity. These cables are dizzyingly fast, yet have no edge or grain whatsoever (which is what gives most fast cables the sensation of speed). The clarity is no less impressive, the cable affording a dramatically open, translucent window into the recorded acoustic which leaves the listener bedazzled by the detail. Bass is very spry and dry, with no overhang, masses of drive and real dynamic articulation. Treble is disarmingly delicate, with wonderful filigree detailing and breathtaking air and atmosphere. This cable flies with whatever type of music you throw at it; you'd think it excelled at complex orchestral works (with all that control and detail), but put simple female vocals on and you're sat there marvelling at the 'electric' presence of the voice, its speed, timbre and intonation. Quite sublime. Clearer Audio's top line is an object lesson in loudspeaker cable design, but it so it should be at this price!

[tel: 01702 543981]

[www.cleareraudio.com]

### ISONOE ISOLATION FEET £90

Here's an interesting one; exquisitely made, sharply styled isolation feet for CD players and turntables (in the latter case, they go right in to most Japanese direct drive decks since the seventies with screw-in feet, except Pioneers with independently sprung coaxial suspension systems, and some Sonys with levelling feet). The Isonoe Isolation System is sold in packs of four isolators, each of which has a 6mm thread making the system compatible as a retro fit with many industry standard bits of kit. The feet are designed to block the ingress of vibration into the mechanical assemblies they're screwed in to. They're manufactured in the UK at a specialist engineering facility with multi-axis CNC equipment typically costing upwards of a quarter of a million pounds per machine, to superb standards.

The idea is to unscrew your existing foot with the aid of a Philips screwdriver, and screw in the Isonoe foot until the soft bush around the bolt compresses slightly. This then gives about 3mm of travel from when the bush makes contact to full compression. The base of the Isonoe locks the deck firmly to the ground, and the bush gives some decoupling. Further isolation is available from

the optional (£35) bases, which are thick, sticky Sorbothane with recesses for the also optional (£45) instrument glass puck tops, which can either be used or removed, depending on the level of isolation required. The entire Isonoe isolator foot and base/puck assembly gives very substantial acoustic decoupling from the environment, making them useful for DJ applications where structure-borne vibration threatens to unseat the stylus, even a Stanton snowplough tracking at 5g! But in more esoteric audiophile applications, they had a more subtle effect; the Isonoe system cleaned up the sound dramatically, opening out the midband, smoothing the treble and making the bass significantly more tuneful. A strong and confident sounding player became subtle, musical and three dimensional too, making for a truly worthwhile sonic improvement; I couldn't help but marvel at the way a hitherto analytical sounding device had really started to bounce around and enjoy itself making music. Our optimum combination was the Isonoe feet and Sorbothane bases, without the glass pucks. While this little lot isn't as cheap as FoculPods (et al.) admittedly, it's a very elegant and subjectively highly effective audio upgrade; money extremely well spent.

[tel: 0208 3007563]

[www.isonoe.com].



"I still have reservations about modern digital, as we know it..."



## noel keyword

It was late Sunday night as I casually listened and pondered on the upside and downside of digital. In front of me was an interesting pair of tuners, an all-digital Arcam DT-91 and a Denon TU-1800. I was listening to vhf from each and they were chalk and cheese. But it was hard to decide which was better - impossible in fact. The plus side of the score sheet balanced the minus side perfectly it seemed to me.

The Arcam had a stark clarity that was missing from the Denon - and from most tuners in fact. It was fascinating to hear such a characteristic so strongly portrayed, but I wasn't really surprised either. You see, the DT-91 uses a radical all-digital vhf/fm radio section from Radioscape. It isn't perfect, but that's what makes it interesting. All the usual digital characteristics were there when I tested this tuner: extended distortion harmonics with a spectral pattern quite unlike any analogue tuner and a peculiar noise floor that produced a strange burbling, I found when listening to it from a silent test generator. And much as I have come to expect from experience, the sound of this tuner was very 'digital' in exactly the way most of us just take for granted these days. That is to say, it gave a glassily clear view of the music, but not exactly an organic one.

It's easy to point a finger at the Arcam's weaknesses and say, "what do you expect", but it only does what most digital can be heard to do, but in more obvious fashion. As such it's an interesting example of both what's wrong with digital and what is right. It is also a reminder of just how much digital signal processing skews the sound of music in a particular,

very characterful manner that even nowadays is so little understood that argument still exists about it all.

Whilst the idea that digital as demonstrated by CD is "perfect" went out of the window pretty fast once the CE business started talking about its replacement by something "better", which I presume means better than perfect, the nature of its imperfection and how it affects sound quality are open to debate. Generally, when the reasons for something are baffling I generally put it down to too many variables. Try adding one plus one whilst you are adding two plus two and you'll find it impossible, unless your name is Carole Vorderman. The conscious brain can only deal with one issue at a time - if that with some people! And that's why I found the Arcam so interesting. It has just a few errant variables, but also some interesting strengths, so as a package it is easy to understand what is influencing its sound.

Measure any normal analogue VHF tuner and you bump into certain obvious weaknesses. The worst is a whole heap of intermodulation distortion against the pilot tone; tuners are typically riddled with it, yet they sound clear enough, or so we might think. This problem affected Denon's TU-1800 in the usual way, so nothing odd here. The Arcam is the first vhf tuner I have ever encountered that all but eliminates this effect, because of its radical digital signal processing. And you can hear the benefit quite clearly. That's where its clarity comes from. It is free from a whole slew of intermodulation distortion products and the audible benefit was obvious.

All the same, the Arcam by no means has things all its own way.

Whilst not possessing the sheer clarity of the Arcam, the Denon was an easy listen, with a relaxing and seemingly natural presentation - classic analogue in fact. It might not be perfect, it might be measurably and audibly blemished in fact, but I could relax and enjoy music all the same - and that is what matters. No matter how whiz bang some modern technologies may be, and how apparently amazing the results that they produce, simple enjoyability has to be the final arbiter of their effectiveness and all too often it isn't there.

With these tuners I faced the strengths of both digital and analogue in equal measure, it seemed subjectively. These days digital is our scheme of choice because it can be so easily yet thoroughly processed. It also turns in a good set of figures, as theory predicts, so making an apparently unarguable case for itself. In this issue we've tested a wide range of digital products and I listened to many of them, as I like to keep up to date. Yet I still have reservations about modern digital, as we know it.

Somewhere in the future, which will undoubtedly will be a digital future, I hope we will finally manage to resolve this issue of the differences between the two, because at present no matter how poor old analogue may seem at a technical level, subjectively it remains thoroughly enjoyable and easy to listen to. I hope digital will one day sound just as good. For the time being though, the balance between the two in terms of sound quality seems well summarised by those two tuners - open to question with neither side a sure winner. ●



# ASA: "no evidence to show that DAB digital radio was superior to analogue radio"



## steven green

**A**t the beginning of October, the PM programme on Radio 4 aired a debate about DAB, following the Advertising Standards Authority (ASA) upholding two complaints against a DAB advert, which claimed that DAB provides 'crystal clear sound' and is 'distortion free'. The ASA went on to say that, "we received no evidence to show that DAB digital radio was superior to analogue radio in terms of audio quality."

Taking part in the debate were Simon Nelson, the BBC spinmeister in charge of DAB, and the technical journalist, Barry Fox. However, Barry Fox has previously gone on record as supporting the way DAB has been implemented in the UK, so this supposed debate turned into pure farce, with two DAB cheerleaders both extolling its virtues while glossing over its shortcomings.

In the 'debate', Barry Fox repeated his views about DAB, saying that it is a "wonderful system," that, "people should be getting very excited about DAB and not looking for what's wrong with it," and, "it isn't absolutely hi-fi, because what they have to do is limit the quality of it to get a lot of programmes and a lot of choice. If they had absolute top hi-fi quality, there would be very few programmes and only a few hi-fi buffs would be listening, and it would be a commercial disaster."

If DAB is such a wonderful system, why have they apparently had to "limit the quality"? I would suggest that two absolutely fundamental requirements of a digital radio system that is fit for purpose in the 21st century are that: it has to be able

to provide good audio quality, and it must be able to carry a wide range of radio stations. DAB in the UK fulfills one of these requirements at the expense of the other.

The unfortunate truth that DAB proponents will not face up to is that DAB is completely out-of-date and has been superseded by vastly superior modern systems. These modern digital broadcasting systems employ modern audio codecs and far stronger error correction algorithms, the combination of which make the modern systems hugely more efficient than DAB is.

A measure of the efficiency of a mobile digital broadcasting system is the amount of spectrum that a radio station consumes to provide a certain level of audio quality. If we assume that the audio quality should be as good as FM, if not better – not an unreasonable request – then a station on DAB consumes 428 kHz of spectrum, because only four 256 kbps (MP2) stations can fit into a 1.71 MHz bandwidth DAB multiplex. In comparison, radio stations providing the same level of audio quality (using 128 kbps AAC) on the modern DVB-H and MediaFLO systems only require 103 kHz and 69 kHz, respectively, and once work on the DRM+ system is completed in 2006 or 2007, I estimate that it will only require 50 kHz.

As these modern systems are between 4- and 9-times as efficient as DAB, these systems would be able to provide far higher audio quality on a far wider range of stations than DAB could ever hope to achieve. Basically, we backed the wrong system.

In contrast to the UK, France held back their decision on which digital radio system to adopt, and

earlier this year the four largest radio broadcasters rejected using DAB precisely because the technology is out-of-date. France is now trialing the DVB-H system for digital radio instead.

Barry Fox concluded by saying, "you know, we've only had it 10 years ... it's early days. Compare it to what would have happened 5 years after Edison invented recorded sound ... it was still pretty poor."

I'm afraid he is ignoring one rather important point, which I'll let Karlheinz Brandenburg (the inventor of MP3) explain: "different encoding algorithms do have "sweet spots" where they work best. At bit rates much larger than this target bit rate the audio quality improves only very slowly with bit rate, at much lower bit rates the quality decreases very fast." And it just so happens that the sweet spot for MP2 is 192 kbps (the sweet spots for MP3 and AAC are 128 and 96 kbps, respectively), but 98% of stereo stations on DAB in the UK are using 128 kbps.

The main problem is that there are some negative features of the MP2 codec that are 'hard-wired' into the format itself which aren't a problem when higher bit rates are used, but become a problem at lower bit rates. No amount of development can change this fact.

DAB in the UK fails miserably to meet its primary original objective: to provide radio in CD-quality, and this is as a result of DAB being such an inefficient system. People rightly complain about DAB, and thank heaven the ASA support them. Sad that both the BBC and Barry Fox oppose the listening public because of their poor understanding of modern broadcast technologies. ●



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# Eastern Electric M520

designer Alex Yeung is known in Hong Kong as the 'Golden Ear'

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## VERDICT £

An extremely even and engaging sounding valve amplifier, offering fine build and redoubtable value for money.

Minimax M520, Hi-Fi World, Nov 2005

"it did not produce a rose-tinted 'warm', 'liquid' or 'lush' sound yet it was not clinical either..."

"the Minimax M520 was also especially good at all the differing vocals it encountered in the listening sessions, where it reproduced multilayered, texturally sophisticated singing parts which were excellent."

"build quality was excellent, as was the design (two different things) and as a whole with its future valve upgrade ability for the eternal tweaker, I believe the Minimax M520 as standard is excellent value for an integrated valve amplifier of its construction and abilities."



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### Digital

McIntosh MVP 861 Universal player, SACD, CD, DVD, DVD-A ex-dem (£3943)	EPOA
Cyrus Discmaster CD Transport, Black, PSX-R available	£349
Naim CD5i, boxed as new	£625
Bel Canto PL-1 Universal CD/DVD-ASACD (£9490)	EPOA
Theta Cobalt 307 DAC, boxed in black as new	£185
Audio Synthesis DAX Discrete in Black (£4000)	£2195
Accuphase DP67 CD player (£4500)	£2995
EAD DSP 9000 Pro S3 DAC pre	£995
Wadia 302 CD player (£4000)	£2995
Musical Fidelity Nu-Vista CD Player	£1695
DCS Verdi La Scala Transport (£9499)	£6895
Shanling CDT-100 (3D accoustics UK model)	£990
Audio Analogue Paganini (£950)	£695
Musical Fidelity A308CD player	£995
Roksan Kandy MKIII silver/black ex-dem	£450

### Amplifiers

McIntosh MA6500 integrated amplifier, ex-dem, boxed as new. (£3361)	EPOA
Nagra VPA mono blocks, boxed (£10500)	£6399
Rotel Pre/Mono Combo RCD3 pre+2xRB05 Moniblocks	£495
NEW/Sealed box) Marantz PM11S1 int amp	£1995
Sugden Masterclass power amplifier (£3150)	£1895
McIntosh MC501 Monoblocks (pair), ex-dem (£7800)	EPOA
Rotel 1062 Amplifier, boxed as new	£375
McIntosh MI-IT200 8x140 watts, home cinema heaven, ex-dem (£6503)	EPOA
McIntosh MA2275 valve integrated (£5773) ex-dem	EPOA
Jeff Rowland Concentra mkII, boxed (£10000)	£3695
AVI Lab Series Integrated amplifier (£1500)	£949
Conrad Johnson PV14L pre, 2yrs old (£2300)	£1250
Unison Research SR-1 integrated (£1325)	£699
BAT VK 250 BAT PAK power amplifier (£4995)	£2495
BAT VK-200 power amplifier	£995

Boulder 1012 DAC pre (£12950)	£6595
Pathos Classic One mkII (£1400)	£950
Classe CP 47.5 reference pre amp	£1295
ES Lab DXS4 digital amplifier	£1295
Croft TS1 with Epoch Pre (£3000)	£1795
ART Conductor Pre-amp	£895
Conrad Johnson 16LS pre-amp (£8000)	£3450
Audio Analogue Puccini Settanta (£950)	£795
Sugden Masterclass Mono blocks (£6600)	£3895
Graaf GM50, award winning KT88 valve amp	£2995
Musical Fidelity X-150 v3 (£799)	£650
Hovland HP100 pre+built in pstage (£5350)	£3595
Hovland Radia Power amplifier (£7995)	£4995
Hovland HP200 + phono stage (£7325)	£4995
Audio Analogue New Maestro (£1750)	£1255
Audio Analogue Primo Settanta	£325
Roksan Kandy MKIII (silver or black)	£450

### Loudspeakers

B&W Signature 30 loudspeakers, one owner from new, very very rare!! Boxed, sensational (£8000)	£3295
ATC SCM 20 SL, non active, finished in yew	£1295
Klipsch Klipschorns. Original boxes/packing, mint	£2495
ART Audio Skibo Loudspeakers + matching ART stands	£595
Wilson Benesch Curve speakers (£5000)	£3495
Triangle Titus ES stand mount (£370)	£269
Thiel CS6 boxed in superb condition, Marado (£8700)	£3995
Dali Helicon 400 (£3300)	£1995
Audio Note AN-ED speakers	£695
Mission 780 SE, boxed	£185
Living Voice Avatar II, finished in cherry (£2700)	£1595
Nola (Alon) Elite Signature speakers (£8000)	£3595
Diapason Karis III speakers + matching stands	£995
Ref 3a Dacapo i, maple (£2700)	£1650
JM Lab Cobalt 81 6s (£999)	£595
Triangle Heliade, Champagne finish (£595)	£395
ATC SCM-50ASL, Yew (£7947)	£4995
Wilson Benesch ARC's with stands (£2500)	£1699

Triangle Australe in cherry (£3300)	£1995
Living Voice Avatar OBX-R in Cherry	£2895
Wilson Benesch Discovery (£5700)	£3895
Quad 989 ESL Vintage, new £5000	£3600
Quad 988 ESL in Nouveau, cost new £3750	£2999
Audio Physic Spark3, Cherry or light maple	£1250
Audio Physic Tempo 3i, Cherry or light maple	£1395
Audio Physic Tempo3i SE, Cherry/light maple	£1799
Audio Physic Virgo III, Cherry	£2895

### Analogue

Pro-ject RPM4 Turntable, boxed as new (£350)	£195
Rega P25 with Super Elys Cartridge. Boxed	£495
Project Classic in Cherry and 510 cartridge (£500)	£249
Linn Linto MC Phono Stage, boxed, immaculate.	£495
Audio Synthesis Passion Phono stage, boxed unused, (£1295)	£695
Michell Gyrodec Bronze edition, absolutely mint condition+full Origin Live Modified RB300 (Structural, end stub etc) Boxed, manual etc.	£895
Ortofon Jubilee, very low hours, boxed as new, be quick!	£595
SME 10, boxed AS NEW (£2800)	£1895
SME 20/2a + SME V tonearm (£5695)	£3695
Wilson Benesch Full Circle+Ply Cart (£2100)	£1495
Musical Fidelity M1 turntable, boxed as new	£1990
Michell Orbe SE boxed as new	£1595
SME 10A, boxed	£2495
Nottingham Analogue Spacedec	£695
Trichord Dino - silver front	£199

### Miscellaneous

Cyrus PSX-R in black, one owner.	£259
PS Audio P300 power plant + multwave + Carclass £400 mains lead	£895
Nordost Vishnu 2m mains lead, as new (£450)	£249
PS Audio P600 power plant (£2895)	£1495
Townshend Super Tweeters in Titanium matt	£650

List is updated on a daily basis via website

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"Brand credibility may be easy to come by, but is far harder to hold on to..."



## dominic todd

**R**ight now the world seems fixated with lists. It's hard to turn on the TV without a programme featuring the Top 10 this or the 50 Best that. Yet, the other day I was flicking through the paper and came across one such list that actually held some interest to me. It was the seventeenth annual listing of the World's 100 Top Brands.

For brands, or companies to you or I, to be included in the list they had to be global in terms of presence and sales and valued at in excess of \$2.1 billion. Not surprisingly, Coca Cola sits right at the top of the tree, just as it has done for 17 years. With such illustrious company I hadn't expected to see many electronics companies within the Top 100, let alone ones that offer some sort of credible hi-fi.

Perhaps not surprisingly, it was what many would consider to be the big three that made it into the list. Panasonic brought up the rear with a still respectable 78th place. Next, in 55th position, was Philips and then, surprise, came Sony at 28th. You might think that, given the competition from computer, car, fast food, drink and oil companies, to name but six, that 28th place isn't bad. Yet, there must be a growing concern at Sony that its brand isn't quite as mighty as it once was. They used to be in 20th place and, as anyone who's even remotely interested in MP3 players knows, that in recent years they've lost out to the likes of Apple and even Creative and Rio - big time.

This is not a position that Sony is used to being in, and we can already see a counter attack with a radical range of new MP3 players. Interestingly these MP3 players and MP3 player/phones are branded

'Walkman', proving that Sony is all too aware of the power of brand names. Perhaps just as galling for Sony, though, was to see their number 20 spot taken by none other than Samsung. Ten years ago few people had even heard of Samsung, but thanks to their investment in cutting edge technologies such as mobile phones, LCD/plasma screens and, yes, MP3 (originally under the Yepp brand), they are now a major player.

The point of all this proved to me that, although major brands can sit at the top of brand recognition lists for years, if not decades, it's also quite possible to build a brand from almost nowhere. Equally, brands can fall from favour just as quickly as they rise to heady heights.

Whilst, unsurprisingly, there weren't any specific hi-fi companies within the 100 Top Brands, the list of winners and losers did make me think of how our own microcosm of brands are portrayed. Whilst I've no research on this to consult, I should imagine that most people have never heard of the vast majority of hi-fi separate brands. Find someone vaguely interested and then, along with Bose and Bang & Olufsen, they will probably be heard of Mission, Wharfedale and maybe Tannoy or Quad. Within the confines of those who know a little more about hi-fi, but wouldn't necessarily call themselves enthusiasts, there are brands that, like Samsung, have seemingly arisen from nowhere...

Although Cambridge Audio has been around since the 1960s, it probably hasn't ever had as much recognition as it has today. This is thanks to its superb budget range and clever marketing, but it's not just budget players that have built their brand. Midrange Myryad have appeared to come from nowhere

and, going back just a little further it wasn't all that long ago (the mid 1980s) when the likes of Epos and Acoustic Energy were just finding their feet. To me, all of these companies feel - and dare I say it, sound - like established and successful ones. In short they would all form part of any respectable hi-fi dealer's stock list and would all be recommended both within the press and by word of mouth.

Generally a well-known hi-fi brand becomes so because of good performance, pure and simple. There isn't the multi-million pound marketing budget that the likes of Coca-Cola have to make an impression, so the product speaks for itself. Over the years this is how the likes of Mission, Quad, Wharfedale and latterly, Cambridge Audio, Myryad, Epos and AE have built up their reputations. Yet, just as with the mega-brands, the warning should be made that reputations can be lost just as easily.

Personally I feel that many hi-fi separate brands need to take a long hard look at their spares and service division. As any Quad owner will tell you, service back up is key to long-term brand satisfaction. I know that with lower prices and higher incomes we are becoming an ever more throwaway society, but there is no guarantee that the good times will last forever. As many retailers are already finding out, there is a limit as to how many durables people will actually buy. And finally then to the manufacturer who recently told me that they could no longer supply most of the parts, including the laser, for their £1,000 CD player that was only discontinued last year: be very careful, or your brand will soon lose credibility. This may be easy to come by, but is far harder to hold on to... ●

# Probably the Best DIY Kits in the World



www.worldaudiodesign.com

Tel 0845 2575600



300B PSE or 300B PP without valves ..... £ 895.00 per pair (inc VAT)  
 300B PSE or 300B PP with valves ..... £1197.00 per pair (inc VAT)  
 (Supplied valves are the superb Tesla 300B's, Russian 5U4's and European front enders)

Dimensions for either monobloc with valves: 23kg/50lb - H: 22cm W:25cm D:38cm

## Single ended purity

Our Parallel Single Ended (PSE) power amplifiers offer the ultimate in sound quality. Each monobloc has two highly acclaimed 300B triodes delivering 20 watts into an 8 ohm load.

The front end consists of a 6AU6 pentode feeding an ECC82 driver.

The ultra-quiet power supply uses a 5U4 rectifier combined with a custom 10H choke. Both mains and output transformer are purpose-built complex layer devices that are so linear that feedback (a normally unavoidable compromise to reign in and control most amps) can be completely switched out.

This facility, operating in pure Class A is available only on a few world-class machines and produces a sound so open and dynamic that has to be heard to be believed.

## Push Pull Power

Sharing the same chassis and look as the PSE the push pull (PP) version is designed for people who prefer a little more power. Producing 26 watts it can handle most modern loudspeakers with ease. Again without feedback this version uses a 6AU6 pentode for input but a 5687 as a phase splitter. WAD. We're proud of our Sound

**300B PSE MONOBLOC KIT \_\_\_\_ £ 895.00 per pair    300B PP MONOBLOC KIT \_\_\_\_ £1197.00 per pair**

## The Purist's Dream

Our newest amplifiers in the WAD fold are the KIT and KaT300. A stereo single ended 300B amplifier available in two configurations - the power amplifier: KaT300 and the integrated version: KIT300 with line level inputs and tape loop circuit.

KIT300 has volume and input selector knobs controlling a high quality ALPS Blue pot and a long life rotary wafer switch respectively.

The front panel is our usual 6mm anodised aluminium panel punched to suit either the KIT or KaT variant. The chassis is manufactured from 2mm thick aluminium with our black powder coat finish. Extra space has been allowed at the front to enable upgraded pots to be fitted if required.

A minimalistic circuit capable of delivering 9 watts per channel consists of 5U4 rectification, input into the designer's choice, the dual triode 6SN7GT driving the classic 300B.

The signal path, short and clean greatly simplifies construction without compromise as our philosophy of using high quality custom transformers and large choke still ensures that the sought after and much imitated WAD sound quality survives.

Dimensions: 18Kg, 390mm wide, 330mm deep and 200mm high (with valves).  
 Available to pre order now, full details in next months DIY Supplement.  
 WAD. We're proud of our Sound



**KaT300 VALVE AMPLIFIER KIT \_\_\_\_ £720.00    KIT300 VALVE INTEGRATED AMPLIFIER KIT \_\_\_\_ £765.00**



Power Supply Unit (PSU-II) ..... £ 185.00  
 Pre-amplifier (PRE-II) ..... £ 215.00  
 Phono Stage (PHONO-II) ..... £ 130.00  
 Moving coil step-up transformer ..... £ 80.00

The PRE-II is a high quality valve pre-amplifier that will drive any power amplifier. It has a gain of x5 which, with CD, enables it to deliver a large 10V output swing

To keep the amount of active amplification low, this pre-amp uniquely uses a line drive transformer to deliver a pure signal to the power amplifier. There are six inputs, a tape monitor and two sets of output sockets. It is powered by the external PSU-II power supply.

The volume control uses high quality Alps Blue potentiometer which, with our solid, turned brass, chromed knob, gives a quality feel rarely encountered these days.

PHONO-II is a dedicated valve phono stage for MM cartridges, with MC input transformers an option.

By using all-d.c. supplies from PSU-II and a case in which there is no power supply, PHONO II is hum free, something that is difficult to achieve with valves. With accurate RIAA equalisation right down to 10Hz (-3dB) PHONO II gives a wonderfully pure, dimensional sound from LP, possessing a sense of life and dynamism quite different to solid-state preamps.

Finally, PSU-II is a power supply unit that feeds both the PRE-II and PHONO-II. Keeping the power supply separate removes hum, often the bane of valves.

**SERIES II MODULAR PRE-AMP KIT**



# Probably the Best DIY Kits in the World



www.worldaudiodesign.com

Tel 0845 2575600



KEL84 is an affordable amplifier for those who want to enjoy the valve sound, but from a simple, easy to build kit.

It uses inexpensive EL84 output valves, known for their sweet sound, in conventional push-pull arrangement to provide 15 watts into an 8 ohm load. The transformers are our own high quality Ultra Linear design made in the UK. Up front, the circuit employs an ECF80 input / phase splitter valve which contributes to the KEL84's extremely smooth sound.

For simplicity the KEL84 is built on a printed circuit board. A strong steel chassis is then fronted by a 3mm thick anodised aluminium front panel and brushed aluminium knobs.

There are two versions available, a single input version with volume control and an integrated version with five line level inputs and tape loop. The integrated version also features an ALPS blue volume control and chrome plated transformer covers as standard.

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 valve amps and is rare at this price point.

KEL84 weighs 10Kg. External dimensions with valves are 300mm(w)x270mm(d)x150mm(h)

Single Input version £285

Integrated version £335

**Kel84 VALVE INTEGRATED AMPLIFIER KIT ..... £ 335.00**

Our 6550 series amplifiers are built around the rugged 6550 beam tetrode that's popular in America.

This valve is widely available and at a good price. This enables us to provide a high quality amplifier kit at realistic price. Producing no less than 40 watts our 6550 is a power house.

The difference between our 6550 and most others is that we use valve rectification (5U4) and a choke pi filter, for a power supply that is quiet and free from solid-state hardness. This is a true high-end design from Andy Grove. With it's custom designed and made transformers it is a cut above many 6550s, with enough power to drive most loudspeakers, including insensitive electrostatics for example.



The 6550 is available in two versions, the integrated Kit6550 with ALPs volume control five line level inputs and a tape monitor circuit or the KaT6550 power amplifier for use with a separate pre-amp.

The amplifier weighs 19Kg. Dimensions are 390mm(w)x330mm(d)x220mm(h)

Prices shown include valves. Also available without valves on request.

Kit6550 £615

KaT6550 £580

**KIT6550 VALVE INTEGRATED AMPLIFIER KIT £615.00    KAT6550 VALVE POWER AMPLIFIER KIT £580.00**

The Headphone II amplifier is a beautifully simple design using Mullard ECL83 valves, a triode and power pentode in the same envelope.

It works from any line level source i.e an amplifiers tape or pre amp out sockets. The circuit uses high specification E/I output transformers that can drive any headphone load from 16 ohms to over 300 ohms depending on how the secondaries are wired.

The Headphone II is a pure Class A single ended design with the power pentode connected in triode configuration for sonic purity and is as quiet as a mouse. Treble has the crispness of the best solid state but with the tonal resolution and delicacy associated with valves. Bass is punchy and controlled without becoming artificial.

Dimensions are 270mm(w)x275mm(d)x85mm(h)



**HEADPHONE II KIT ..... £285.00**

Reference Books



The practical guide to building, modifying, fault finding and repairing valve amplifiers.

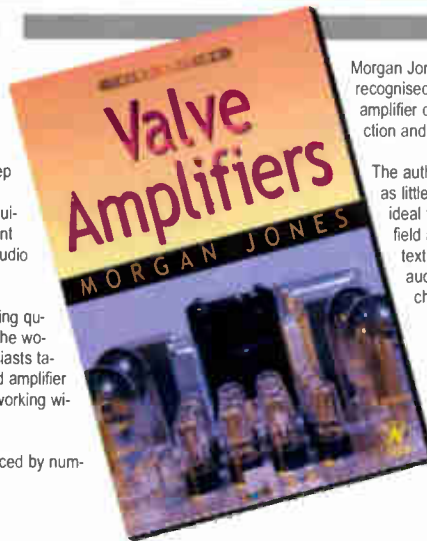
A hands-on approach to valve electronics, classic and modern - with a minimum of theory. Planning, fault finding and testing illustrated by step by step examples.

Building Valve Amplifiers is a unique hands-on guide for anyone working with tube audio equipment as an electronics experimenter, audiophile or audio engineer.

Particular attention has been paid to answering questions commonly asked by newcomers to the world of vacuum tubes, whether audio enthusiasts tackling their first build, or more experienced amplifier designers seeking to learn the ropes of working with valves.

The practical side of this book is reinforced by numerous clear illustrations throughout.

**Price £20 plus £2 p&p**

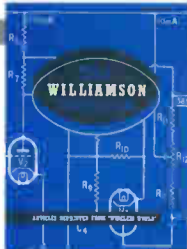


Morgan Jones's Valve Amplifiers has been widely recognised as the most complete guide to valve amplifier design, modification, analysis, construction and maintenance written for over 30 years.

The author's straightforward approach, using as little maths as possible, makes this book ideal for those with limited knowledge of the field as well as being the standard reference text for experts in valve audio and a wider audience of audio engineers facing design challenges involving valves.

**Price £30 plus £2 p&p**

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The Williamson Amplifier by D.T.N. Williamson.

Offers practical advice on how to build and set up the amplifier for best results.

40pp Paper back

**£9.95 + £1.50 P&P**



By Ben Duncan - International authority in audio quality and electronics.

A comprehensive handbook on power amplifiers covering introductory material; an overview of global requirements; interfacing and processing; classes, and modes; features of the power stage; the power supply; specifications and testing; the rationale and procedures of real-world testing; choice, application installation, set-up and maintenance.

**£46.99 + £2.00 P+P**



Douglas Self has dedicated himself to demystifying amplifier design and establishing empirical design techniques based on electronic design principles and experimental data.

Ideal read for professional audio designers and electronic engineers; advanced amateur audiophiles and electronic designers; audio engineers involved in using and maintaining high-end domestic and professional audio systems.

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Starting Electronics is unrivalled as a highly practical introduction for hobbyists, students and technicians.

Keith Brindley introduces readers to the functions of the main component types, their uses, and the basic principles of building and designing electronic circuits.

Breadboard layouts make this very much a ready-to-run book for the experimenter, and the use of multimeter, but not oscilloscopes, puts this practical exploration of electronics within reach of every home enthusiast's pocket.

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Includes full designs for eleven power and control amps, including 5-20, using valves.

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This book takes a comprehensive look at tube audio design. It explains how vacuum tubes work and how to design with them. Rozenblit covers stabilisation and testing, a description of 13 famous and classic amps and preamps and how to work effectively as a designer.

A hands-on guide to construction techniques, tools and choosing components and tubes is provided. 1997

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AMPLIFIER DESCRIPTION	PRICE (inc vat)	PARTS DESCRIPTION	PRICE (inc vat)	PARTS DESCRIPTION	PRICE (inc vat)
KaT6550 with valves	£ 580.00	KaT300 with valves	£720.00	300B PSE output transformer (each)	£110.00
KaT6550 without valves	£ 450.00	KaT300 without valves	£550.00	300B PP output transformer (each)	£110.00
KiT6550 with valves	£ 615.00	KiT300 with valves	£765.00	Kel84 PCB	£ 30.00
KiT6550 without valves	£ 485.00	KiT300 without valves	£600.00	Kel34 PCB	£ 12.00
Kel84 integrated (with valves)	£ 335.00	6550 mains transformer	£120.00	Kel80 PCB (pair)	£ 52.00
Kel84 single input (with valves)	£ 285.00	Kel84 mains transformer	£ 60.00	KECL82 PCB	£ 25.00
PSU-II	£ 185.00	PSU-II mains transformer	£ 40.00	Headphone II PCB	£ 20.00
PRE-II	£ 215.00	300B mains transformer 300B	£115.00	PSU-II PCB	£ 20.00
PAS-II	£ 165.00	6550 choke	£ 40.00	PRE-II PCB	£ 20.00
PHONO-II	£ 130.00	Kel84 choke	£ 20.00	PHONO-II PCB	£ 20.00
Headphone II	£ 285.00	300B choke	£ 40.00	Tag board	£ 4.00
300B PSE with valves	£1197.00 per pair	PSU-II choke	£ 20.00	ALPS 50K dual potentiometer	£ 14.00
300B PSE without valves	£ 895.00 per pair	6550 output transformer (pair)	£130.00	ALPS 50K motorised pot	£ 26.00
300B PP with valves	£1197.00 per pair	Kel84 output transformer (pair)	£ 90.00		
300B PP without valves	£ 895.00 per pair	PRE-II driver transformer (pair)	£ 80.00		

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PIO signal 0.47uF Aluminium Foil	£16.61
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Other values and versions available - Please Call.

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0.01uF / 600V	£10.40
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0.22uF / 600V	£11.15
0.47uF / 600V	£13.50
1uF / 600V	£17.00

**Auricaps**

Auricap 0.1uF / 400V	£ 6.11
Auricap 0.22uF / 600V	£10.93
Auricap 0.47uF / 600V	£12.45
Auricap 1uF / 400V	£ 7.76
Auricap 2.2uF / 400V	£14.10

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Bullet plug - 4 pack	£ 24.00
Silver Bullet Plug - 2 pack	£ 32.00 / 4 pack £ 60.00

0.6mm Pure Silver Wire (10M)	£23.50
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Silver Plated Speaker Post (pair)	£ 7.30
UX4 Ceramic Valve Base	£ 2.50
B9A Ceramic Chassis Base (4)	£ 4.00
Octal Ceramic Chassis Base (4)	£ 4.00
B9A PCB Ceramic Valve Base (4)	£ 4.00
Switchcraft Gold Phono Plug	£ 2.44
Switchcraft Silver Plated Phono Plug	£ 4.00

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www.worldaudiodesign.com

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Antex CSL 18 watt soldering iron	£16.85
Antex XSL 25 watt soldering iron	£16.85
Replacement tips for CSL iron	£ 3.00
Replacement tips for XSL iron	£ 3.00
Lead free solder (2.5% silver), 0.8mm wire	
2M tube	£ 1.53
4M tube	£ 2.02
100g reel	£ 4.50

**Help and advice...**

Personal callers are welcome to collect their purchases in person or visit our Demo Room but please phone ahead especially if making a long journey as we can't always be there to greet you.



As all the kits are capable of producing high voltages they require diligence and extreme care to build safely. Read the safety instructions thoroughly before construction. You must be able to solder to a reasonable standard and be able to read a circuit diagram. The KEL84 and Series II kits are generally the most straightforward to construct as they utilise PCBs. None of the kits are suitable for children to build without total supervision.

If you are in any doubt about your ability to build one of our kits, give us a call! We'll give you straightforward, honest advice to enable you to pick a kit to suit your pocket and ability. We hail from an electronics background and have test-built every kit we sell. If you need help during assembly or just want to check something give us a call.

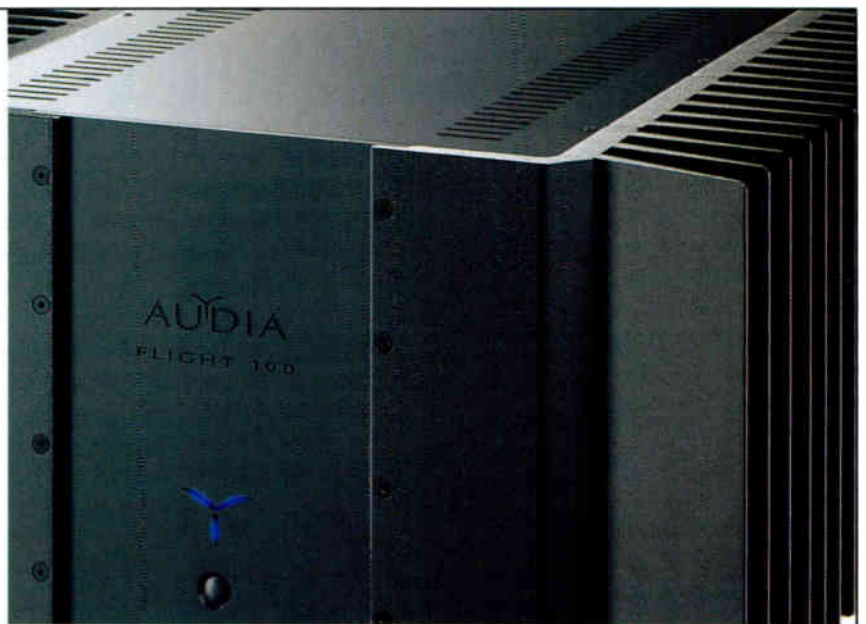
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If you need further help we have a collect and repair service at reasonable rates based on workshop time. We can also arrange for kits to be built to order and your specification.

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**BLACK SABBATH**  
**BLACK SABBATH/ MASTER OF REALITY VOL 4/PARANOID SABBATH BLOODY SABBATH**  
**EARMARK**

Mastered in Italy via the Earmark label, licensed from the UK's Sanctuary label, this suite of Black Sabbath albums has been targeted on 180gm vinyl with Direct Metal Mastering (DMM), a cutting system that replaces the lacquer with a disk comprising high purity copper plating on a steel substrate. It was a spin-off from long running R&D by Teldec (Telefunken/Decca) into a video disc system who found that the post cutting 'relaxation' effect of lacquer caused the loss of short wavelength video information. Cutting into copper prevented this effect and, although the video system wasn't a great success, the benefits of copper cutting were later developed for audio discs. Teldec licensed the system in 1980 and Neumann produced practical systems in the form of a modified lathe and cutter head – the VMS82 and SX84.

Teldec had a strong engineering team and worked closely with Neumann from the 1960s. The original Neumann stereo cutting heads had been designed by Teldec, were tested at Decca in London and were then sold by Neumann. They actually appeared as the very last disk cutting products they manufactured. In fact, DMM is not a new process. It was vinyl's last 'hurrah' before CD took the commercial format crown

during the '80s. The result is Ozzy and friends sounding brighter and more detailed with a better transient response – although the sound isn't to everyone's taste. Because DMM disks feature shallow grooves, the bass, for these Sabbath releases, while fast, is lacking in low frequency response, there's also some limitation in overall dynamics and the feature-vinyl 'warmth'. They do, however, offer a more forgiving sibilance performance, a brilliant treble and an excellent mid-range performance with reproduction in the upper bass areas well translated. Fans should seek a demo, if possible.

**BOOKER T. & THE M.G.s**  
**GREEN ONIONS**  
**Sundazed/Atlantic**

The essence of this seminal group can be whittled down to Booker T. Jones' signature organ playing and the funky guitar bursts of Steve Cropper on the title track, which was the band's first chart-topper, during 1962 and one of the most well known rhythm and blues tracks of all time. The accompanying album also features a second helping, suitably called 'Mo' Onions', plus the more pop oriented 'Stranger On The Shore' and the lower key track, 'Behave Yourself'. An instrumental album, the band take a range of covers and make the music all their own. For example, 'I Got a Woman' removes the lyrics but Cropper's guitar and Jones' organ replaces the voice successfully. 'Behave Yourself'

and 'Lonely Avenue', on the other hand, are excellent showcases for Jones' dexterity on the organ. Yet, the group were more than that – more than even the accumulation of the series of albums they would be destined to make after Green Onions' success.

Booker T. & the M.G.s were an essential part of Stax and, hence, a critical part of the entire soul movement. Their influence on the world of soul is a pivotal one. They established the 'Memphis Sound' behind the hit recordings by Carla and Rufus Thomas, Otis Redding, Sam and Dave plus many more – in fact, they appeared on an estimated 600 recordings. They were the bedrock that many legendary soul artists built their entire careers upon. This album is present on 180gm vinyl and has been created using the original analogue master tapes. The latter, in this case, has been coupled with the use of analogue machinery to process that information, all the way through to the cutting phase – an obvious, yet, essential process to maintain the analogue signal. The resultant mono reproduction is excellent with an improved sound stage that allows for greater depth. However, Sundazed do supply this particular album in a basic paper, die-cut, sleeve. I would recommend buying some plastic-lined, paper sleeves direct from Hi-Fi For Sale ([www.audiophilecandy.com](http://www.audiophilecandy.com)). Unbranded, yet perfect for the job, they are priced at £24.95 per 100 and are worth every penny.





**CHARLIE HADEN & CHRIS ANDERSON**  
**NONE BUT THE LONLEY HEART**  
**CHARLIE HADEN & JOHN TAYLOR**  
**NIGHTFALL**

Naim takes great care in the production of its vinyl releases, actually pausing a vinyl pressing run to take random listening tests to ensure quality is consistent – if not, the original lacquer is recut. On 'None But The Lonely Heart', Chris Anderson worked extensively with Dinah Washington and spent some time teaching Herbie Hancock a thing or two. So the guy has chops to spare. He's a busy chappie, too, which means that he rarely takes a lead role in any project. He does that effectively with legendary bass man, Charlie Haden. The album was recorded at the Cami Hall in New York in the summer of 1997. Anderson is one of those archetypal undiscovered 'greats' – you need to hear this man. In 'Nightfall', Haden and Taylor allow themselves room to breathe. John has been at the forefront of European jazz since the early 1970s when he partnered saxophonists Alan Skidmore and John Surman.

This album is an example of artistic freedom made wax with low-key ballads giving the pair time and space to express both melody and form. Whilst neither artist shouts too loud, the amount of sheer power that both musicians exude during their performances, is palpable whilst

the amount of control they both display is also impressive, especially during the more improvisational passages. The recordings were done by Naim engineer, Ken Christianson, recording with a basic set up that compliments both duos, perfectly, with just a matched pair of AKG 414EB microphones and an ageing Nagra 4S stereo reel-to-reel recorder running at 7.5 inches-per-second (ips). Recording took place onto seven-inch reels of 3M 966 tape. A type that is no longer manufactured. Christianson, however, "has a good few years' worth hidden away". Running the Nagra at 7.5ips means that low-frequency accuracy is maximised and it may be that the consequently slightly shy top end compensates for the relatively bright nature of the AKG mics.

**EVA CASSIDY**  
**SONGBIRD**  
**Hot/Didgeridoo**

For those who see Terry Wogan as just a genial figure with a penchant for Eurovision masochism, it may come as a surprise to hear that he is one of the most powerful figures and radio slots in the UK. This is where the country, and I, first heard Eva Cassidy's voice. She was singing her version of 'Over The Rainbow'. For those, like me, who felt that Judy Garland's original could never be bettered, Cassidy's rendition came as a mighty shock. Even on a basic portable radio, the soaring fragility of her vocal performance was stunning, absolutely stunning. The purity of her delivery

gave the song wings where she was able to display perfect control both of her voice and the essence of the track itself. That song is featured on the album, 'Songbird', a track that should include a printed warning on the album to arm yourself with a box of Kleenex before playing. "Pauly" Walters, producer of BBC Radio 2's 'Wake Up To Wogan', commented that, "the e-mails, phone calls and faxes flooded in. Subsequent plays brought the same response; people told how they had to stop their cars because they were in tears."

This album is a collective tour de force, showing how Cassidy spanned a wide variety of song stylings from blues and jazz to pop and R&B. It is a compilation, taking tracks from three of her older albums that, initially, only tended only to be popular in and around her native home of Washington DC in the USA. Cassidy died as a result of skin cancer, whilst on the cusp of fame. It is a terrible thing to lose a talent such as this, yet a minor miracle that we retain her voice on record. This vinyl version of the original is an audiophile pressing, pressed, as it is, on 180gm vinyl. It's an international production, too. Despite being released via an Australian record label, the record was actually produced via a German company, Pallas and was mastered by Abbey Road in, of course, the UK. This particular pressing is limited, however, there are only 10,000 copies available worldwide and each is numbered on the rear of the sleeve.

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# SPARKS!

**Devolo set out to provide a home network and audio streaming solution with a difference, using their MicroLink dLAN Ethernet and Audio adapters. Neal Gibbons tries it out...**



**S**etting up a wireless network can be fraught with difficulty, and once setup there is no guarantee that an error-free signal will be available throughout the house...

Signal strength and quality can be variable depending on where you are in relation to the wireless access point. Walls, floors, and ceilings all degrade the signal a little, creating 'dead zones' where connection is either poor or non-existent. The alternative is to use Ethernet cable, but routing cables through walls, ceilings and floors is difficult, messy and time consuming and in many cases not permitted. Catch 22!

Enter the MicroLink dLAN Ethernet adapter from Devolo. This little blue device allows you to setup a home network using your mains wiring! The adapter has a single Ethernet port and transmits data up to a distance of 200 metres at a maximum data rate of 14Mbps. Two adapters are needed to form a network, plug one locally to each computer or router, attach an Ethernet cable and hey presto, a home network. If you relocate your PC, unplug the dLAN adapter and plug in elsewhere, simple!

But what has this to do with audio? That's where the dLAN Audio device comes in - it works on the same network, but this time it allows you to stream MP3 music across your mains wiring. It features user selectable broadcast channels

allowing other dLAN Audio devices to be used, RCA OUT and IN connectors plus S/PDIF input and output connectors. Also included is a microphone 3.5mm jack and an analogue jack for output to a pair of stereo self-power 'speakers'. Software is included to allow Windows Media Player or Winamp to stream audio over the network.

The dLAN Audio encodes and decodes the audio stream on the fly into an MP3 stream at 192kbps. It can be configured to receive audio from your computer relaying it to your hi-fi or self powered 'speakers'. Or it can be used to transmit audio from your hi-fi, where it's not necessary to use a computer in this instance (other than for setup), as all you need is a second dLAN Audio unit used in receive mode.

I had for review one dLAN Ethernet unit and one Audio unit. Software is included for both devices and proved very easy to setup. Connect your PC to the dLAN Ethernet device and plug it into a convenient mains socket, because it's a DHCP server no IP address setting is necessary. Next, note the security ID of the Audio unit and plug that in as well, run the software and follow the onscreen prompts.

I chose to use Windows Media player (included on the CD) to stream music and came upon my first problem. WMP needs a sound card to play any audiostream even if you're not going to use it. Luckily, the PC I was using had an inbuilt

audio device, but I hadn't enabled it! I connected the dLAN Audio to my main system and settled back to listen... Here was my second problem, as there is no audio control to change tracks via the dLAN Audio I had to continually get up and trudge back to the PC, a bit of a pain in the posterior.

However, on the upside the sound quality was surprisingly good. Streaming raw WAV files to it the sound was very enjoyable with fine bass free from any obvious distortion, so I was pleasantly surprised. Taking the S/PDIF output into my MF A3.24 the sound certainly improved in clarity and dynamics. Next, I tried it in various locations around the house and came up against my third problem, not every socket would work. In some cases plugging a RA 'Slencer' into an adjacent socket would work but not every time. I suspect dirty connections; noise plus distance all degrade the signal a little just as with WLANs!

Overall these devices work well, providing good sound for a second system, streaming internet radio or just playing background music. So I can recommend both, although some care will be needed over location and the lack of audio control may be an issue for some. Designed to solve WLAN issues these units introduce their own, however, in circumstances where all else has failed they may just provide a workable solution

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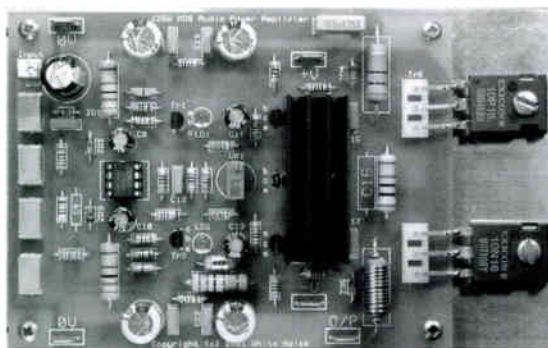
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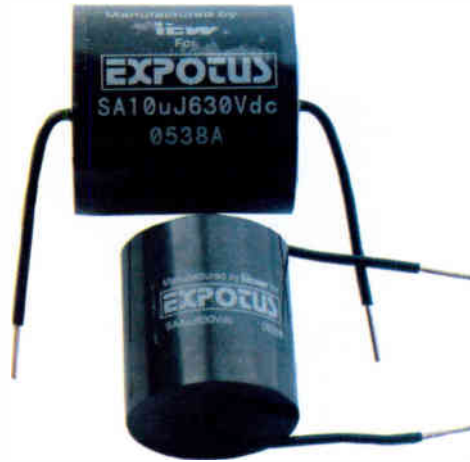


diynews@hi-fiworld.co.uk

# diy news

## GOOD CAPS

ClarityCap capacitors have become available direct to the retail public from the UK distributors who also market ICW poly caps for home constructors. Prices are relatively inexpensive with, for example, 1uF cap rated at 630V DC costing less than three pounds. Even a 10uF at that voltage is less than a tenner. ICW caps are used by a number of high-end loudspeaker manufacturers. For more info and prices contact Expotus Components on [01233 731 137](tel:01233731137).



## NEW CONNECTOR

Neutrik connectors who are based on the Isle of Wight have just released a new connector. It is an 8 pole Speakon connector primarily intended for the pro field but has numerous advantages over the standard 4mm loudspeaker terminations. Once inserted into the socket the connection is airtight so tarnishing of the contacts will be a thing of the past. Each of the connections will take up to 1800watts before the metal starts to break down. The termination is a single point contact, just like the famed Bullet phono plugs. Unlike 4mm terminations the Speakon connectors are impossible to dislodge accidentally.



## NEW SPEAKER CABLE

Does the thought of spending hundreds of pounds or even thousands of pounds, on loudspeaker cable appal you? Electrovision may be able to help, with their loudspeaker cable, which is extremely flexible, coils well to the hand and is consistently manufactured. The cable is constructed from long crystal oxygen free copper, encased in a silicone inner jacket. The outer jacket of the cable is also silicone based. One example from their range has 4 cores of 2.5mm inside an outer sheath of 9mm. This cable is ideal for Bi-Amping or Bi-Wiring as it is large enough to handle a prodigious current swing from the amplifier. As the sheath is constructed from silicone it is very easy to dress the cable for virtually any type of termination. And it is easy to install due to its flexibility. Approximate cost is less than £5 per metre. They sell a large range of cables and will be able to supply a cable for your hi-fi system. Contact Electrovision for more details on [01744 745 000](tel:01744745000) or e-mail [sales@electrovision.co.uk](mailto:sales@electrovision.co.uk).

## SPIRALEX

John Morris who supplies Spiralex isolating platforms has an excellent alternative to 'T-nuts'. They are in the shape of a screw-in sleeve. They have a hex key socket at the top and screw into the timber. The screw in sleeves will accept 8mm spikes. Also available in other sizes.



Much better than 'T-nuts' as they don't pull out when the cabinet is moved. The cost is only 40 pence each! (Plus VAT and carriage.) Give Spiralex a ring on [01423 565 691](tel:01423565691).

## NUTS

If you've been struggling to find slim quarter-inch balanced jack plugs for your sound card in/out connections then Neutrik have the product in stock. The catalogue No. is NP3X-B and these will comfortably fit the output jack sockets found on the popular Terratec sound cards. Neutrik also supply a range of affordable phono connectors and they are rather good. These new connectors are available from numerous suppliers but in case of difficulty get in touch with Neutrik on [01983 811 441](tel:01983811441).

## ALL CHANGE!

Electro-Harmonix have registered the names of Mullard and Sovtek in the US. Yes, that's the same Sovtek that exists in Russia.

E-H cannot make 'original' Mullard valves because they do not have the materials, the machines or the detailed specifications. They will presumably continue making their own valves, but putting other names on them. Thus the quality will be the same as you get for E-H valves today, making for possible confusion between genuine NOS Mullard and the new E-H ones. Purchasers of valves need to be aware of what is happening.

But there is also good news. PM Components have joined forces with Ei Elektronska Industrija of Nis in Serbia. This company was about to go under but has been rescued by PM. EEI is a licensed factory for the production of Philips, Telefunken and Siemens tubes. Production will re-start to the original specifications laid down by those companies, using the original production equipment and materials sourced only from approved original suppliers.

If you need more info from PM Components, call them on 01634 848 500 or write to [eisales@pmcomponents.co.uk](mailto:eisales@pmcomponents.co.uk) and if you want to contact Tube Shop you could call [08709 220 404](tel:08709220404) or write to [steve@tube-shop.com](mailto:steve@tube-shop.com).

## SUBSTITUTION

I recently stumbled across a rather interesting book which deals with valve substitution. Rather a tricky occupation, but if you have extremely rare tubes this book will be a life-saver. Substitution of tubes can be dangerous but with the aid of this book, its clear diagrams and very good text, substitution can be achieved with the minimum of fuss. The authors, William Smith and Barry Buchanan, call it the 'Tube Substitution Handbook' and it is available from Antique Electronic Supply at [www.tubesandmore.com](http://www.tubesandmore.com). The cost is \$21.99 plus carriage.

# TD 125 Rebuild

Albert Lee tweaks an old Thorens with amazing results.



**T**he Thorens TD 125 is one of the most under-rated turntables I have ever used. When I first saw the TD 125 I fell in love with its clean lines and the sound it produced. We could fit it with almost any pickup arm, although a very good dealer was essential to mount the chosen pick up arm. The preceding model from Thorens was the TD 124, which was again available without pickup arm. Unlike the TD 125 which was belt driven the 124 was a belt and idler drive.

TD 125 owners have long recognised the audio quality of the turntable, although it does have some faults. These include a plinth system constructed from poor quality chipboard, which displays all of the classic symptoms of feedback. It also has a rather poorly damped top plate which makes the feedback problem worse. The main hub (this is where the drive belt is in contact) is again a resonant structure. The TD 125 is supported via three springs to the main baseboard, which also carries the motor and the mains voltage dropper.

These springs have a piece of foam inside them, which was introduced as a means of damping the sprung assembly. If the springs are replaced with pieces of thick

foam this negates any feedback as the foam effectively removes the top plate from the feedback loop! Another alternative is three pieces of rubber.

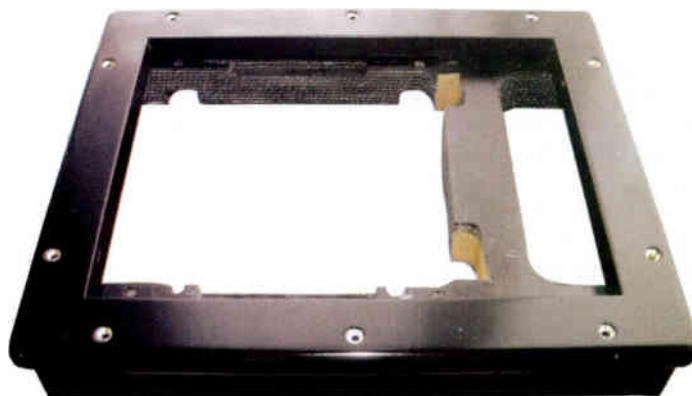
## PREPARATION

To achieve the aims of this article we first have some preparation to do. We need to download a service manual from [www.theanalogdept.com](http://www.theanalogdept.com) and study the build diagrams because we are going to completely disassemble the turntable! The first stage is to damp the drive hub. We do this by removing the outer platter and putting it in a safe place. Place

“fill it in two stages”

the drive hub upside down on the work surface, place a toilet roll tube over the spindle which is covered with insulation tape to stop the fill from sticking to it. Now fill the hub with expanded polystyrene.

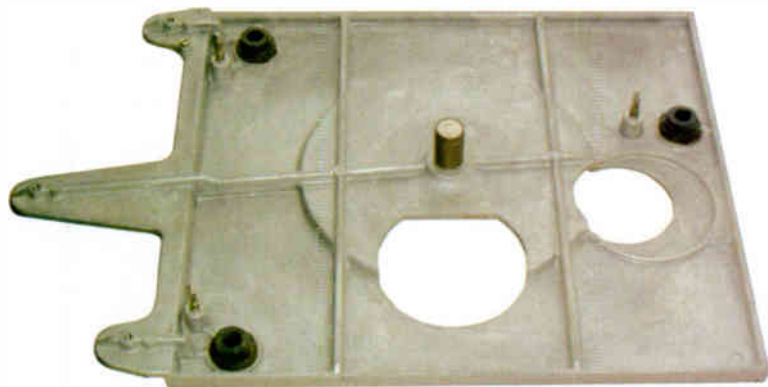
Avoid filling the hub completely. Fill it in two stages, and let the polystyrene dry out over night. Don't worry about any fill which seems to drip over the sides, as it is easy to remove. Next morning, remove any polystyrene which is surplus to the



The TD 125 bare plinth.



# and Tuning



*The metal base plate without damping.*

damping process. A large serrated knife is useful for this. I used an old freezer knife and gently cut across the hub in a horizontal plane to remove the majority of the excess.

After this is done gently remove the toilet roll tube and discard it. Now we can polish the sides of the hub with a cloth soaked in isopropyl alcohol, although if your main hub is badly marked you may have to use some very fine wire wool to gently burnish the surface.

Next, remove any excess from the main bearing shaft and again polish gently. Now place the centre hub in the bearing well and spin the hub. If there is no noise and the hub spins freely put the hub to one side. If however the hub displays any noise at all check that the infill is not rubbing the top plate and rectify this! Burnish the outer platter edge at the same time to achieve a mirror like finish. Put both pieces into sealed plastic bags and put in a safe place!

## STAGE TWO

For the next part of this project buy some cork flooring tiles and bathtub caulking! These are available from all good hardware shops. I purchased them from Woolworths and B&Q. The cork tiles are used as damping for the top plate which supports the bearing assembly. We need to cut the cork tiles to fit the underneath of this plate. Notice that the plate has been cast from alloy and has the casting ridges, which help to make the plate rigid. This plate rings like a bell! To alleviate this we need to glue

cork to the underside. Make sure that the strobe assembly fits into the cut-out.

We can also damp the middle support section as well. Remember to damp both sides of this plate. This will inhibit the tendency for 'ringing' and make the middle plate much more rigid. The cork also tends to

absorb any motor vibration resulting in a much cleaner sound. Although this is a difficult operation I found that it is best to cut the cork in small sections and then stick them to the centre support individually. Leave the top plate for at least 12 hours till the caulking sets. Then clean off any excess. The top plate should be put aside until we are ready to reassemble the turntable.

When taking the top plate out of the turntable notice the three sprung supports. The positions of the springs should be noted and then each bagged accordingly. Remove the foam infill and throw this in the bin. Before bagging the springs, scrub them vigorously in clean soapy water, along with the rubber inserts, to remove all of the adhesive Thorens used in the assembly process. Bag them after drying the assemblies thoroughly. Inside each bag put a little talcum powder and shake the bag to coat the parts. This is a method of drying the springs and the rubber parts.

Whilst the top plate is removed

is a good opportunity to clean the motor pulley with alcohol. Use a piece of lint cloth soaked in isopropyl and remove all dirt from the pulley. Clean all the connections to the motor at the same time.

## STAGE THREE

The standard plinth does not offer any lateral support. The bottom of the plinth is covered with a piece of hardboard. This is a bad thing! If you are strapped for cash the easiest solution is to replace the hardboard with 1/2 inch plywood. This will offer some support for the motor board. Placing a brace from the front of the plinth to the rear, under the new bottom cover, will help as well.

## "Spiralex will improve any turntable"

Due to the standard plinth's poor support qualities I decided to enlist a cabinet maker to design a new support system. This plinth is constructed from Spiralex, which is a new material designed to damp vibration. Although it has been custom made for the TD 125, Spiralex will improve any turntable.

I chose to have the plinth finished in black but the finish is up to you. The new plinth is in four sections; the first is the 'H' section central support. This is a very strong design, which prevents the plinth from twisting. Onto each of the ends are bolted two escutcheons. Onto the centre section there is a large top plate, which allows the 125-control panel to be accessed with ease with the advantage of top plate and control panel being a smooth assembly.

This type of construction allows the turntable to be bolted into the plinth and set up without the top plate in position. After set-up, the top plate is bolted onto the central

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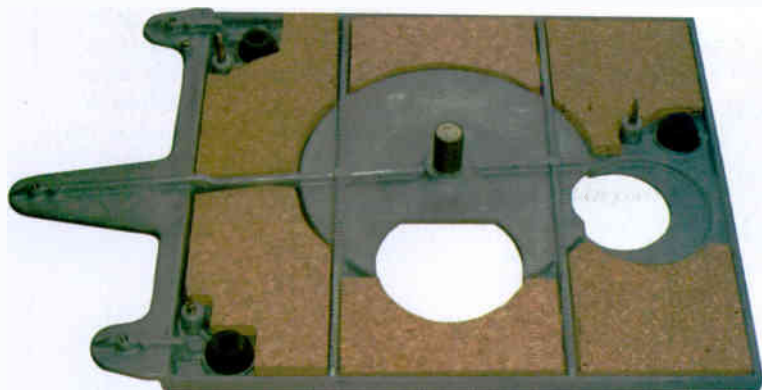
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*Cork damping fitted to the base plate.*

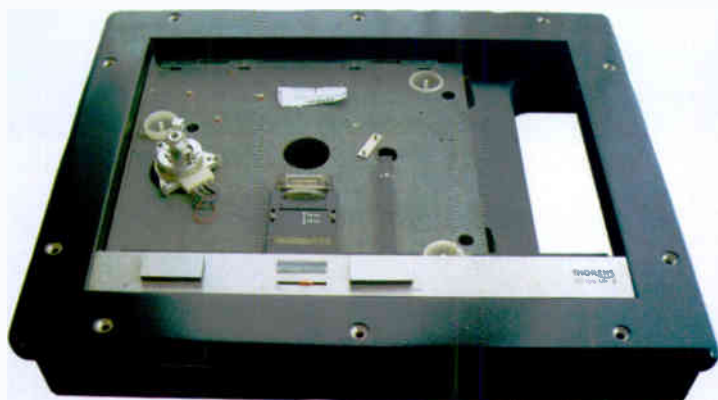
support and the turntable can be used.

The pickup arm board is best constructed from 12mm ply and the dimensions are 292mm (11 1/2 inches) by 105mm (4 1/8 inches), not forgetting to shape the armboard with a plane to fit the motor board. The mounting holes should be cut

## “remember to connect the earth wire”

through the old arm board to get a precise fit. Then the mounting hole should be cut for the pick up arm. It is important to follow the arm manufacturer's data sheet for the precise position of the cut-out.

After the arm board is finished we should take a break before finishing the board with the chosen surface. Now we can bolt the pick up arm board to the motor



*Motor now re-fitted to the support.*

board. Of course the pickup arm is not mounted yet. New plinths are available from John Morris, The Buildings, Croft House, Otley Road, Killinghall, Harrogate MG3 2BE.

### STAGE FOUR

Assembly is a relatively straightforward operation although it will take some time. First of all, re-install the motor support plate into the new plinth. After placing the plate into the plinth we can bolt the support in, using the long bolts and large washers which are supplied

with the plinth.

Now turn the plinth upside down and put the 8mm spikes into the nuts that are on the front and rear edge of the plinth. You will have noticed that the cabinet maker has put five of these nuts into the plinth. I favour the three-spike system but if you want to use the four-spike support, use this option.

Now place the plinth on a

drawer leaf table, position over the space in the centre to gain access to the spring adjusting nuts. Clean out the main bearing well with long cotton wool buds, removing

any swarf and any remnants of old lubricant.

Next, reassemble the spring units not forgetting to place the Paxolin washers into the adjusting nuts from the top. Now drop the top plate onto the spring mounts. Make sure that the springs go in their respective positions. If you have not marked the bags this will be a rather lengthy set up procedure for you.

Crawl under the table and put the retaining nuts onto the respective threaded studs. Remember to place the rubber washers onto the studs before tightening the locking nuts. These nuts should be run up the studs until you can see a small section of the thread. Remember to connect the earth wire to the motor board and in turn connect the pick up arm to the other end of the wire.

Now make sure that the table is



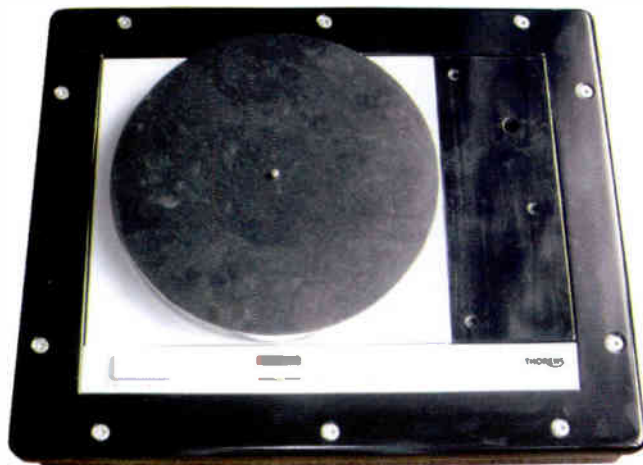
*Standard TD125 hub.*



*Infill in TD125 hub.*



*Top of TD125 hub showing infill and centre infill.*



**Platter fitted.**

level. This is extremely important, as the turntable plinth has to be level as well. If all is well we can continue. Lubricate the centre spindle with about 8 or 9 drops of light machine oil. Put the drive hub into position and place the drive belt onto the motor spindle and around the drive hub. Now we can place the platter onto the drive hub and roughly level the motor board.

At this point, install the pick up

“a re-built TD 125 is definitely worth it!”

arm and re-level the motor board. Then install the cartridge but do not remove the stylus guard until much later. Attach the motor board ground connection. Check the position of the motor/arm board, it should be in the centre of the plinth. If it is, we can now make absolutely sure that the motor board is level, whilst the motor is running with an LP on the platter.

Now check the ‘bounce’ of the turntable. The TD 125 should have a slow return to its normal rest position; if this is not the case then re-adjust accordingly.

Now when you play music, if the turntable has been assembled correctly, the sound stage will be very large. The difference between a standard TD 125 and a tuned unit is huge. The tuned unit describes the bass line with much more accuracy, along with a much smoother mid to treble register. Transient recovery is very, very accurate. This turntable is as good as the majority of the ‘super decks’ and costs a fraction of the outlay.

The last thing to do is to glue the outer platter to the drive hub. This again transforms the sound

and is achieved by running a bead of PVA wood adhesive around the lip of the drive hub, placing the outer platter onto the hub and leaving to dry. Don’t put too much glue on the hub rather just enough to adhere the platter to the hub.

### SOME NOTES ON PLATTERS AND MATS

As Thorens only supply drive belts for their older turntables you will be

tempted to throw the TD 125 away if your motor is faulty. DON’T DO IT! Instead get in touch with Origin Live, telephone 02380 578877, or

e-mail them at [originlive@originlive.com](mailto:originlive@originlive.com) and ask about the Advanced Motor Kit. As my motor died about three weeks into this build I had to get one of these kits to continue. The Advanced Motor Kit is well worth the money; it transforms the TD 125 into a modern sounding transcription unit.

The speed control board has some relatively poor quality components on it, so replacement is the order of the day. Replace both the capacitors and resistors with high quality types and set the board up as the service manual suggests and the motor will run to speed with very little adjustment of the pitch control. Great care must be taken when removing the components from the board, as the tracks may lift during the desoldering process. I used a very hot soldering iron and a solder pump. If you do not have the skill, or are afraid of damaging your turntable during this process, take the board to a professional.

The vinyl-to-platter interface is very important, meaning the platter mat is important. So I have a couple of alternatives for you. The first is to make a mat from the remainder of the cork tiles, the spindle hole should be approx. 7.5mm in diameter. Another type of mat can be made from chamois leather. Both of these mats cost less than a pound each and offer very good support for the record.

The cost of this rebuild is rather high, but a re-built TD 125 is definitely worth it!

#### CONTACT INFORMATION

TD 125 service manual is available from [www.theanalogdept.com](http://www.theanalogdept.com).

New plinths are available from John Morris,

The Buildings, Croft House, Otley Road, Killinghall, Harrogate MG3 2BE, telephone 01423 565 691. [www.spiralex.com](http://www.spiralex.com)

The Advanced Motor Kit is available from Origin Live,

telephone: 02380 578 877, e-mail: [originlive@originlive.com](mailto:originlive@originlive.com).

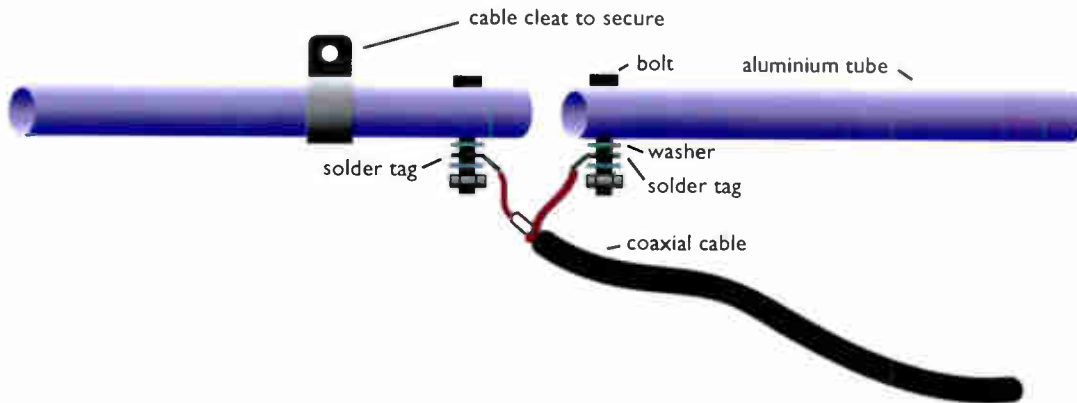


**Top showing the Spiralex nuts.**



# DIY FM Aerial

Haden Boardman gets in pole position for a good FM signal.



**A** simple VHF / FM Half Dipole aerial can give fantastic results within a reasonable radius of the transmitter. So simple to build, and at minimal cost, yet results can be exceptional.

As a big radio listener, it is quite amazing how little attention I have paid to my FM aerial on the roof. The last time I had an outside aerial fitted was in the 1980s, and have moved through four houses since then! Given the amount of money I have spent on FM radio sets over the last two decades, this is quite amazing.

A quick search around the internet revealed very little in the way for us hi-fi enthusiasts. The initial plan of grabbing something from Maplins or similar and lashing it up to the chimney was an option, but why not build my own?

I am around 25 miles from Holme Moss, and less than 5 miles from Winter Hill; the major FM transmitters covering the North West. The major BBC stations are relayed via Winter Hill, so Holme Moss is the cleaner signal.

So a spot of research; some good old fashioned text books, and frankly, it looks like nobody has been interested in 'rolling their own' antennas since the 1950s! Back to basics...

Our VHF band covers 88 - 108

MHz, so our half wavelength aerial needs to be tuned to roughly the half way point (98 MHz) to give good coverage across the band. However, I listen mostly to the BBC major stations, which are of course grouped at the lower end of the scale, so I decided to tune my antenna to this end of the radio spectrum.

A nice easy rule for calculating the desired length of our antenna is to divide our ideal frequency into 5,453 to gain the actual length of our dipole. So a 100 MHz aerial would result in a dipole length of 54 1/2 inch. My antenna is going to be tuned to 91MHz or a length of just under 60 inches.

Well we know how big our dipole is, but what do we build it out of? A quick mosey around the local DIY stores revealed a good choice

of 6mm aluminium tube, which cost about £8 for a two metre length. Next task was to mount it on a suitable lump of wood; 2 x 1 inch seemed about right! I decided to use cable cleats to secure the aluminium tube to the wood. Screws could

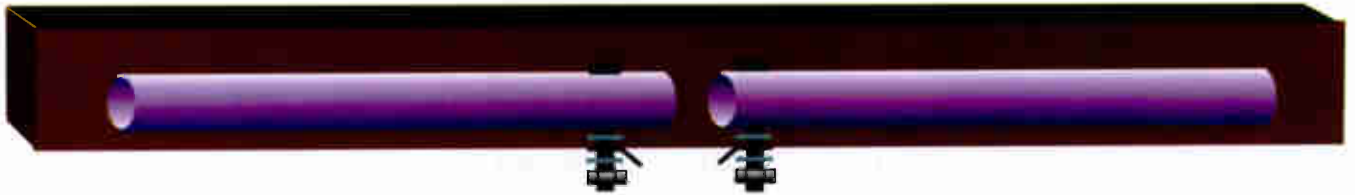
be used of course, but handy 6mm round cable cleats are of course non ferrous and will not interfere with reception. To connect the R.F. cable I used satellite grade 75 ohms stuff (less than 50p a metre) and I planned to use M2 x 20mm screws, drilling two tiny holes in the tubing.

Assembly is easy enough. My antenna is going in the attic, but I decided to paint the wood. If yours is going to be mounted outside, then varnish or paint will be required. Once painted, I marked out on the wood the length of the dipole. The aluminium rod will need to be chopped in half, with a small eighth of an inch gap (3mm) in the middle. So each side of the dipole needs to be thirty inch, minus one sixteenth of an inch. And at one end of each half, the terminal screws need attaching.

"nobody has been interested in 'rolling their own' antennas since the 1950s"

This was the trickiest job, drilling the small 2mm hole for the screws! These should be located about one quarter of an inch from the end of the tube. Drilled straight through, I used a couple of iso-shake washers and two nuts. To make life a bit easier

Mount 6mm aluminium tube on a piece of 2in x 1in timber, 2 metres long. Use cable cleats to secure.



I used a couple of solder terminal, and another couple of iso-shake washers, locked down by two more nuts. I soldered the coaxial RF cable on to these, on final assembly.

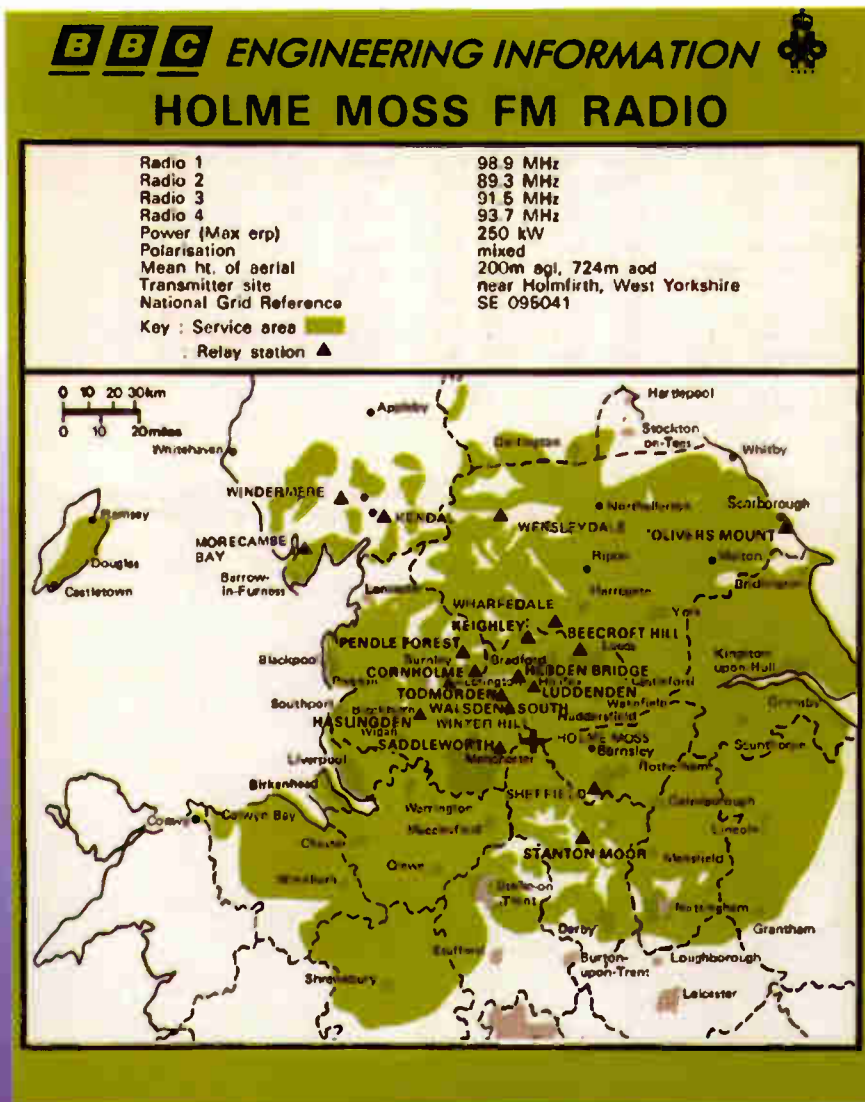
Once the aluminium was cut down to size, and the wooden board marked out, assembly was very easy. I used a small bead of silicon bathroom sealant to hold the rod in place, and then used around four cleats on each rod. The RF cable was connected, and I used three cleats just to secure it to the board.

Next job is mounting our

new antenna. In my case, easy and straight forward in the attic. A unit like this has a figure of eight reception pattern, with maximum sensitivity broadside on and virtually no reception seen end-on. Give or take thirty degree does not make much difference, so a local source of interference could be tuned out here by careful positioning. Remember the antenna must be positioned

horizontally, rather than vertically. If mounting the unit outside, try and locate it as high as possible (goes without saying).

- 1 length 6 foot / 2 M aluminium tube
- 1 length 1 x 2 timber, 2 M.
- 2x M2 x 200m screws.
- 6x M2 nuts
- 6x M2 iso-shake washers
- 2x M2 solder tags.
- RF 75 ohm coax to suit
- 1x female RF plus (to suit your tuner)



*Local territory: a map of Haden Boardman's local transmitter, Holme Moss, its relays and the extent of its coverage. It is always useful to use a map like this to sort out which way to point an aerial, using a compass to orientate.*

*In some locations where there are obstructions, such as hills, it may be best to use a transmitter further away, but in line-of-sight.*



# SELF ON AUDIO

BY DOUGLAS SELF

REVIEWED BY MIKE BALLANCE

**A** leading authority on amplifier design. That's how Douglas Self is described. So why doesn't he like valves? This is, I think, because he is an engineer and measures things. Some transistor amps have fantastically low distortion figures. Some of these wonderful machines are commercial designs and some have been published in magazines by such famous names as the late John Linsley Hood and Douglas Self.

This book is a collection of the articles written by the author and published in *Wireless World* magazine over the period 1979 to 1999. I recognise many of the circuits and remember reading a number of the articles in the days when that magazine carried discussions - indeed, arguments sometimes - about the 'musicality' question. Us readers were left in no doubt as to which camp Douglas Self was in.

So what does he have to say in a book dedicated to amplifier design? There is detail aplenty there. In the part covering the RIAA equalisation curve for example, there is mention that a single op-amp cannot in fact give enough gain over the full frequency range, due to the boost required at LF. I first remember reading this fact in an edition of *Elektor* magazine many years ago. The article in that magazine then went on to describe an RIAA stage that did work correctly. In a similar way, Self gives many graphs which lead to a final design that has no less than four op-amps. It also has a three-transistors-in-parallel front end that is used for the additional gain and lower input impedance required to match a moving coil cartridge. The accuracy to the RIAA curve is within 0.2dB which is good.

He has a suspicion that passive equalisation in RIAA stages is popular not because of an inherent sound quality improvement but because it is easier to design. He likes to snipe at other designers in this way, from his position of great authority. I do

wonder though, has he ever listened to various different makes and types of amplifier in an environment where he can relax, enjoy the music and comment on anything interesting that he might hear about the music that is particularly noticeable with one amplifier, but less so with the others?

After discussing pre-amplifiers, he moves on logically to power amplifiers. Amplifier designers would be well advised to read his section on distortion. There's pages of it, and there's many different types. Crossover distortion is perhaps the most well known. Self lists no less than seven different types of distortion in amplifiers. Some are more obscure, and thus more interesting, while others seem specifically related only to transistor amplifiers.

Seven main sources of distortion are given. Some of these distortions can be reduced by good design and others by careful layout of the components on the printed circuit board. Self states that it is possible to design an amplifier with extremely low distortion figures, far lower than quoted in the most respectable of designs available today. However, he does also say that this is not the whole story. Good for him! He realises that the lowest figure on a distortion meter, looking at a steady sine wave, is far from the whole story when it comes to good amplifier design.

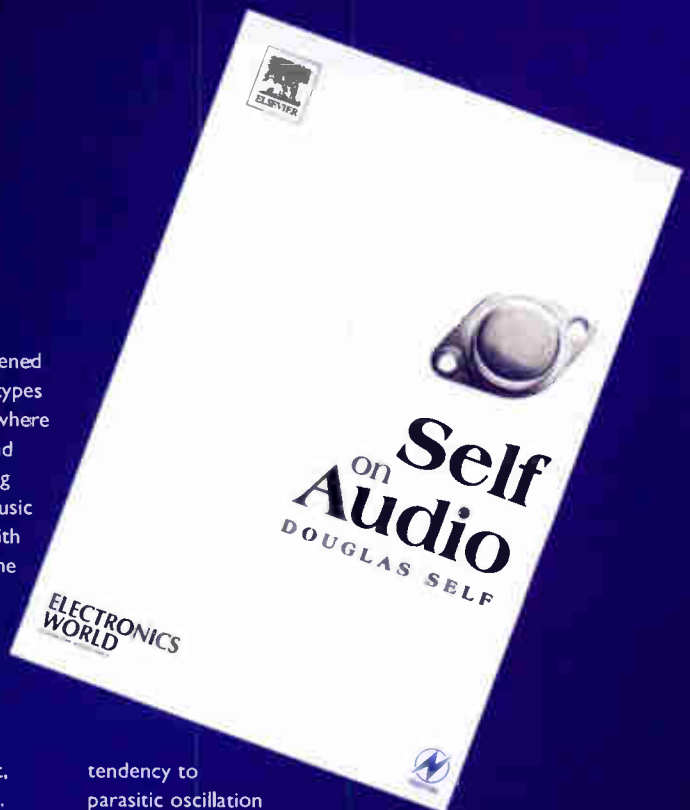
Power FETs were described as an improvement over bipolar transistors when they first arrived in the shops. Greater linearity, higher bandwidth, freedom from carrier-storage effects and virtual indestructibility were all claimed. Self measured circuits using these components and found that the claims were exaggerated. They are not dramatically more linear and neither are they short-circuit proof, as every service engineer knows.

The greater bandwidth seemed an advantage worth having, but in practice these devices have a

tendency to parasitic oscillation in anything other than the simplest of configurations. No doubt the damping capacitors often used to reduce the possibility of oscillation will slow down the response and quite likely negate benefits in the use of FETs in the first place. Today's modern power amps don't generally use power FETs.

The author states that he does not believe that an amplifier yielding 0.001% distortion is going to sound much better than another generating 0.002%. He then claims that using the design techniques published in this book it should be possible to get all forms of distortion down to below the level at which there can be any rational argument.

Towards the end, there is an interesting discussion of loudspeaker impedance. Self acknowledges that there are occasions when the impedance momentarily requires vast amounts of current from the amplifier (if playing fairly loud at the time). A good reserve of available current is a good idea, something you will find in many top amplifiers - never mind the specifications, feel the weight, as some might say. This is certainly a book to make the designer think carefully and check that everything has been covered.



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## Letter of the Month

### BUT CYRUS-LY...

I was very interested at reading the article on Cyrus Audio upgrade paths in the September issue. I have to confess that I don't own and had never owned any Cyrus product and, furthermore, I had never had the opportunity (or the curiosity?) to listen to any of their products. So my reaction is absolutely the one that an average reader could have at reading a very interesting point of view about upgrading within a range of one-brand components...

So yes, in theory, I think that when you pay more, you've got more stuff and it should sound better (CD8X vs. CD6S) but sometimes it doesn't (8vs vs 6vs). And, of course, I respect entirely Channa's expertise and honesty while conducting these comparisons. But in some ways, I felt not entirely satisfied by his conclusions, or by some missing elements in his conclusions.

First, the reviewer Channa Vithana's opinion about the amplifiers (6vs vs 8vs): 6vs is more musically satisfying. My comments are: [1] a pity that the 6vs doesn't have the PSX-R upgradeability. [2] a pity there's no amplifier-only version of the 6vs (to allow bit-tri-amping (and why not a bridged version?) as 40W/channel can sometimes be a little too... little!)

Secondly, Channa's opinion about the CD upgradeability route. My comments are: [1] what's the point at adding a PSX-R to the CD8X when it's hooked to the DACX? I would certainly have tried to hook up the PSX-R to the DACX, as a beefier and better power supply should have been more useful first to the analogue stage, second to the digital stage (both of them within the DACX) than to the CD8X, where only the drive and the display remain to be powered! [2] according to Channa's blurb, the main differences between the CD8X and the CD6S are "two toroidal transformers for the power supply with one transformer for the DACs/ filter, two balanced differential DACs, electrical



### Cyrus CD8x – boxing clever

and optical digital outputs and PSX-R upgradeability". So, if you connect the DACX to the CD8X, there's a lot of waste: one toroidal transformer at least, two balanced differential DACs, one filter and the whole analog output stage. A thousand of pounds for a drive and display and case is a lot of money!

This reason is why I would have tried the CD6S hooked to the DACX (and then to the DACX + PSX-R), because as a transport only, it shouldn't have had much difference between the CD6S and the CD8X. [4] a pity there's no CD transport-only in the Cyrus range; it could have been a sensible buy for anyone with a DACX and then sell the CD6s/ CD8X! [5] a very useful upgrade to the DACX and the CD6S/ CD8X! transport-only would have been respectively a word clock output and a word clock input: at this level, there's no better way of getting rid of jitter than to slave the transport to the D-to-A.

I don't blame Channa not to have given a listen to what doesn't exist: a Cyrus transport-only. Although I could have expected him to ask Cyrus to release one as well as a 6vs with PSX-R upgradeability and also a 6vs amplifier-only version. But I certainly expected him to give a listen to the

CD6S + DACX and the CD6S + DACX + PSX-R. Hey, I wouldn't let you feel too much criticised. It's just that your magazine is 'talking' to me. So I got the feeling that I can 'talk' back to you. It's a compliment, indeed. I used to read English, US, Australian and French hi-fi magazines (I can't read German or Japanese!). Hi-Fi World is the only one I have bought regularly for years and that I still buy, issue after issue, and that I will keep on buying.

**Jean Xerri**  
Adelaide, Australia

Dear Jean - another letter from Australia! And I am happy to respond.

Regarding the £650 Cyrus 6vs - firstly if the 6vs had a PSX-R facility (not to mention the beefier power supply regulation as in the 8vs) in its circuitry wouldn't this raise its selling price?

Secondly, you state there is no amplifier-only version of the 6vs. I am not sure I understand the question as the 6vs is an integrated amplifier just like the 8vs. However, if you meant power amplifiers, then Cyrus do an extensive and cleverly adaptable range of stereo and mono

versions to allow bi/tri amplification, but they were outside of the scope of the review.

As for myself asking Cyrus to release specific models! In the review (and in the context of my review findings) I asked whether instead of the £850 8vs, could an imaginary (£1000) '8X' integrated amplifier be a significant upgrade over the 6vs as the £1000 CD8X was over the £650 CD6S? I found through listening that the 6vs was better than the 8vs. Additionally, save the £200 difference as you can use that for another PSX-R towards the Cyrus digital section...

When you say "but I certainly expected him to give a listen to the CD6S + DACX and the CD6S + DACX + PSX-R". If you reread the review, I actually did listen to the £1750 CD6S/DACX and compared it to the £1400 CD8X/PSX-R. I found the cheaper CD8X/PSX-R to be superior, so what would be the point of listening to a £2150 CD6S/DACX/PSX-R when you can get better music and future upgrade-ability from a £2100 combination of CD8X/DACX for £50 less? Perhaps you are now interested in having a listen?

Finally, for more technological/general information please visit [www.cyrusaudio.com](http://www.cyrusaudio.com). CV

[Thanks for that Channa, and now it's over to Cyrus Audio's ever enthusiastic MD for his right to reply – Ed.]

Hi David,  
Fantastic, just what we hoped would come from Channa's stimulating review of our upgradable audio range. It was a terrific read. Some answers you are welcome to forward if you like. Please do send my response onward to Channa. I know you both know it's not my way to respond to a reviewer's opinion as I respect everyone's professional independence. However, a little time has elapsed and I don't think I would pressure anyone by this response to a consumer's feedback.

Amps sound different if we change the power supply. This is the main difference between the 6vs and 8vs. While I can see where Channa comes from I believe the 8 is overall a better sounding amplifier. Remember, consumers will sometimes need it to fill bigger rooms and possibly want to partner with less efficient but acoustically preferred speakers.

The matching amp for the 6vs is

the LinkPower and it is based exactly on the 6vs circuit topology and has a specially tuned power supply to provide a partnering sonic signature (plus incidentally greater resolution).

All Cyrus stereo power amps are now based on similar circuit topology. The SmartPower Plus is based on the X Power that is a more advanced and more highly tuned Cyrus 8 power amp design. This is important as the flow of upgrade must retain the intended Cyrus sonic signature while ensuring consumers wanting to add dynamics to a system can build up a system's performance within a sonically compatible set of building blocks.

In our first level training courses we explain this like so: more power brings better dynamics and PSX-R power supplies offer resolution benefits. Sometimes, an upgrade benefits more than one ability, but as a basic explanation let a customer know what they could expect a progressive upgrade plan to enhance in their system's performance.

The PSX-R on the CD8 is a fantastic dem. Everyone with experience of adding this sort of upgrade is amazed that supplying the current-hungry servo and motor section of the player is so rewarding. Sure, you can add a power supply to the DAC and hear a resolution improvement but we knew from our development of the original Discmaster back in the 90s that the transport is the first place to upgrade. I know this is a leap into the unknown for some readers but the power supply arrangement for the transport section of a CD player is very important. Adding a PSX-R to the CD8 drives the current-hungry servo and motor elements, allowing the highly regulated internal supplies to be less influenced by the higher noise elements as they feed the

sensitive low level audio circuits.

Now some Hot news for Hi-Fi World. Cyrus is about to announce a specialised Transport (at this moment called a CD XT) that provides a dedicated transport design to match the DAC X and XP models. As you would expect, the CD 8x will be upgradable to CD XT at reasonable cost. No retail price yet, but it will be less than the CD 8x... What fun this review has initiated!

**PETER BARTLETT, M.D.**  
**Cyrus Audio Limited**

### NEWS OF THE WORLD

*Just wondered if you've read Steve Harris's view of the Onkyo C-733/A-933 combo in the October edition of Hi-Fi News? Just compare the comments from SH and DP: SH "Viewed strictly from an audiophile perspective the combination isn't particularly good value at £900": DP "The A-933 punches far beyond its price class and you'd be plain stupid not to audition it if you're after a sub £1,000 integrated".*

*The Hi-Fi News article is a comparison of several CD/amp combinations and although SH does say the Onkyo combination "can produce very good sounds" you get the distinct feeling it was his least liked combination. What a contrast with the write up CV and DP give this pairing. Hopefully people who read Hi-Fi News will also read Hi-Fi World to get another point of view. I certainly intend to audition the Onkyo to see if it is a significant upgrade from my PM7200. If I'd only read the Hi-Fi News article I don't think I would have bothered. A lesson for us all there!*

**Rob Radcliffe**

Well, there you go! Did anyone say hi-fi wasn't subjective? Actually, if you read between the lines, then



**Onkyo A-933; 'it's really good', 'oh no it isn't', 'oh yes it is', etc...**



it could be explained – partially – thus... I think the C-733 is good, but not great. The A-933 is, I believe, the opposite. Drive the A-933 by the C-733 and you get good (but not great) sound. Feed the A-933 with a serious source (I also heard it driving my Quad 989s via a Michell GyroDec/TecnoArm, Ortofon Rondo Bronze and Whest phonostage,) and it's good enough to exploit it; the A-933 is held back by the C-733, kind of like driving your Porsche 911 on old Beetle tyres...

Obviously, Steve auditioned the 933 with the 733 driving it, but I'm not sure if he tried it with a top source...? Hence the disparity?

As a side issue, I wonder if other magazine reviewers use vinyl as a matter of course in all their reviewing? Noel and Channa and Dominic and I do, as we believe it to be the highest resolution source we've got, and how can you evaluate a product's absolute worth if you can't give it the best signal? My two cents!

Oh, by the way, I do hope Steve is enjoying his 'semi-retirement', and I'm sure he's missing the thrill of all those lovely deadlines! **DP**

## MEDIA STUDIES

I was wondering if it might be possible to print two small boxes with all your reviews, one showing the partnering equipment used, the other giving a representative sample of, say, five albums used over the test period. I know you do this with some, but not all your reviews. It would save space in the text, and present this information concisely. It might also help prevent errors or confusion creeping in. I frequently see comments about an effect in a track, with no further reference to what the track is, or even the album it is from. Such information is of great importance to the buyer, and without it, the usefulness of the review is considerably reduced.

On a different note, has anyone else noticed an odd trend in hi-fi magazines in general (HFW is better than most in this regard) recently? It sees certain products, with mediocre measured performance being under subjective testing are praised to the stars over and above rivals, some of which possess far superior performance on the test bench, something equally invariably ignored in the conclusion. While measurements aren't everything, what performs well here usually sounds accurate (with certain exceptions), while the reverse is seldom true. Take a look at a random selection of group tests from different magazines and

see for yourselves.

Those products afforded highest status frequently have the worst measured performance of the group, or are far from being top Peculiar, to say the least.

Finally, some information for any of your readers interested in transmission-line speakers. I keep seeing comments that TL design is still mostly rule of thumb. Actually, it's not. Do you know Martin Kings work? Martin cracked the mysteries of the quarter-wave loaded speaker several years ago with some heavy maths. His website is here: [www.quarter-wave.com](http://www.quarter-wave.com). On it, you'll find several DIY projects, and numerous papers on TL design, horn design etc. You can also download Martin's MathCad worksheets, and a free version of MathCad. With this you can design your own TL, and it will work exactly as MathCad predicts, no tweaking needed. This is not a business enterprise; Martin has done all this solely to assist the DIY community, and anyone can use these worksheets, providing it is not for commercial gain. I, and a few thousand others, can vouch for the accuracy of his work.

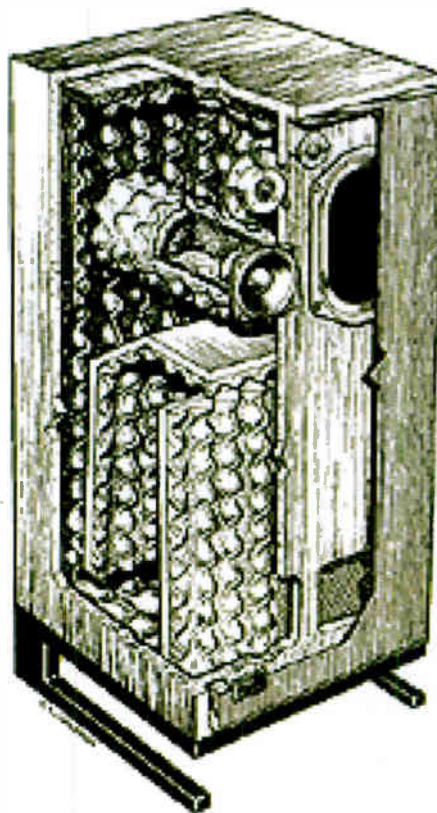
Sorry this has been such lengthy missive I had intended to be brief, so I'll shut up now and look forward to the next edition!

all the best

**Scott Lindgren**

I'm sort of embarrassed we are so untogether as to not print all the many things readers ask for, as we should. We firmly believe in listening to our readers and meeting their needs. A good example is coverage of old equipment; the industry in general hates all this, believing a sale that goes to ebay is lost to them. We don't think this and regular readers will know we also own and use veteran products ourselves. But returning to what we are not doing, can I sketch around this problem.

We are asked to consistently present information like size, weight



**A classic transmission line from the past. IMF's TLS80. A KEF B139 bass unit drives a tapered and foam damped rear line that exhausts at bottom front. You can also see a cone midrange unit with a tube behind it, a tweeter and a super tweeter..**

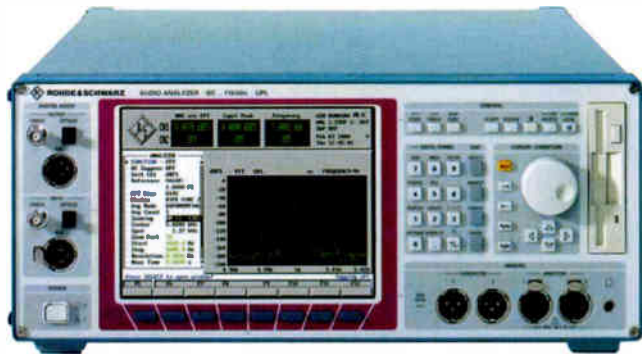
and price in our reviews. Well, we do include price, but it tends to wander around the page a little - more of which later. Then there are requests for review conditions, such as room and partnering equipment. Recently a reader concluded no review could ever be accurate until more than one person listened, in more than one venue. Then there are suggestions of alternative products, the discs we used and the tracks containing the effects we heard. And so on.

Every one of these requests looks nothing other than completely sensible to me and I'd love to be able to comply. But there are simple practical reasons we don't meet many of them, some of which are not immediately obvious.

There is a time and cost budget associated with everything, including reviewing, and we make certain decisions, specific to us, about what is and is not important within these constraints.

Meticulously gathering details on size and weight are a low priority when this information is available from the manufacturer's website.

I rarely go into detail about partnering items because half of it is either built or modified by myself,



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not being commercially available, and because I use a range of products, according to circumstance. I often use "benchmark" products too, rather than ones that I would personally live with. Listing all this would be both confusing and a little pointless.

Two reviewers and two venues per item does make sense, but it is usually impractical. I prefer one venue well worked out acoustically and have just had a conversation with a manufacturer who feels that no reviewer can ever really hear what a product is fully capable of when most rooms so distort the final sound it's difficult to discern one through the other. I agree.

Having two or more opinions is a great idea though and we do try and do this. Whether a sound is "good" or "bad" is, at the end of the day, much a matter of taste and opinion. Reviewers should have enough experience to possess a fairly informed view, but there's always a case for more than one view. This only becomes a problem when they are contradictory, which sometimes happens!

Finally and most importantly within the time / cost constraints is the fact that we measure all items for review. This is both time consuming and costly, in

terms of both capital expenditure on test equipment and man hours. Most magazines avoid serious measurement as a result, instead publishing manufacturers figures presented as "measured performance", which is deceptive. Such figures are worthless as investigative data, providing only basic performance parameters. Neat lists of manufacturers figures, usually including price, dimensions and weight may look attractive and convincing in print, but we choose to generate and publish original measurement data instead.

That's a large difference between Hi-Fi World and the other magazines - and the trade off we think justified. It's one Britain's manufacturers appreciate too, reassuring them that their products are received and tested in a satisfactory and coherent fashion. I've just finished a series of phone calls with one about jitter measurement and they will be visiting our offices to see how their units perform under the gaze of a complex analyser. So the implications of proper measurement extend out considerably.

As you say, products that measure well can get poor reviews and those that measure badly good ones! It all seems topsy-turvy and open to debate, but that's one of

the complexities of the subject. If we take amplifiers, high feedback designs exhibit lowest measured distortion, but nowadays there is fairly broad agreement that they do commonly seem to sound "flat and boring" as a result. Some engineers say this is due to the way feedback is applied, others prefer to use as little as possible whilst some continue to argue that if it measures well it sounds good - and that's the end of it!

Most of the time a well applied set of investigative measurements can reveal problems and give a strong indication of likely sound quality, but not always. That's why we use extensive listening tests after measurement.

Thanks for the info on transmission lines. Once upon a time this was a black art but nowadays the theory has been worked out, as you note. In addition to [www.quarter-wave.com](http://www.quarter-wave.com), go to [www.t-linespeakers.org](http://www.t-linespeakers.org). The transmission line is a nice idea that works well, one I've long had in the back of my mind as suitable for valve amps as the impedance curve is, in theory at least, flat. This makes for ideal amplifier matching.

Now that transmission line theory is available to all, perhaps we will see the complex and expensive cabinets required manufactured in China and made available here at an affordable price. In the meantime don't ignore big, tuned lines like that of the Castle Howard. It may not be a proper TL but it sure sounds close to one. **NK**

Hi Scott - thanks for your input, as they say. I think Noel has answered your points exhaustively, but I'd add that we do try - either officially 'in print' or behind the scenes - to hear each bit of kit in several situations, and often I live with the product at my home for several weeks - or even months - before it goes to Dominic Todd, Channa Vithana, John May or Noel for an official review.

I often add my 'two cents'; some

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readers and manufacturers love this, others hate it. One thing I can guarantee you is that – however well intentioned you are (and we really are) and whatever you do, there will always be folk who moan, complain, accuse you of bias or even hit you with ‘conspiracy theories’. That’s life, I guess, but I should mention that I deliberately deny myself the pleasure of reading any other hi-fi magazine reviews on things we test; so I have no knowledge of whether our findings concur – unless readers tell me (see above). This way, at least I know I’m not playing politics, consciously or subconsciously... DP

### LJKS REMEMBERED

Dear Hi-Fi World team,  
I am writing to say how saddened I was to read about L.J.K Setright’s death in today’s Guardian. Many years ago I was a very enthusiastic motorcyclist and used to read his articles in ‘Bike’ magazine and also have one of his books about motorcycles. Marriage and family meant my boyish pursuits had to be abandoned, but many years later as a regular reader of Hi-Fi World was delighted when he started writing for you. He added another dimension to what was already an excellent magazine. An obviously intelligent, articulate, and very knowledgeable fellow I always enjoyed his articles, and his eccentricity was obvious from his

writing and strongly held views. A real one off and I will miss him. Please pass on my condolences to your colleagues and LJK’s family if at all possible.  
**Paul Archer**

Thanks Paul; they broke the mould when they made Leonard; he was a one of a kind. We all enjoyed having him in the magazine; I only wish we could have had him in longer. He wasn’t an easy man to deal with, and when I approached him to write for us I felt like I myself was having a job interview, not him! He insisted on having a careful read through ‘several recent editions’ of HFV before agreeing. When he finally did so, my requests to email copy in were treated with derision and I was given a lecture on the deceptive futility of the internet and ‘instantaneous communication’ in general.

Not an easy man to work with in some ways, but in others amazing... Certain other writers here would do well to ape his perfect syntax, grammatical exactitude, attention to deadlines and article word lengths! Finally, I have been ‘dining out’ on his many stories and anecdotes – all from our regular lunchtime meets in Maida Vale – since I first met him, and fully expect this to continue. I only wish I could still hear them ‘first hand’, so to speak. DP

### WISE GUY

I have friends who say they no longer find the same pleasure in listening to music at home that they once did when the world was young. And having been a keen music buyer and listener for many years I was starting to feel vaguely bored with my music too, despite having acquired a respectable record playing system. So I sought your advice on equipment in 2003, and now thought I’d write and try to set out what I’ve learnt, (or should have learnt) from not following it. Having said that, the route was different but I must admit to most of the changes I made have been informed by your reasoning then, and over the years throughout the mag. So thank you sincerely for what wisdom I have managed to take in.

Back in the early days I had a reasonably up to date, but not very recently serviced, Linn LP12 turntable, with solid state phono stage, passive (resistive) preamp and very well reviewed 120watt, £2,000 transistor monoblocs driving 82dB inefficient loudspeakers. I was complaining about a lack of impact and energy, particularly on vinyl replay. Within my then budget, your remedies were to change the cartridge, and either the phono stage to a valve driven model, or go active on the preamplification, but leave the speakers and power amps. Well, being a contrary sort of cuss, I changed the speakers and power amps. Now a pair of 8 watt AV8 valve monos, bought for under £200, drive a pair of 1985 Klipsch LaScala 103dB horns. Magic! I lost nothing here except floor space and gained a little more snap and musicality, but not yet to the point where all the excitement was back.

Having sold the old stuff on the second hand market I tried my hand at soldering. Off went the resistive pre and in came a self assembled and soldered Django Transformer Volume Control (TVC) from DIY Hi-Fi Supply, the same people who make the very well reviewed Lady Day 300B kit. It took an evening working out where all the wires went and soldering them, mostly the former, but in the end this proved a great success, giving back the same clarity to vinyl as to CD, and at both low and high volumes. I can thoroughly recommend this kit. I have compared it in the system to a Croft Charisma and preferred the Django by a small margin. The only problem was with DC offset on the phono stage, something I’d never had cause to worry about before. It was affecting things. This is something the DIY Hi-Fi Supply warn of as a particularly sensitive foible of a TVC.

A Ming Da valve phono stage came direct from China and proved



LJKS: one man and his Honda

excellent in the sound stakes but much worse on the dc offset and so went at a small profit at auction. Yet another replacement, again from a well known auction site, a Densen phono with a light powered electric supply and no dc on the output, arrived. This improved things, to the point where I should just have had the LP12 serviced, replaced the five year old cartridge and spent my time listening to music. But curiosity had a grip.

There was this advertisement for a Nottingham Analogue Mentor and Alien arm. They may have been out of production for years but they came from a very good family (Spacedeck etc) and just looked gorgeous. To me anyway. My wife didn't see them until they were already in the house, which had also been the case with the horns, but that storm had died down by this time! Anyway, both were far too heavy to move unaided, so got to stay.

At first the sound seemed different, but not necessarily better, an experience I've had many times before. What had been gained on the roundabouts of a better balanced sound, more tone, without what now seemed to have been a rather bloated upper bass coupled with a bit of thinness elsewhere, had been lost on the swings of a lack of focus and clarity. Considering the sheer mass of the platter, this was odd. But the 40kg Mentor was on an Apollo table on the wooden floor. The Linn had been on a wall shelf, which I wasn't trusting to take the extra weight. Could this, with the lack of suspension of the Mentor, be responsible? The removal of the ugly and conspicuous wall shelf had helped with domestic acceptance though, so more wall drilling was ruled out. A 750g brass record clamp improved things noticeably for £30, but not completely.

So finally the last tweak. This next advert was so tempting. It addressed just the problem. A Townsend 3D Seismic Sink, rated at 60 kilos, arrived a fortnight ago. At last everything has fallen into place. The Mentor is anything but a dead end, except that it may well be the last turntable I even desire, let alone buy. If I have to listen critically to the sound the system makes I find nothing to fault, but now I have to concentrate to do that, because usually I'm just too taken with the music to bother with that bass, treble, midrange analysis stuff. I can play record after record, from opera to bluegrass, orchestra to solo voice, without fatigue. It brings back the pleasure of when first I discovered true hi-fi music reproduction courtesy of Dual, Creek and KEF back in the eighties.

Price does not necessarily always

equate with pleasure, and neither old nor new equipment is always the best. Most importantly, it is often the set up and ancillaries which make the difference between whether something just works okay, or truly shines. So my questions are: firstly what would slipping a WAD phono stage in here do? And secondly, the AV8 s are great, but could I do even better for a few more pounds and a bit of solder? And if at some future date the Mentor should ever sound jaded, what would be the best way of refreshing it?

**Charles Brown**

A WAD phono stage would open up the soundstage considerably; a good valve phono stage is always a great experience and would make a big difference in your system, one you would appreciate I suspect. I do not know the AV8 valve amplifier. **NK**

You're spot on, Charles – price does not equate with pleasure (as my ex-girlfriends always pointed out...). But seriously, the thing that Noel and I are so often amazed by is the effect that system synergy and tweaking have, and how this is totally out of proportion to the outlay. A few cleaned contacts and some proper equipment or speaker positioning can make more difference than a £5,000 pair of speakers – which is why I always bang on about it (presumably, ad nauseam?) in print. The best adage in audio I've got is, as the song says, "it don't mean a thing if it ain't got that swing". You soon realise when your system's on song. **DP**

## IN THE KAN

Hi David – a quick note to tell you how much I enjoyed your eulogy to the long lost Linn Kan loudspeaker in your recent Wilson-Benesch review. I think we both agree that the Kan is a 'speaker we like and whose like we may not see again. I loved its direct communicativeness, and also the way it imaged, much against Ivor's protestations. Have even thought of getting a pair myself, although this may be a mistake given my amp (Naim Nait 5) is only thirty-ish watts per side.

Perhaps this rules out small speakers in general, although I'm about to dem a pair of Epos M 12.2s which are apparently are of a more average sensitivity. And the reason for all this is that I have Audio Note Js. They definitely have the sensitivity for the Nait but they don't create much in the imaging / soundstaging dept. This surprises me as I recall a comment of yours that some of the best imaging you've ever experienced was from Peter Quortrop's Es (in a vinyl based system). Surely the Es and Js should be similar in this respect. My sources are CD, vinyl and FM radio. Any thoughts? Thanks for a great mag.

**Chris Miller**

Hi Chris – yes, the Kan was a brilliant loudspeaker that had the strange distinction of being hated by most people who heard it! (Can't say the same about most boxes of such obvious quality!) As for the AN Es, I can still remember Peter's stunning system; still one of the best I've ever heard in some respects. I stand by what I said about the imaging too



**Kan'd heat – Linn's brilliant baby**



– but methinks this was in spite of the Es and not because of them. They're quite '2D' sounding boxes, and with appalling tonal neutrality (i.e. they're very coloured), but – oh boy – can they stop and start! I think even the original Linn Kan 1s aspirated by a Naim NAP500 would really struggle to keep up. As usual, you pay your money and take your choice... DP

### PARSIMONY'S TOO TIGHT TO MENTION

After an embarrassingly successful couple of years bargain-hunting I now find myself in a confusing situation of my own making and am in need of some help. This erstwhile Rega Planar 3/ NAD 3020/ Tannoy Mercury owner has now amassed the following secondhand equipment:

Tascam CD601 broadcast studio CD player (150 from Cash Converters), Quad 405.2 plus 44 preamp (£150 the pair), IMFTLS50S MkII transmission line speakers (£50 from a retro furniture shop in Brighton), Leak Troughline tuner waiting to be Graham Tricker-ed but already good (the Magic Eye works!) (£50), plus (a new): Michell TecnoDec and TecnoArm (on a slab of marble on a half-inflated bicycle tyre on a very solid built-in counter-top) with Bluepoint Special Evo III cartridge into a Graham Slee Gram Amp 2 SE phono stage

All the second hand items are in excellent condition. The IMFs required a 6 Wembley Speakers repair to the midrange cones, but are otherwise internally as the day they were built. Cables and interconnects are budget: Cable Talk 4.1 and QED Qunex 1. Pre to power amp connection is via 10m (yes!) of CT100 high quality coax which was going to be augmented with silver wire in accordance with a Graham Slee design, but this was for a 1m interconnect... and here I get lost...

Before I start worrying about trying to feed ten metres of silver wire down a very small hole in a cable that may in any case be wrongly specified for its length, shouldn't I be more concerned with the obvious (?) weaknesses of the 44 preamp, or the old crossover components in the speakers that probably need replacing, or the underpowered power amp for such inefficient speakers (although the 405.2 does a much better job than I had expected, I dare not crank the volume up for fear of causing permanent damage), or the outdated DAC in the Tascam (which has digital and line XLR outputs but is currently connected via the phono monitor outputs), or the cheap cabling?

*How can I sort all this out in the same spirit of parsimony of course to get the best out of what I have? Not having built this system up through careful auditioning of components over time, piece by piece (though knowing each component by reputation, and sensing some kind of synergy perhaps), it is difficult for me to identify where the weakest links are. Of course it already sounds pretty amazing compared with what I had before...*

*If you were stuck with exactly this selection of (mostly British) kit and had £100 spare, what would you do? Or £500? Or £1,000? Without wanting to lead you, at the upper end of this price range - and beyond - various names*



### Quad 405 – underrated classic, worth modding

*are floating around in my head M-Audio; Flying Mole; Benchmark; Stello; MF X150? (Okay, most of this isn't British...). But perhaps I should stick to secondhand? I definitely want to stick to the principle of 'more for less'. I suspect I just need to consolidate what I have and that will keep me happy for some time to come. I should add that the room is about 6x7m and I have an expanding collection of jazz and classical music mostly on second-hand vinyl, much of it from charity shops (though you could have guessed that.)*  
**Jonathan Pile**

£100: a few metres of Chord Odyssey 2 speaker cable. £500: Ortofon Rondo Bronze. £1,000 Stello DP200 DAC preamplifier. (Any money saved from flogging old kit can go to rebuilding your Quad 405.2 with audiophile passive componentry.) DP

I'm reminded of conversations with Quad as they struggled to come to terms with the modern world where they ruefully admitted that, yes, one of their amplifiers - it was the 405 I believe - actually sounded better if certain electrolytic capacitors were

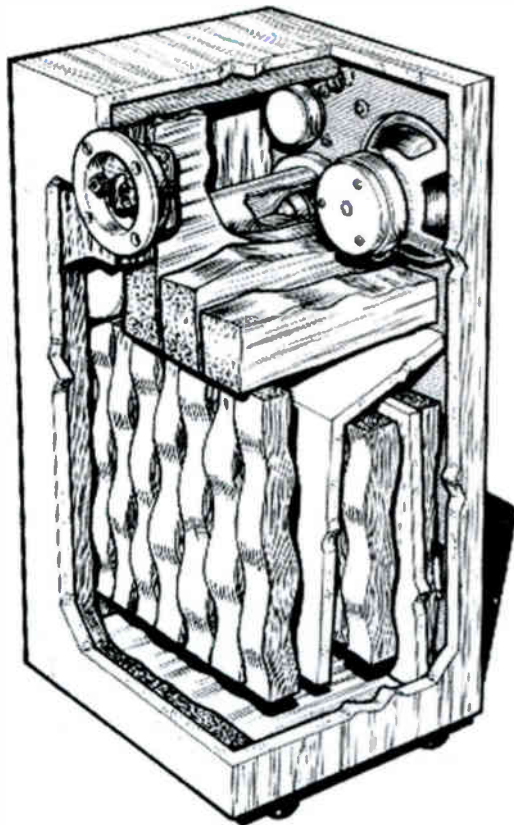
replaced. They were a little peeved that items they had always defended as not having a sound should be culpable, responsible for what people had described as the somewhat dull, even boring sound of the 405.2. A few components had - possibly - been responsible for compromising a good amplifier, well engineered at heart and beautifully built.

This anecdote illustrates what you are up against. Old products are constrained by component quality, as well as degradation in this area and others, such as drive units, as you've found out. The 44 preamp didn't have the greatest reputation for transparency, as you suspect.

It isn't all bad news though, as you'll find out with the Leak Troughline and the IMFs. Some old products have real strengths, for often obscure reasons: the Troughline is a simple but effective all-valve tuner, the IMFs serious transmission lines with the seemingly endless bass this form of loading offers.

How you get the best from all this really depends upon your own abilities and approach. I would tend to improve crossovers, for example, by re-building with new components, as these cannot be seen and therefore the product's appearance is unaltered. Cabinets and drive units should be restored in the way you have done, using repair by experts. This maximises performance whilst at the same time maintaining originality and value. Whether you want to try and improve the 405.2 by replacing components depends upon your skills; I suspect you are not qualified to do this sort of work safely.

Better, perhaps, to sell the 405.2 on and get a more modern power amplifier. I don't recall the IMFs being especially transparent or revealing.



**IMFP TLS50 - old and battered perhaps, but inside a vastly complex transmission line. They don't make them like this any more.**

As you are scared to use power, 100W per channel or so should be sufficient and there's no end of choice here. Audiolab is a name that springs to mind here: plenty of grunt with a tidy enough delivery, for not big money - and availability is good.

The Michell turntable setup looks good and needs no further attention I suspect, assuming the cartridge isn't worn or damaged. As for the CD player, either get a good, modern budget player like the Rotel RCD 02 or go back to ebay and second hand shops to find an old high end Marantz, or even a

Sony, which generally have a sharper sound. I don't know about flying Moles. It sounds like you need to get what you already have before worrying burrowing animals. Have fun. **NK**

**HEAD MASTERY**

First, a big thank you for an excellent magazine which I have been buying for about three years now. The magazines are building up to a quite a useful source of reference and in that time I have made a couple of purchases based on the reviews in your magazine. The first was the Marantz CD6000K1

Signature, which when you reviewed it was retailing at £600. However I managed to buy it at less than half that partly because I think it was about to be discontinued. The other item was a set of TDK S80 speakers which I use on my eMac. They sound terrific and are amazing value. I also considered buying a pair of Sennheiser HD650 headphones and a Musical Fidelity headphone amp when you reviewed them, but at over £500 in total this was a little expensive so I went my own way and bought a pair of AKG K501s and use the headphone output straight out of the CD player, with excellent results.

I have noticed that the Technics SL10 turntable gets an honourable mention in your magazine from time to time. My late father had one of these when they first came out and we were both very impressed with it. By mutual agreement the turntable then went to my sister- twenty years ago!! About a year ago I tried to persuade her to let me have it but to no avail- we are still good friends! So into the clutches of ebay I fell and got lucky and secured a very good example. I noticed in the October issue when reviewing the Technics SB-F1 mini monitors the SL10 deck gets a mention again but was rather surprised when you said it came complete with a head amp! When I got up off the floor I realized that this was probably a typing error and you in fact meant a built in preamp for the type of cartridge used - MM or MC. It is in relation to this preamp that I have a question. When I first got the deck I wasn't sure how to connect up to the amp and so being cautious tried the aux. input first, but of course it didn't work. But then felt more confident and hooked up to the phono stage and it worked fine. The deck is fitted with an MC cartridge and the preamp is set

Billy Vee

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**Technics SL10 turntable – less is more!**

*accordingly. My question is if I buy a different amp in the future that does not have a phono stage I would be puzzled as to what phono stage to get, MC or MM? And if either one why the preamp in the deck in the first place?*

**Paul Archer**

Well, thanks for following my recommendations; we don't claim any cosmic, transcendental insight into matters hi-fi, merely that we know what we like and we know why we like it – and if you concur then that's great! As for the Technics SL10, it's a lovely little deck – and that's what it is, little and lovely. But it's no giant killer (you won't be selling your Michell Orbe or Bastin 401 on ebay...). It has a built in head amp, which means it takes MC levels and amplifies them up to MM levels, so the deck can be plugged into a standard MM phono input. This does not mean, however, that it can be plugged in to a standard line level input (well it can, but you'll never wake the neighbours). So, when you look for an offboard 'phono stage' (which by general consent means it takes MM and/or MC levels and outputting line level), then you need an MM compatible one (with the SL10's output level selector pegged to MC). The SL10's internal 'head amp' is very good; certainly as good as the deck itself. I'd recommend the £295 Trichord Dino phono stage.

DP

### HEY BIG SPENDOR

*I'm looking to change loudspeakers and was hoping you might steer me in the right direction. My current setup includes a Musical Fidelity A308 integrated, MF Tri-Vista A308 integrated, MF Tri-Vista DAC, NAD CS42 as transport and*

*Legend Acoustics Kama 3 speakers (Australian made floorstanding speakers by Dr Rod Crawford - ex Linn designer). My listening room is approx 10ft x 18ft with a 9ft ceiling. Listening tastes include reggae, funk, soul, jazz, electronica, and mellower type rock.*

*While I enjoy many aspects of my current setup - fast, tight, 'live feeling' - it's also fairly revealing and just a tad forward at times. So poorer recordings sound like, well, poorer recordings ... there isn't much room for forgiveness. I'd also like a bit more weight in the bass (while still being tight and tuneful). My ears pricked up when I first read*

*about the new Se Spendors, particularly the S8e. Do you think this would be a good match? I'm hoping they might be a bit more forgiving across a wide range of music, and provide a bit more weight to the sound. Auditioning isn't that easy, as they're imported and sold direct over here in Australia.*

**Ben**

I've been using a pair of review Spendor S8es out of choice for the last few weeks Ben, because they struck me as something special during initial tests. The full review in this issue will interest you. Your room's largest dimension of 18ft will support full output down to 30Hz. Although what you actually hear in practice of your room's modal properties depends upon loudspeaker and seating position, you will be aware that the S8e goes low and has pleasant weight to its bass. Forward they are not; a sense of smooth balance is their forte, one of their main attractions I feel. A loudspeaker like this is great for relaxed long term listening. The sense of warmth and mellowness that you want is exactly what the S8e has, even though it is not dull; output extends to 20kHz our measurements show. It's a top dollar loudspeaker that handles Rock (and



**Spendor S8e – even Noel likes it, so it really can't be bad...**

Classical) well Ben and will suit you I suspect. **NK**

### LOHAN CALLING...

I note that you kindly published one of my letters in your magazine about three months ago. Anyway, more to the point, as a follow up to that letter I am putting my money where my mouth is and getting an EMT 950 to do a restoration on it. I am getting it from 'The Authority' Stefano Pastini, and Hans of Fabtech is going to get it electrically sound - I'm told one of the boards is faulty as the motor does not start, but the motor works fine on another deck. On top of this I'll then have to source a 929 tonearm...

The true irony of all of this is that on the one hand I have a modern High End 'Snake Oil' deck, namely an Amazon Model One with a Transfiguration Temper cartridge and a Whest phonostage - on the other I'll have probably the best deck from the Golden Era of analogue - I can't wait. I am going to do a full restoration and will keep a photo diary, and post it to anyone interested. Out of interest, and one of the reasons I am posting to you, is that does anyone know any EMT restorers in the UK who may be able to give me some friendly help and advice?

**Lohan**

[loheswaran@yahoo.com](mailto:loheswaran@yahoo.com)

Hi Lohan - unfortunately I don't, but the contact point for most EMT units is Ralph Koesch who is a member of [www.theanologuedept.com](http://www.theanologuedept.com). He may be able to help. As would Len Gregory I think. The problem with EMTs is that they were individually built for the client. Not a problem when they are running well! And as with all classic turntables, there is an amazing amount of bull [my office after class Mr Wennen - Ed.] spoken about them by well-meaning enthusiasts. Definitely one for the professionals. I

wish Lohan luck with his search for a 929 pick up arm, rare as rocking horse teeth.

Maybe a post on the Analogue Dept website would get a good response? **SW**



**Use a quality external MM (Moving Magnet) phono stage, like the Tricord Dino, with your SL10 to match it to an amplifier's line input.**



**The lesser spotted Yamaha NS2000, one thousand better presumably?**

### JAPANESE WHISPERS

Thanks for a great magazine, especially the wonderful articles on the classic Japanese gear. I've just assembled this system from lucky internet auctions and second hand buys. I know that the Yamaha speakers and Technics turntable are capable of great things - but feel that I'm not getting any of this from the system, which comprises: Technics SP10, SH10B3 Plinth, Origin Live Silver, Ortofon MC25FL, Denon DL304, Shure V15XMR cartridges. Trichord Dino with Dino+ Power Supply Technics SU-C3000 preamp, feeding power amp direct input of a Technics SUVX800 integrated amplifier. I also have a Denon DCD485 CD player and Yamaha NS2000 loudspeakers, plus Atlas Equator, Merlin Chopin & Ecosse Reference Maestro interconnects with QED Silver Anniversary speaker cables.

The setup just sounds quite lazy and the great dynamics that should be there, just aren't. The preamp is built to be clean sounding, and have reasonable clarity - could it therefore be the integrated amp that's letting the side down? This is mainly a vinyl system, but as I listen to CD occasionally - I feel that I need to replace the CD player too as it sounds extremely bland and very pedestrian currently. I'm after a sound with amazing see through clarity, dynamics and speed. Bass needs to be deep, but fast and tight - not boomy. I listen to everything from Count Basie big band to Dire Straits and Hip Hop. I have access to a Kenwood 3020SE amp, and a vintage Rotel RX1603 receiver (all 33kg of it!). Would these help? I'm conscious that the Yamaha's are tough to match, and also as spares would be impossible to locate - so must not be overdriven. I've considered valves (especially the WAD 300B monoblocs), but am concerned that tube amps might make the system sound too warm. Please could you help me put a bit of Japanese high end magic back

into my system? Budget is 3000 for a complete fix!!

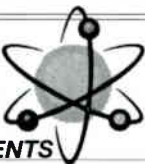
**Julian Fletcher**

Hi Julian - here begineth the lesson; he who puts together a rag bag of old bits without listening to them (i.e. buying from internet auctions) will never get great sound, no matter how good the old bits. I'm not surprised the NS2000s sound bad with that load of dusty old dodge driving them! Okay; Technics SP10/OL Silver tonearm: very good, Ortofon MC25FL etc.: nowhere near good enough for Yams, Trichord Dino/Dino+: just about makes the grade, Technics preamp/integrated: so you're a comedian for a living then? As for your interconnects, close but no cigar...

Julian - for a man with awful 'previous', you've a good plan to get yourself out of your hi-fi hole. The WAD 300Bs are superb, and just the job for the Yams; I use a modded K588I with my NS1000Ms, and they go loud-ish, very nicely indeed. There's real air, space, plus punch and push, with stunning tonality and textural. Get a pair of 300Bs, a few metres of Chord Co. Odyssey 2 cable and use the Technics preamp pro temps, then invest in the MF Audio Passive Preamp when funds permit. You'll find the Ortofon Kontrapunkt B cartridge to be the best 'do-it-all' moving coil for realistic money; this brings real high end sound at half the price of the next step up the upgrade ladder - a Koetsu Red Signature. Then sell all your other dusty old spare stuff and invest in some Clearer Audio Silver Line Optimus interconnect to go between phono stage and preamp, and pre and power. Finally, a Whest Audio PS.20/MSU.20 phonostage will work wonders when your boat comes in. The lesson ends... **DP**



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Musical sounds are formed by a complex blending of the fundamental tone, formants and overtones. The formants are primarily responsible for voice recognition because they determine the timbre: their frequencies remaining constant even when the overall tone changes. This basic musical principle, along with the consideration of high pulse dynamics, makes music come to life.

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## GOOD NEWS AND BAD NEWS!

I referred last time to a number of the excellent AVI units that I recommend, but one thing that has been missing from AVI's portfolio of speakers for some time, has been a replacement for the excellent floor standing Positron. The good news is that the larger and more expensive Trio and Brio, have been joined by the Duo (2 way), which looks very similar, just smaller, and at a sensible price of around £1500. I haven't heard these yet, but expect to have in stock by the time this advert appears. The sad news is that Eslab, who I also referred to last time, have stopped production of their excellent digital amps due to lack of interest, though why I shall never understand, as they sound excellent. I still have the newer styled pre/power, and an original S4 in gold, plus an S8 (but I'm unlikely to sell that), so anyone interested while they are still available, please ring. I will be investigating the Danish Lyngdorf semi-digital and digital equivalents, which complete with their room correction ability, were one of the very few interesting items at the recent Heathrow Show. Also of interest were the new Chapter Audio Integrated amp, and some very good value French speakers by Davis, being demonstrated by Ultimate Sonics. Also expected for evaluation is the Electrocompaniet EC4.7 pre and AW220 power amp, which is a 70w/ch stereo amp, but bridges up to 220w/ch mono for a mere £1400. Do ring!

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## SALE LIST

	NEW	SALE	
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ARCAM DV88 DVD PLAYER	£1,000.00	£679.00	D+N
AUDIO RESEARCH LS25 MKII (mint very light use)	£5499.00	£2995.00	SH
CELESTION - C2 - Floorstanders	£499.00	£299.00	D
CELESTION C1 - Compact speakers	£199.00	£114.00	D
CYRUS 5 AMPLIFIER	£500.00	£329.00	D+N
CYRUS 7 AMP	£700.00	£479.00	D+N
CYRUS DVD7	£1,000.00	£599.00	D
AVANCE TECHNOLOGIES Active Subwoofer	£1200.00	£695.00	N
MARTIN LOGAN SCENARIO	£2,498.00	£1,629.00	D
MERIDIAN DSP1500 Subwoofer	£1350.00	£895.00	D
MERIDIAN 562v.2 Controller	£1,500.00	£995.00	D
MERIDIAN G51 RECEIVER (AS NEW)	£1995.00	£1395.00	D
MERIDIAN G55 5 CHANNEL POWER AMP (AS NEW)	£2695.00	£1885.00	D
MERIDIAN G56 STEREO POWER AMP (AS NEW)	£1495.00	£1045.00	D
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MARTIN LOGAN CLARITY	£2500.00	£1749.00	D
MISSION 773E SPEAKERS	£399.00	£249.00	D
MISSION 780 - ROSEWOOD	£300.00	£199.00	D
MISSION 783 - BEECH (Good condition)	£1,000.00	£499.00	D
MISSION 782 - BEECH	£700.00	£449.00	D
DENON DVDA11	£1699.00	£1295.00	N
MUSICAL FIDELTY XA100R - INT AMP	£900.00	£499.00	N
PROCEED AVP PROCESSOR.VGC/LIGHT USE	£4,700.00	£1995.00	D
PROCEED PMDT DVD PLAYER.VGC/LIGHT USE	£5,495.00	£2495.00	D
PROAC STUDIO 125	£1,000.00	£599.00	D
REDROSE Valve System (amp & speakers) 1yr old	£10,000.00	£2995.00	SH
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SONUS FABER CONCERTO wood	£999.00	£595.00	D
VIENNA MALHER (Beech)	£6000.00	£2999.00	D
VIENNA WALTZ centre Speaker (Beech)	£500.00	£350.00	D
YAMAHA HD1000 Hard Disc Recorder	£699.95	£500.00	D

## Hi-Fi Cartridge Alignment - a new approach.



The Vinyl Alignment Solution (VAS) represents a completely new and innovative approach to cartridge alignment for Hi-Fi turntables.

Traditionally, you use a generic alignment protractor, to impose pre-determined geometry onto your turntable. This is based on the work of Baerwald etc, from the early 1940's and represents a "one size fits all" approach.

V.A.S. takes the opposite approach by using the capabilities of a modern PC and spreadsheet to allow you to produce a custom design, **optimised for your own, individual turntable**. You then align your cartridge using a **single alignment point**, with the gauge supplied. This is much easier than aligning on two points, as with traditional gauges.

Critically, V.A.S. gives you the ability to investigate changes to your alignment geometry, **before** making changes to your turntable set up.

The results of the design process are presented both graphically and numerically. The graphs give great insight into the design process and are an invaluable aid to understanding the "Black Art" of cartridge alignment.

Further details and purchase information for this innovative product can be found at:

[www.vinylalignment.co.uk](http://www.vinylalignment.co.uk)

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With me you can listen to the Ayre AX-7e, K-5xe, K-1xe, P-5xe, V-5xe, V-1xe, CX-7e and C-5xe. Also the Thiel CS1.6, CS2.4 and SS1. Finally, the Esoteric, UX-1, P-01, D-01 mono DAC and G-0s master clock generator..

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CR Developments Carmenta Line valve pre-amp.	£ 450	Woodside SC26 Valve line pre amplifier.Ex cond	£ 690
Woodside STA-50.BG.SE.Valve power amp.Mint.	£ 999	Musical Fidelity F16 Class A power amp. Mint/Boxd	£1350
Quad 77 integrated amplifier. Ex Condit. Boxed.	£ 295	Leak Stereo 70 integrated amplifier.	£ 60
Leak Stereo 30 integrated amplifier.	£ 50	Musical Fidelity P270 power amp.150W Class A.	£ 699
Quad 33 pre amplifiers. From.....	£ 75	Leak TL12+ valve amplifiers. Bronze finish & rebuilt with expensive paper in oil caps & Rhodium plate phono	£ 695
Leak TL12+ valve amplifiers. Bronze finish & rebuilt with expensive paper in oil caps & Rhodium plate phono	£ 249	Meridian Modular pre/power amplifier. Ex cond.	£ 249
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### TURNTABLES

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Mantecore Mantra with Linn Basic+tone arm.Exxon	£ 249	STD 305S motor unit. No arm. Nice deck.	£ 100

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### OTHER ITEMS

Musical Fidelity Digilog DAC. Superb build/sound.	£ 149	Revox G36 2 track R/Reel. Valve and very rare.	£ 249a
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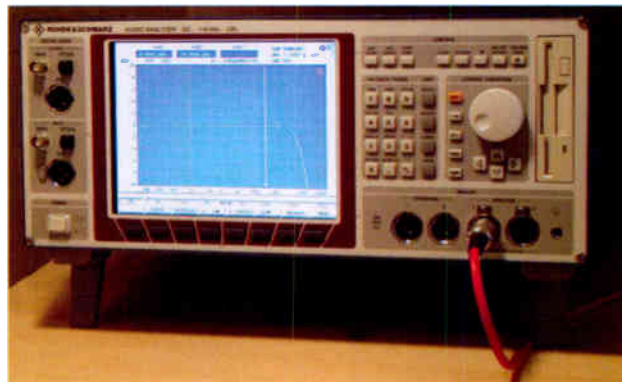
Hi-Fi World measures all incoming products before sending them out to reviewers and is unique in having such a rigorous vetting system. It reflects our dedicated approach to assessing audio equipment. Nothing gets by before thorough scrutiny.

In-house measurement is costly and time consuming, yet it has always been central to our belief that both readers and manufacturers deserve it, because there is no alternative if complex technologies are to properly assessed.

Measurement achieves many things. It ensures a product is working properly before it is subjectively auditioned. We pick up problems like loudspeaker drive units wired out-of-phase by accident, digital filters that roll-off in a bizarre fashion due to design error, a transmission line loudspeaker with no bass (!), amplifiers with excessive d.c. offsets, excessive jitter and all manner of other funnies.

Manufacturers published data is then checked against our measurements. There is usually little problem here.

The reviewer is then given the results. This gives useful guidance on what to watch out for in listening tests. For example, if three CD players use the same chip set they may well sound much alike in their basic attributes, if not identical. This is useful information for a reviewer.



Hi-Fi World uses a range of test equipment from around the world, including a Rohde & Schwarz UPL for testing CD and DVD players. Amplifiers are tested with 8903B Audio Analysers from Hewlett Packard. Loudspeakers are measured with a Bruel & Kjaer measuring microphone and Hewlett Packard 3561A spectrum analysers. We use three of these for basic test work and to ensure our listening room and conditions are balanced. Tuners are measured with a Leader 30125 Lab generator and Marconi 2015 RF generator, plus external MPX filters and equalisation.

We continue to upgrade our testing to keep up with the latest standards, to ensure that both readers and manufacturers receive the most accurate information possible about the items we review. No one does it better than Hi-Fi World.

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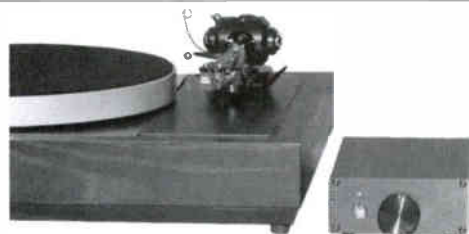
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**AUDIONOTE OTO** phono S.E., Nakamichi 582, AE 109's, Aegis Sub, Sony TC377, Teac amp, Cd, Tuner, Atacama 5 tier staqnd, Technic SU900 MkIII CD, RSA27 tape. Above excellent/good. Offers t01522 820 179 (Lincs)

**MUSICAL FIDELITY A3** integrated amp £400 (£900). A3 CD £400 (£900). Monitor Audio Gold Reference 10 standmount speakers £300 (£700). All excellent condition. Contact Phil 07834 315 953 (Dec)

**UNISON RESEARCH S6** valve amp £800. 35wpc. Quad 57's ELS £400. Tel: 01724 710 547 or Email: [paul.trout@tiscali.co.uk](mailto:paul.trout@tiscali.co.uk) (Dec)



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# private ads

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MICHELL GYRO S.E. turntable. Michell arm, Decc cartridge. M.A. preamp, Trichord + active speakers 200wpc power amps. Russ Andrews cables. Come and listen. Many extra's. Northampton area. Tel: 01933 678 251 (Dec)

LPI2, GRACE G707, £450. TD160, SME 3009, £200. Denon DL304 unused, £200. Shure V15, new stylus, £85. Mission 774, 'Hens Teeth', £140. Stirling Broadcast LS 3/5a, hardly used, rosewood, £550. IMF Reference monitor IV, astonishing, £1000. Earmax Pro, Grado RS2, £750. All excellent, ono. Tel: 0161 622 1458, 07752 989 461 or Email: malcolmglee@yahoo.co.uk (Dec)

AUDIONOTE OTO SE valve amp. Ring for details, £550. Mission 752 speakers, black, excellent condition, no boxes, £190. NAD 412 tuner, £65. Can audition. Tel: 01978 762 903 or 0151 473 4264 (Chester)(Dec)

MUSICAL FIDELITY X-80 amplifier, £180. Mission M73i floorstanding speakers, £85. Both only 6 months old. Marantz CD67II, vgc, £50. Yamaha KX-200 tape deck, £30. All boxed with manuals. Tel: 01978 762 903 (Chester) (Dec)

KLIPSCH LA Scarla's, excellent. £950. Snell E's with pirate stands. New woofer drive units. £550. Heybrook HB2's with stands. £65. NAD 402 tuner. Nice. £45. Mission Cyrus One, £45. Audio Innovations First Audios, new valves, less 100 hours use. £450. Tel: 01986 872 933. (Dec)

**CASH FOR your unwanted valves: KT66; KT77; KT88; EL34; ECC83; B65; ECC32; PX4; PX25; PP3/250; PP5/400 DO24. Tannoy speakers; Quad; Leak; RGD; Dynatron, SoundSales; Pye amplifiers; No offers; Just Quote me Your Price. Tel: 020 8882 8593; 07880 915 080 (Dec)**

MARANTZ CD12 KI modified two box CD Player £2500. Valhalla board £50. Telephone 020 8642 6516 (Dec)

CHORD SPM2000B 6 channel amplifier with 4 legs, £4399 (rrp £6502), silver with gold knobs/badges, secondary system, unused, original box / documents and still under warranty. Further information / details / picture, Email: wetstring@wanadoo.fr or Tel: 0033 549652272 (Feb)

CHORD CPA2200 pre-amplifier with 4 legs, £2359 (rrp £3487), silver with gold knobs/badges, secondary system, unused, original box / documents and still under warranty. Further information / details / picture, Email: wetstring@wanadoo.fr or Tel: 0033 549652272 (Feb)

AERIAL ACOUSTICS MODEL 5B loudspeakers finished in maple plus purpose built stands, £1895 (rrp £2800), purchased for a secondary system, but unused, original box / documents. Further information / details / picture, Email: wetstring@wanadoo.fr or Tel: 0033 549652272 (Feb)

MICHELL ORBE, SME V, Glanz cartridge, Michell phono stage, £2000 ono. LFD phono stage £595 ono. Theta Chroma DAC £400 ono. All excellent condition. Tel: 020 7722 3748 (home) 07932 674 810 (mobile) (London NW3) (Dec)

CARY CAD 300B £800. NVA TIS £375. Audio Innovations S700 £375, Avondale Zeta mono's £250. Conrad Johnson MV-55 £700. Pink Triangle Ventrical £300. Meridian 501.2 £275. Tel: Carl 07765 015 045 or Email: carldebryne@aol.com (Dec)

WHEST AUDIO DAP.10 CD processor £400. Perpetual Technologies Monolithic PSU for PI-A Enhancer and P3-A Converter. £150. Tel: 01642 559 078 (Dec)

FOR SALE. Linn Kolektor pre-amp with remote, 10 inputs with phono. Will drive any power amp. Mint, box and manual. (£600) £285. Tel: 01903 247 779 (Jan)

DENON TU260L II hi-fi stereo tuner, as new in box with manual. Cost £100, will accept £45. Mini monitor hi-fi loudspeakers, brand new in box, cost £60, will accept £20. Tel: 02380 274494 (Dec)

LUMLEY LAMPROS 100/S2 new competition prize. Cost £200. Open to offers, Mordaunt Short Avant 902, mint, boxed, maple, £100. Tel: 01706 873 538, 07932 330 269 or Email: michela@goldendreams.wanadoo.co.uk (Dec)

## GUIDELINES FOR BUYING AND SELLING SECOND-HAND EQUIPMENT

### FOR THE BUYER

1. Not everyone is honest - Buyer Beware!
2. **Don't send cash!**
3. Accept no verbal guarantees.
4. Have you heard the item or something similar? If not, why do you want it?
5. Don't pretend to have knowledge - it's your fingers that will get burnt!
6. Is it working? If not, why not?
7. Has it been modified and, if so, have notes been kept?
8. Was it any good in the first place?
9. **Don't send cash!**
10. If you are in the slightest doubt, arrange an audition (see point 5) If it's too far, wait for another time.
11. Either buy it or don't: vendors are excusably impatient with 'consultation' exercises.
12. **Don't send cash!**

### FOR THE SELLER

1. Not everyone is honest - Seller Beware!
2. Make no verbal guarantees.
3. Even 'nearly new' is still second-hand. If the manufacturer's guarantee is no longer in force, your price should reflect this.
4. There is very little intrinsic value in second-hand hi-fi; it's only worth what someone will pay for it.
5. The best guide to pricing is last month's Classifieds: that a 'classic' was worth £xxx a year or two ago is no guide. Values fall as well as rise.
6. Amateur second-hand dealing is not a big money game: you win some, you lose some.
7. Be prompt with despatch. If in doubt about buyer's bonafides, either wash out the deal or send C.O.D.
8. There will always be time-wasters; be tolerant within reason!



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KT88 valves are more expensive than 6550 valve

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huge transformer

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# trade ads

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VINTAGE HI-FI/Record/Music Collectors Fair. Sunday 6 November 2005. 10.30am to 3.00pm Admittance £3.00 Early Admittance 9.30am £10.00 Wolsley Hall, Windmill Lane, Cheshunt, Herts EN89AA For Stall Details Phone Ray 07940110656/Paul 01992 714664 or Email: fair@antfarmstudios.co.uk (Dec)

VINTAGE WIRELESS COMPANY LONDON Website: www.vintagewirelesslondon.co.uk Buy-Sell-Exchange. Vintage Hi-Fi. Repairs, Spares, Restoration. All valve equipment Wanted for cash: Tannoy, Quads, Garrard and audio valves. Please call us at 17 Bell Street, London, NW1 5BY. Tel: 020 7258 3448 Fax 020 7258 3449 Email: vwirelesslondon@aol.com (Jun06)

AUDIOPUBLIC, 78 Otley Road, Headingley, Leeds, 0113 217 7294. Yorkshire's newest Hi-Fi retailer, stockists of Naim Audio, Rega Research, Conrad Johnson, Sugden, Dynavector, (cartridges and amplifiers) and many more. Please call for advice. (Dec)

MERIDIAN 596 DVD. 5 Stars. £1200. Cyrus preamp, black £475. Exposure 2010CD £350. EAR 8L6 50wrms £1950. Duel 503/1 £60. Quad 909 £799. Part Exchange. Mail Order. Audio Selection 01206 510392 Jim (Dec)

AMAZING CABLES! Solid silver interconnects from £110, with air/teflon insulation and WBT plugs. Silver speaker and mains cables from £250. Fantastic performance, refund guarantee.. Tel: 0115 982 5772 after 7pm, or Email: bob@skydivers.co.uk (Dec)

AUDIOPHILE OBJECTIVE For New, X-Display and Pre-Owned Hi-Fi. Roksan, Musical Fidelity, NAD, Epos, Marantz, Project, Castle, Audioquest, Revolver. Other brands pre-owned. 16 Allen House, The Maltings, Sawbridgeworth, Herts. Tel: 01279 724 024. Easy Free Parking (Feb)

BRILLIANCE'S SYNERGY interconnects were DP's selection in his £5000 vinyl system (Sep05) "An excellent budget choice". Also Teflon digital, audio, video interconnects and speaker cables. Demonstration cables available. Contact Mike on 07963 117 341 www.brilliancehifi.co.uk (Dec)

WANTED - EARLY HI-FI LOUSPEAKERS & TURNTABLES CLEAR CRYSTAL SYSTEMS John Petrie-Baker Tel: 020 7328 9275

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MONARCHY AUDIO DIP 48/96 Upsamplers for sale at only £210 including delivery. Brand new UK 240v model supplied. Go to www.media-zone.co.uk or Email: sales@media-zone.co.uk for more details. (Feb)

## CLASSIC CONTACTS

When a classic goes 'poof' your troubles have just started, but there may be a good ending. Replacing failing parts can improve the sound, so here is a short listing of all those companies who specialise in getting a classic up and running again after its deposited a small ring of soot on your ceiling!

**CLASSIQUE SOUNDS** (Paul Greenfield, Leicester) ESL-57s restored, rebuilt and fully renovated, or even improved. Leak, Quad valve amps etc. tel: 0845 123 5137 / mob. 0116 2835821 classique\_sounds@yahoo.co.uk www.flashbacksales.co.uk/classique

**GT AUDIO** (Graham Tricker, Bucks) Leak Troughline specialists. Also, Quad tuners, most classic tuners and radios, classic amplifiers restored, repaired, etc. tel: 01895 833099 / mobile 07960 962579 www.gtaudio.com

**AUDIOLAB** (Phil Pimblott, Leeds) Renovation, repair and restoration of a very wide range of equipment including all specialist valve hi-fi, radio transmitters, cinema amps, etc. Kit building, including World Audio Design, upgrades, repair. tel: 0113 244 0378 www.audiolabs.co.uk

**LOCKWOOD AUDIO** (London) Tannoy loudspeakers parts, restoration and repair. Also, Epos and TDL loudspeakers. tel: 020 8864 8008 www.lockwoodaudio.co.uk

**Dr MARTIN BASTIN** (Shropshire) Garrard 301/401 restoration, renovation and service. Special plinths; rumble cures, etc. tel: 01584 823446

**LORICRAFT AUDIO** (Terry O'Sullivan, Bucks) Garrard 301 and 401 turntables and their own 501. Repair, spares and service. tel: 01488 72267 www.garrard501.com

**CARTRIDGE MAN** (Len Gregory, London) Specialist cartridge re-tipping service, repairs and high quality special cartridges. tel: 020 8688 6565 www.listen.to/thecartridgeman

**REVOX** (Brian Reeves, Cheshire) Revox tape recorder spares, service, repair, etc. Accessories also available. tel: 0161 499 2349 brian@revoxservice.co.uk www.revox.freeuk.com

**SOWTER TRANSFORMERS** (Brian Sowter, Ipswich) A very large range of audio transformers, for valve amps, cartridges, line drive, interstage, etc, plus all associated services such as specialised design, volume manufacture, replacement parts, etc. tel: 01473 252794 www.sowter.co.uk

**TECHNICAL AND GENERAL** (E. Sussex) Turntable parts - a wide range of spares and accessories for turntables, plus arms and cartridges. tel: 01892 654534

**QUAD ELECTROACOUSTICS** (Cambs) Quad's service department, able to repair almost all Quad products, from the very first. tel: 0845 4580011 www.quad-hifi.co.uk

**ONE THING** (Coventry) Specialists in electrostatic panel manufacture and repair. Can refurbish ESL-57s and 63s, as well as Leak Troughlines and Quad IIs. One Thing make their own, improved treble panel for the ESL-57, which delivers amazing results. Don't phone them, they're too busy! Send an e-mail to: one.thing@ntworld.com www.onethingaudio.com

**OCTAVE AUDIO WOODWORKING** Unit 2, 16 Midland Street St Philips, Bristol www.octave-aw.co.uk 0117 925 6015

# NEXT MONTH

## WORLD CLASS!

January 2006's Hi-Fi World is all about products you always promised yourself. There's a 10-page roundup of 2005's best products, reviews of lots of tasty tube kit to keep you warm in the winter, and luxuriously long lists of choice music and accessories to buy (yourself) for Christmas. Here's just some of the kit we hope to bring you:

- Quad 22/II-Forty tube preamplifier and monoblocs
- Unison Research Unico CDP valve CD player
- Copland CSA29 hybrid integrated amplifier
- Croft Vita tube preamplifier
- Phonosophie Classic 1 integrated amplifier
- Zu Druid dual concentric loudspeakers
- Pinsh 2.1 ribbon loudspeakers
- Beyer DT880 headphones



**PICK UP THE JANUARY 2006 ISSUE OF HI-FI WORLD ON SALE NOVEMBER 30TH, OR SUBSCRIBE AND GET IT DELIVERED TO YOUR DOOR: p81**



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## RATES - ALL ADVERTS MUST BE PRE-PAID

Maximum length per advert is 30 words, each additional word is 50p extra. Telephone numbers and E-mail addresses are treated as one word. Model numbers are treated as one word i.e. Quad 303 = two words. Please tick the box for the advert required

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Private magazine advert display black box	£15 per month	<input type="checkbox"/>
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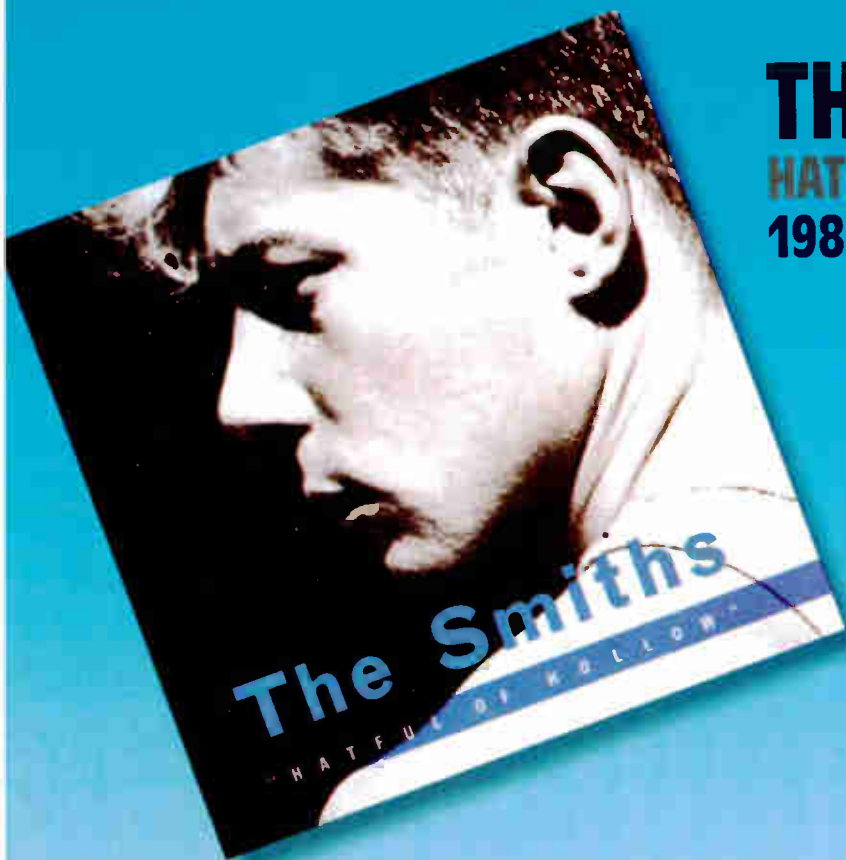
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# THE SMITHS

## HATFUL OF HOLLOW

### 1984

**T**here are many fans of The Smiths who declare, with some emotion, that the album 'The Queen Is Dead' is the band's all-time top release - The Smiths' 'Sgt. Pepper', if you will. However, this is where I would beg to differ. 'Hatful Of Hollow' is the ultimate Smiths album.

Spasmodically spanning a period of eighteen months from their early John Peel and David Jensen broadcasts up to their most recent single 'William, It Was Really Nothing', the album is a patchy, erratic affair and is all the better for that...

Like the Ashes-winning England cricket team, 'Hatful...' is not a fine conglomeration of perfect components. Certain tracks of the album sometimes reach dizzy heights whilst others, on an individual level, are good songs but are never actually brilliant. And yet, like that England team, viewed as a whole, the album is a masterwork. Take one or two elements from it and the whole begins to look a little shaky. The album would lose a certain flow, would lose its thread and become merely admirable.

Looking back on the album, even members of the band began to realise this. As Smiths' guitarist Johnny Marr explained, "At the time I wasn't too sure about Hatful Of Hollow being released - although the radio sessions were great, I was keen for them to remain just being that. In hindsight, I realised there were certain tracks - partic-

ularly Handsome Devil - that had something the produced version just didn't. It's a very valid record."

This album is surely more than that - we hear something else in the band itself, with these particular songs, that we don't experience on the original albums. In fact, these studio session versions are far better than the album versions, it has to be said, as there is no 'big drum sound' that consigned most of the '80s to cheesy decadence. Also, playing live, there's a certain honesty present on the album that you just don't hear on the rest of The Smiths' album output.

Even Morrissey seemed aware of that, "There's a few aspects to it. We wanted it released on purely selfish terms because we liked all those tracks and those versions. I wanted to present those songs again in the most flattering form. Those sessions almost caught the very heart of what we did - there was something positively messy about them, which was very positive. People are so nervous and desperate when they do those sessions, so it seems to bring the best out of them."

Stand-out tracks include the magnificent 'How Soon Is Now', a track that throbs in a dangerous manner adding a soaring Marr guitar riff whilst lyrically exploring the familiar Morrissey themes of loneliness and rejection - perfect student fodder, at the time. On the other side of the coin is 'This Charming Man', a song of discovery the features an almost playful Johnny Marr on guitar. Both singer and

rhythm section bounce around the song. Throughout both tracks, in fact the entire album, the drums and bass, from the much maligned Joyce and Rourke, just keep turning; prodding and pricking behind Marr's guitar and proving an ideal foil to Morrissey's vocal. Finally, the last track on the album, 'Please Please Please Let Me Get What I Want' is a short, sharp, shock of a song. Not because of any dramatic musical gimmicks but because of its combination of heart-rending lyrics and almost yearning guitar riff.

Throughout this album, Morrissey plays with the listener. On the face of it, he skirts the boundaries of the explicit. He juggles sexual ambivalence with a unique lyrical adaptability and a sense of charm. And yet, the emotions he discusses are real - human needs, human frailties. His emotional explorations are just fragments that merge with Marr's instrumental whole. Imagine the goddess Venus exploring our thoughts and desires with the god, Pan, who preyed upon gloom and loneliness, tethered to her hip. The pair slice through the crap and get to the heart of the problem...

Fans should still be able to pick up a CD version of the album without too many problems. If you're looking for the vinyl version, a second hand copy of the original Rough Trade non-bar coded gatefold is the only game in town with an original, in excellent condition imprint fetching around £20 - but in truth it's priceless. **PR**



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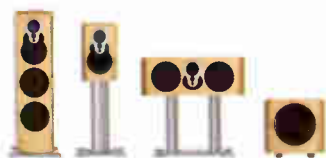
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