

# HI-FI CHOICE

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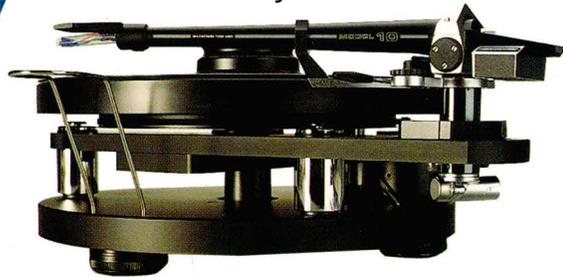
# MUSIC ON THE NET

**SPECIAL REPORT**  
Is MP3 the future of hi-fi? See page 88



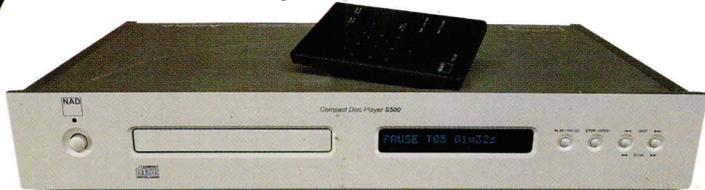
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# HI-FI CHOICE

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Hi-Fi Choice is the UK hi-fi magazine representative of the European Imaging & Sound Association (EISA). Every year EISA honours the finest hi-fi and home cinema products throughout Europe.

# EDITOR'S NOTEBOOK

He's back from the back of beyond, chilled and thrilled by his return to the world of *Choice*....



It's never nice coming back to work after a holiday, so when you manage to wangle a six week sabbatical the culture shock is considerably greater when the time comes to remember what it was you were supposed to worry about. But I've just about figured it out now – although not without enjoying a bit of hi-fi free music in the meantime – and am glad to say that things don't seem as bad as they did on my first Monday back!

This month Tim tackles the beast that looks like it could change the music business for good: MP3. This distinctly lo-fi, Internet-oriented compression system has grown apace and could undermine the chances of future generations having any idea of high fidelity. See what Mr Bowers reckons about it all on page 86.

## RESOLVING THE ISSUES

At the European launch of SACD, Sony teamed up with ally Philips to demonstrate two- and five-channel SACD with some impressive material, including some live Rammstein which was most grin-worthy (currently available on DVD-V, if you're interested). They also gave us some CD vs SACD demos using hybrid discs which made a very good case for the medium but begged the question: is anyone going to pay twice the usual price (£25) until they've got the matching player – thus defeating the argument for a hybrid in the first place?

There was an even more significant question which arose, however. If the future of high density formats is in universal SACD/DVD-A/DVD-V multichannel players (and that's the only way either medium will ever really get off the ground), why would anyone buy a first generation, two-channel SACD player? We were told that audiophiles would be keen to get their hands on the medium because two-channel is still the way of the hi-fi world. That's true for now, but once DVD-A turns up (around January next year) and multi-channel SACD follows at some point later in the year, these early models will look a little ill-equipped.

There is a very good reason, however – the medium is a vast improvement on CD, instruments and voices sound genuinely realistic and you don't have to strain to hear the acoustic of the recording venue. At last we have a genuinely high-fidelity digital medium, which is well worth celebrating in my book. The other reason not to hang on for the multi-channel version is software. With two-channel, all record companies need to do with back catalogue is remaster the analogue originals into stereo DSD, the system behind SACD. For multi-channel, they almost have to start afresh. Old recordings can be remixed in 5.1 channels but if the results encountered with older



titles on DTS are anything to go by that won't be enough to launch the medium.

So do you go for an SACD player now, or a DVD-A player next year? Technics has announced details of two models due for a December (fingers crossed) launch. Until we have a chance to compare the two mediums we can't give you the answer, but there's one significant factor which will make SACD's birth less easy than DVD-A's – video.

Now, I don't give a stuff for pictures with my music – in fact, I think they get in the way. But then, I'm not in the target audience for new formats, and those that are have been weaned on the music video. Which is where DVD, be it A or V, has the advantage and thus provides the impetus for software manufacturers. And this format war, like all the others, will be won and lost on software.

So choosing your high density digital medium at this point is very difficult, but I suspect that an evening with one of Sony's machines and all the available software might make me throw caution to the wind. So long as they get Zappa, Beefheart and Led Zeppelin discs out quickly, of course.

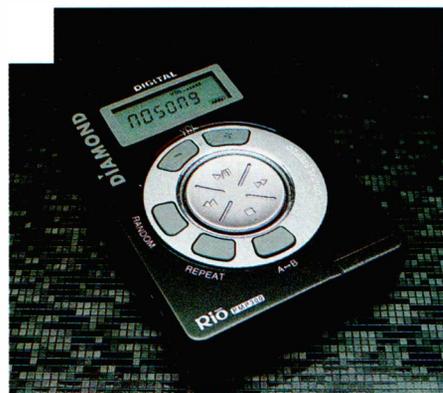
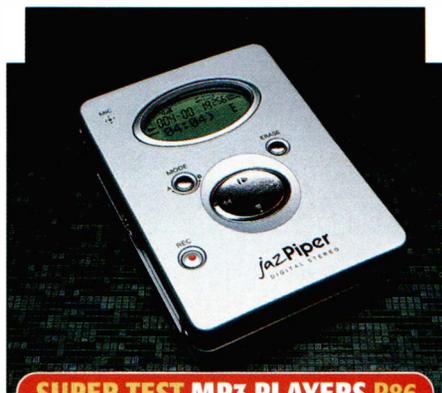
*Shreddy*

## THIS MONTH'S EDITOR'S CHOICE

I was well chuffed to get hold of the **SME Model 10 (p66)** before everyone else. It's a real beauty and the sort of deck that will appeal to both the rhythm and timing brigade and those more concerned with stereo, bandwidth and so on. Listening to Ali Farka Touré last night I was transported to a spiritually uplifting place... I'd say three grand is a bargain for that sort of experience.

Alvin seems to have had a little trouble getting to grips with the **Mark Levinson 334/380** pre/power combo (p68) – it worked so well that he forgot the hi-fi and got carried away with the music. Fear not, he will be severely reprimanded and not be allowed to repeat the sin, but if an amp can do that for a pro like him I think it warrants my commendation.





**SUPER TEST MP3 PLAYERS P86**

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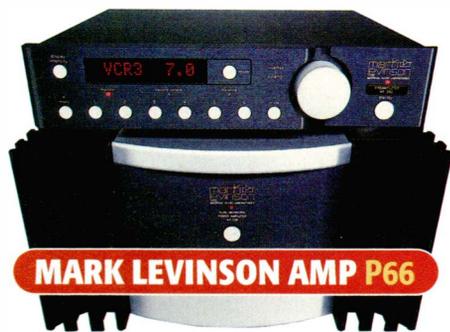
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# NEWS & VIEWS

What's in and what's out? Tim Bown and Lee Dunkley shake this month's news about.

## NEWS IN BRIEF



**TANNOY** has unveiled a new look for its Saturn range of loudspeakers, which is now available with champagne coloured baffles (facia) and reflects the growing trend towards silver and champagne electronic components. Inside, the speakers remain unchanged. Prices range from £200 to £900. ☎ (01753) 680595

**AFFORDABLE VALVE COMPANY** has announced the introduction of two new valve amplifiers imported from China. A 30 Watt EL34 amp and a 40 Watt KT88 amp, both have four inputs and offer a one month home trial. Prices are £600 and £700 respectively. ☎ (01634) 373410

**AUREX** has introduced the CD/DVD Mat which is designed to sit on top of the printed side of a disc. The Aurex Mat claims to give clearer sound with improved stereo imaging from audio CDs, sharper images from DVDs and better data recovery from CD-ROMs. The Aurex Mat can be ordered on-line for \$29.95 plus postage and packaging. Website: [www.aurexmat.com](http://www.aurexmat.com).

**THE HOME ENTERTAINMENT SHOW '99**, sponsored by Practical Hi-Fi retail, is being held at the Forte Posthouse Hotel, Preston. The show runs from 9.30am to 5pm on Saturday 30 October and 10.00am to 4.30pm on Sunday 31 October. Admission is just £2.00 and children go free. ☎ (01524) 36991 Website: [www.practicalhi-fi.co.uk](http://www.practicalhi-fi.co.uk)



**SONY** has announced some additions to its micro systems range. The SD3MT (above) joins the Series D family featuring all the elements of the SD1MT but with satellite speakers and subwoofer. It is expected to cost about £700.

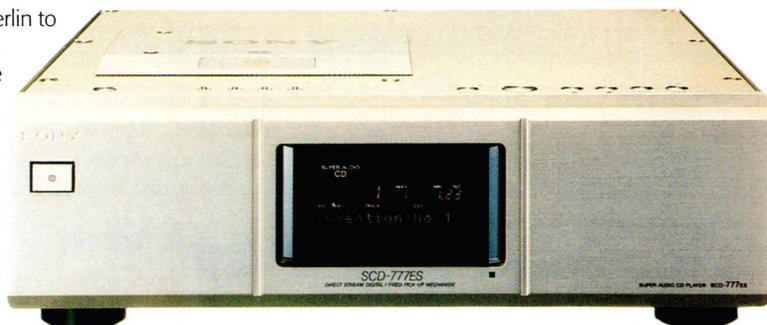
Sony has also named the MD373 as the replacement for the popular MDT333 micro. The MD373 features RDS tuner, CD player, MiniDisc recorder and tape deck. Prices are

## SACD takes off in Europe



Sony chose the International Funkausstellung show in Berlin to launch Super Audio CD in Europe, and introduced not only the SCD-1 player (as tested in the past two issues of *Choice*) but an ES model too. It also joined forces with Philips/Marantz to demonstrate multi-channel SACD using a prototype player expected to launch next year.

The good news is that the SCD-777ES has lowered the format entry price to about £1,700 without compromising the specified performance figures. The player will be joined by a matching integrated amplifier the TA-F777ES (£1,500) which specifies a 2Hz to 100kHz bandwidth and the SS-X9ED loudspeakers (£1,200) which feature a super tweeter designed to extend their bandwidth to 70kHz. Alternatively you can add the SS-TW100EDs to your existing speakers to enjoy SACD's treble extension – but you'll have to go to Germany to buy a pair.



Twenty SACD music titles have been announced, the majority being from Sony Music's (Columbia) back catalogue and consisting largely of classical material, but there are a few jazz classics in there as well. Paul Russel of Sony Music promised to follow these with ten titles a month. Prices are anticipated to be in the region of £18 for single layer discs and £25 for hybrid CD/SACD software. (See *Editor's Notebook*, p3, for more.) Sony ☎ (0990) 111999

## Be ProActive



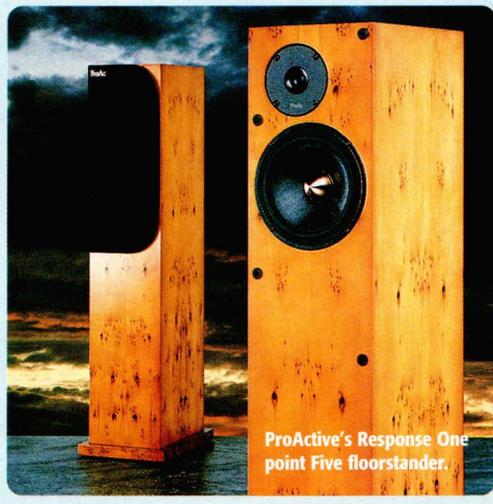
ProAc has added a new floorstander to its Response range of speakers. Like its range-mates, the Response One point Five features a high mass, extensively damped cabinet, with high quality crossover components and ProAc's proprietary 1.9cm soft dome tweeter.

The mid/bass driver is an entirely new design, featuring a woven fibre-glass cone with a large copper phase plug in its centre.

It is driven by a substantial copper magnet assembly and loaded via a reflex port to the rear.

The Response One point Five is in the shops from this month onwards and costs £1,790.

Celef Audio International ☎ (01280) 700147



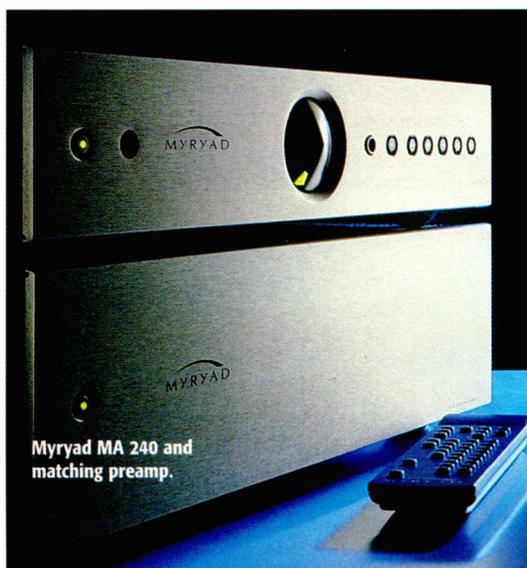
ProActive's Response One point Five floorstander.

## Myriad muscle



Following its launch into the multi-channel market, British brand Myriad has returned to the two-channel arena with its latest outing – the MA 240 power amp. Priced at £1,000, it sports a solid aluminium fascia and delivers a claimed 120 Watts per channel into eight Ohms, or 180 Watts into four Ohms. What's more, bridge two together and you could have a massive 400 Watts into eight Ohms.

Inside its substantial casework are multiple power supplies and high quality components including Vishay bulk foil resistors. The amplifier weighs in at a substantial 15kg. Balanced XLR-type inputs are also provided, and should you wish to use it as part of a multi-channel system you could always partner it with Myriad's MA 360 three-channel power amp, available soon. Myriad ☎ (01705) 265508



Myriad MA 240 and matching preamp.

# Cyrus launches lucky seven

 Cyrus has unveiled its latest creation – the Cyrus 7 integrated amplifier, set for launch at £700. At 60 Watts per channel it's more powerful than older Cyrus amps, yet it still squeezes into the traditional 'shoe box'-size casing.

The 7's user interface and "non obsolescence" architecture are as flexible as one would expect. The amp uses a sophisticated digital control system, offering some impressive facilities: for example, input sensitivities are individually programmable and an 'intelligent headphone output' gradually fades up headphone volume while smoothly muting output to the speakers.

With future upgrades in mind, there are connections for additional power amps and a PSX-R outboard power supply, plus the option to go multi-room with the Cyrus MR3 controller. The 7's enclosure is die-cast and hand finished, and a remote control is supplied.



The Cyrus 7 is the first product to emerge since the company's recent re-structure. Once considered to be the electronics arm of Mission, it has since become an independent company within the NXT group. Peter Bartlett, Cyrus Sales Director, said: "The Cyrus 7, (and the forthcoming) DAD 3 Q24 CD player and Cyrus CLD monitor speakers will form a uniquely compact system that's ready for digital AV or multi-room."

NXT ☎ (01480) 451777

# Onky-tonk CD player

 Onkyo has a new budget CD player set for launch in the UK. The DX-7222 boasts an aluminium front panel and a full roster of facilities, including 36-track programming, a music calendar display and five repeat modes. Its circuitry incorporates a three-beam laser pickup and a bitstream DAC, with an eight-times oversampling

digital filter. The DX-7222 weighs in at £170. Audio Club ☎ (01296) 482017



Onkyo DX-7222.

# My first NAD

 NAD is seeking to cement its reputation for classic budget amps by unleashing the C300. Priced at £146, it delivers 25 Watts per channel and replaces the 310 in NAD's amp line-up.

Unlike its predecessor, it features an entirely MOSFET output stage for optimum performance, and incorporates a large toroidal transformer under the lid. You also get five line inputs plus two tape loops, switchable tone controls and remote control for volume and muting.

The C300's launch follows the success of the C320 and C340, amps which have done much to restore NAD's reputation as the premier budget brand. It's in the shops now.

Audio Club ☎ (01296) 482017



# Scenic DVD

 Thomson has launched a DVD player as part of its new Scenium home entertainment range. The DTH 3600 costs £400 and supports both Dolby Digital and MPEG-2 multi-channel sound systems, and is described as DTS-ready.

According to Thomson, sound quality was a priority for the player's design team. "The sound environment delivered by Thomson DVD players is a key element in the home cinema effect," said a spokesman. Of course, it doesn't just play DVDs – you can spin two-channel CDs as well.

On the video side, a ten-bit digital-to-analogue converter is claimed to produce exceptionally natural picture quality, and 2x or 4x zoom lets you close in on any part of the image. There's also a jog/shuttle control mounted on the front panel to improve ease of use.

Thomson was the first European brand to market DVD players in this continent. Its new Scenium range is designed as a complete home entertainment solution and includes widescreen TVs, a home cinema receiver and even a video camera.

Thomson ☎ (0181) 344 4444



## NEWS IN BRIEF

expected to be about £430. In a final announcement, Sony introduced the CMT-CP2W offering a twin cassette, separate bass and treble and increased output power over its sibling, the successful CMT-CP1. Prices are likely to be about £250.

☎ (0990) 111999



**ONE FOR ALL** has revealed four new remote control products. The new Audio Zapper is pre-programmed to control basic functions of up to four audio components with the ability to learn your favourite functions. Cost is £19.99. The One For All Five (see above) and Six universal remote controls have been updated to operate all features on all brands of audio and video equipment. Prices are £29.99 and £39.99 respectively.

The Zapper 3, at £14.99, is a dedicated remote for TV, VCR and satellite control with improved ease of use.

Website: [www.oneforall.com](http://www.oneforall.com)

**ELECTROCOMPANIE** has appointed Castle Acoustics as its UK distributor. In an announcement, Castle's Sales and Marketing Director, Fred Clayton, said: "Both brands have very similar profiles and we see this move as a sensible and logical extension to our existing activities."

Watch this space for full details of the Electrocompant product range.

☎ (01756) 795333

**SONICLINK** has brought out two new high-performance RF cables for video and home cinema use. The SonicLink Blue Aerial is for coaxial connections in TV or FM applications and can also be fitted with gold-plated phono plugs for connection to home cinema equipment. The second cable is the SonicLink Silver Screen specifically designed for high-quality S-VHS applications.

☎ (07000) SonicLink/(01332) 361390



**IXOS'** new audio/video interconnect cable is touted as a performance upgrade for home cinema systems. The Ixos 137AV (see above) is Scart to S-Video with phono audio plugs. Connections are 24 karat gold-plated with low noise cable and alloy foil screening. Prices start at £39.95 for a 3 metre length. Other connection combinations available upon request.

☎ (01494) 441736

Website: [www.ixos.co.uk](http://www.ixos.co.uk)

**AUDIO CONNOISSEURS** has some new arrivals in its Canary Audio range. First up is the CA300 SE monoblock power amp rated at 9 Watts – prices are

## NEWS IN BRIEF

expected to be around £2,000 per pair. This is joined by the CA 608 integrated amplifier.  
☎ (0151) 343 0007

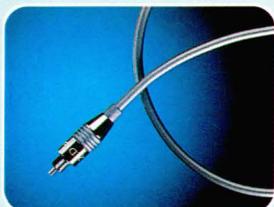


**FREEPLAY** has launched its next-generation miniature self-powered FM/AM radio. The S360 can be powered from sunlight, wind-up spring mechanism or mains electricity and is capable of giving up to 15 hours of use when fully charged. Available in clear or blue, price is expected to be around £59.95.  
☎ (0800) 731 3052

**CAMBRIDGE IQ** has introduced a new range of equipment supports called AudioDeq. With their unusual styling the AudioDeq provides 130mm spacing between components as standard with an optional 200mm spacing also available. For the full product range see the website. Prices start from £65 including delivery.  
☎ (01223) 870817  
Website: www.cambridgeiq.com

**BLOCKBUSTER** has introduced DVD rental to more than 550 of its stores in preparation for anticipated demand over Christmas. Blockbuster Superstores and Express stores will stock up to 160 DVD rental titles with 80 retail titles. Rental DVDs will be the same price as VHS tapes costing £3.50 per night for new titles and £3.00 for older titles over two nights.  
☎ (01895) 258866

**TECHNICS** has two new micro systems with a stylish metallic and light-wood styling. The SC-HD505MD features a MiniDisc recorder while the SC-HD505 features a horizontal-loading auto-reverse cassette deck. Both models have a CD player and AM/FM digital tuner, give 23 Watts per channel power output and incorporate bi-amping.  
☎ (0990) 357357



**QED** has unveiled the Qnect QT (above), an optical digital cable compatible with Toslink sockets which uses medical grade fibre optic core housed in a flexible PVC jacket. Available in 1m or 3m lengths at £30 and £40.  
☎ (01276) 451166

**LG ELECTRONICS** has two new MP3 players. The MF-PD330 offers up to one hour of continuous playback with two 32MB multimedia cards. The AHA-FD770 combines FM digital tuner and cassette player. Prices are £129 and £199 respectively.  
☎ (01753) 500400

## MF spawns A3 CD player



Musical Fidelity has begun the expansion of its new A3 range by launching a CD player. The A3CD uses the same essential components found inside the company's successful X-Ray CD player, with adjustments to internal layout and new casework to match the A3 amp, launched two months ago.

Inside lies a Burr-Brown 24-bit DAC and a number of proprietary components, including a clock re-timing circuit and a five-pole analogue filter for reduced noise and distortion. Its maker claims superb consistency of performance, and much is also made of its build quality – a 'non-resonant' chassis and a solid aluminium fascia are alleged to contribute to its sound. Price is £799; see next month's issue for a full review.



Also new from Musical Fidelity is the A300 amp, a 150 Watt-per-channel powerhouse in the same glittering guise as the A3. Features include symmetrical circuit topology, a substantial power transformer for each channel and separate transformer windings for the preamp section and remote control circuitry. It costs £1,399 and is available now. Finally, a matching tuner is also set to emerge – more details next month.  
*Musical Fidelity* ☎ (0181) 900 2866

## Kenwood gets conceptual



Black boxes look distinctly passé alongside Kenwood's latest collection of 'New Concept' systems.

A total of nine are ready for launch in a variety of shapes, sizes and colours. Chief among them is the Avino VH-650, a three-component system with starship looks and an impressive specification.

The system's base unit is a CD receiver – CD player, amp and tuner in a single compact box. The CD playing part sports a bitstream DAC, supports CD text and is HDCD compatible, while the AM/FM tuner features 40 station presets and RDS-EON. The amp section operates in Class A/AB mode with auto-switching, and delivers 20 Watts per channel.



Avino VH-650.



You can buy the base unit with standard speakers at £400, or £500 with suitably stylish egg-shaped satellite speakers plus an active subwoofer. An add-on MiniDisc recorder and a cassette deck are available as optional extras, priced at £250 and £150 respectively.  
*Kenwood* ☎ (01923) 816444

## Two speakers for a tenor!



Italian outfit Opera has launched two new speakers in the UK. Both are floorstanders, but unlike most opera singers the Pavarotti and SuperPavarotti strike a slim and elegant pose.

Opera's declared intention was to mix the strengths of a compact 'bookshelf' design with those of a floorstander. Thus, it claims, both speakers combine accurate speed and imaging with realistic sonic weight, wrapped in a cabinet with an unobtrusive footprint.

The Pavarotti is the more affordable of the two at £695, and uses a relatively small 11cm mid/bass drive unit for fast, controlled sound. Above this driver nestles a 19mm soft dome tweeter, with a reflex port below. Meanwhile, the £995 SuperPavarotti adds an extra 11cm mid/bass unit, mounted with its partner in a

'double asymmetric loading' configuration – each in a chamber of differing volume, the larger of which vents through a downward-firing port to increase bass depth without sacrificing speed.

Both speakers feature solid hardwood cabinets, standing at a height of 95cm, in a mahogany or cherry finish.

*UKD* ☎ (01753) 652669

**Opera Pavarotti.**



## Philips breaks CD record



Philips has revealed the remainder of its all-new CD recorder line-up. All models support both re-writable CD-RW discs and standard audio CD-Rs, and will cost less than the EISA Award-winning CDR 950 (£350), unveiled in the July/August issue of *HFC*.

First up is the CDR 770, a £240 machine which brings CD recording to its lowest ever price point. Then there's the 'dual deck' CDR 775 at around £330 (pictured) – the CD-RW equivalent of a twin tape deck, it allows you to 'dub' straight from CD to CD in a single unit. And for mini system owners there's the £240 CDR 570, complete with compact styling.

All three new recorders feature Philips' Direct Line Recording, a technology intended to optimise recordings from CD by matching the speed of the recording disc precisely to that of the source. One benefit is the ability to make bit-by-bit recordings of HDCD-encoded discs, so the entire encoding is reproduced on the copy. Other improvements over Philips' first-generation CD-RW models include a more intuitive user interface, CD Text compatibility, digital level control and an 'audio buffer' to ensure accurate recording stop and start.

All should be available by the time you read this. *Philips Consumer Electronics* ☎ (0181) 689 4444

Philips CDR-775.



## The Paras are coming!



US brand Parasound has unleashed its most powerful amplifier to date. The HCA-3500 has a claimed delivery of 350 Watts per channel into eight Ohms, or 600 Watts into four Ohms.

Its circuit is direct-coupled, and there are separate power supplies for each stage of each channel. The input stage features complementary pairs of N-channel and P-channel JFETs, arranged to optimise gain and reduce harmonic distortion. The driver stage uses complementary MOSFETs for a "tube-like sound quality", and the output stage employs 12 Beta-matched 15-amp, 60MHz bipolar transistors.

At low power levels – up to 15 Watts – the amp runs Class A for "exceptional clarity and detail", but at higher levels it switches to Class AB for "outstanding dynamics and bass linearity". If it senses no music is being played, it drops the bias current to a trickle to save electricity and keep things cool. It's in the shops now at £2,200. *CSE* ☎ (01423) 359054



## PAUL MESSENGER

Mystic Paul sees the future. And it's DVD-shaped.

As we move into hi-fi's autumn/winter 'selling season', the market seems to be undergoing a paradigm shift. Sales of budget and mid-price CD players are decidedly weak, simply because many customers seem to be opting to buy a DVD-Video player instead.

For most customers it makes perfect sense. Many probably bought their CD players a decade or so ago, paying perhaps £400 for the privilege. Now such old machinery may be getting a bit long in the tooth, or has simply stopped working, so it's time to replace it.

At the dealers' there are CD players for sale but also, increasingly, DVD-V players. And while a CD player won't play DVD-V discs, a new DVD-V player *will* play CDs as well as DVD-V discs (though *not* future DVD-Audio discs).

The fact that it won't play CDs as well as a dedicated CD player of similar price will ensure the latter continues as the player of choice for the hi-fi enthusiast. Those who have large and valuable CD collections will continue to demand the best possible CD replay for their budget.

But such enthusiasts are the minority. Both CD and DVD-V are essentially mass-market media, designed to have wide appeal to a less picky majority. Faced with the choice between a standalone CD player that plays just CDs, or for a similar price one which also plays DVD-Vs, it's hardly surprising to find that many are taking the DVD route.

However, that doesn't imply that CD player sales have or will cease. Consumer electronics just doesn't work that way. Note that turntable sales (which slumped dramatically in the early CD years) grew by some 10 per cent last year, and 1998 was the third year in a row that GfK's market data recorded such a rate of growth. Vinyl record players still only represent 5 per cent of the total market by value, but they've hung on in there far longer than most would have predicted ten years ago.

In contrast, CD players currently account for about one third of the market (excluding speakers), but component CD player sales actually peaked in 1997 by volume, while the BPI's recent consumer survey showed that 79 per cent of households now have at least one CD player of some kind. Saturation looms, so the arrival of



### Are DVD players the future of CD replay?

DVD-V looks very timely – from the manufacturers' and retailers' points of view, anyway – for three main reasons.

First, DVD-V's CD-plus-movies replay capability provides a powerful incentive to tempt back customers with ageing CD players. Second, it should ensure a boost to what marketing men term the 'average unit selling price'. The market penetration of consumer electronics products nearly always follows an S-curve, starting with relatively small sales at high prices, and then sales increase dramatically as prices erode. Thanks to sharing components with computers, DVD-V has good economies of scale and is taking off very rapidly, but for some time to come it will command – and customers will happily pay – a healthy premium over the £236 average price of CD players in 1998, simply because the video dimension represents a big chunk of added value.

Third, and most importantly, the DVD-V player represents the Trojan horse spearheading the transition from two-channel stereo to 5.1-channel discrete surround sound, which the trade sees as a golden opportunity to sell multi-channel processors, amps, speaker systems and the like.

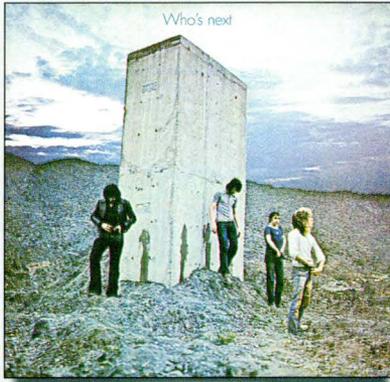
DVD-V is the first mass-market format to take this step, which makes sense for movie fans. Whether multi-channel surround sound makes similar sense for music reproduction is less well proven.

My main worry is that surround sound music listening may be a much less sociable experience than stereo. When you're watching a movie, the pictures dominate the senses, while the soundtrack fulfils a subsidiary role. With music the sound is more dominant, and in my experience it becomes much more important to sit in the solitary 'hot seat' that gives correct sound perspectives.

It's likely that multi-channel music will eventually become established, but those for whom music matters most should be wary of abandoning the sociability of stereophony.

## PREVIOUSLY UNHEARD

**Phil Strongman** digs out rare and classic tracks appearing on CD or virgin vinyl for the first time. Go strut your funky stuff...



### THE WHO *Who's Next*

Book-ended by the pulsing *Baba O'Riley* and the anthemic *Won't Get Fooled Again*, this album is one of the reasons The Who are up there with The Beatles and the Stones, as well as being an LP that simply outclasses its standard CD equivalent. Wallow in the full 1971 glory of John Entwistle's supple, see-sawing bass and Townshend's arpeggio-laden keyboards.

*Simply Vinyl LP*

Music ★★★★★ Sound ★★★★★

### BOZ SCAGGS *Silk Degrees*

It's nearly a 25 years old, but Boz' easy-going blend of funky pop and tight, roller coaster choruses still sounds damn good. *Lido Shuffle* is the hit song, *Lowdown* and *What Can I Say* the best – you don't need a degree to appreciate this silk.

*Simply Vinyl LP*

Music ★★★★★ Sound ★★★★★

### LEROY HUTSON *Love Oh Love/The Man*

One of Curtis Mayfield's singer-songwriter protégés, fledgling producer Leroy only ever scored a few minor hits, but this Shaft-era CD pairing shows how much the world missed out on – the mesmerising, flute-laced *So In Love With You* and the dynamic

*Ella Weez* are real gems. The *Hutson* and *Hutson II* re-releases are also worth catching, another set of sophisticated supra-soul-sure-shots from the Sequel stable.

*Sequel Dble CD*

Music ★★★★★ Sound ★★★★★

### VARIOUS *Streets of Fire OST*

Jim Steinman is the writer-producer behind most of Meat Loaf's million-sellers and this neglected 1984 score is his best, mostly made up of straight ahead rock songs that Meat had rejected. Surely the big fellow now regrets turning down *Tonight Is What It Means To Be Young*, the greatest wall-of-sound epic since Phil Spector's heyday?

*BGO*

Music ★★★★★ Sound ★★★★★

### COUNTING CROWS *Recovering The Satellites*

Three years old, but that's a mere blink in audiophile time and the magical *Catapult* still leads you into a superb 14-track set of 90s US rock'n'roll. This gold CD captures virtually all the musical nuances.

*Mobile Fidelity CD from Vivante*

Music ★★★★★ Sound ★★★★★

### VARIOUS *The Definitive Sound of Atlantic Soul*

Definitive is the word – this has everything.

Sam & Dave's *Soul Man*, Aretha's *Say A Little Prayer*, Ray Charles' *What'd I Say*...

Popular music before the formulas.

*Warner Dble CD*

Music ★★★★★ Sound ★★★★★

### WOODY HERMAN *Songs For Hip Lovers*

In '57 jazzier Woody finally put his dry vocals on disc – and a lot of fun they are too. *Moon Song* and *Won't Dance* and *Isn't This A Lovely Day?* are among the 12.

*Verve*

Music ★★★★★ Sound ★★★★★



## Hi ho Silverado



Silverado claims its new Ryder loudspeaker is "a new breed of floorstander", with looks that lift it out of the ordinary.

Its hand-crafted cabinets are constructed from 1.8cm thick MDF, doubling its thickness in parts to ensure a totally solid structure for the speaker's three-way configuration. A 28mm fabric dome tweeter and a 15cm treated paper-coned mid/bass driver are joined by a 20cm bass driver for very deep bass. Sensitivity is rated at 86.5dB and impedance is six Ohms.

The Ryder comes finished in high-gloss black as standard, but can be supplied to match virtually any other colour scheme at no extra cost – simply send a colour sample and Silverado will try to match it. Prices are £1,395 for the standard finish, and an additional £150 will buy you the marble effect pictured.

*Silverado* ☎ (0171) 567 0260



Silverado Ryder.

## Coast two coast



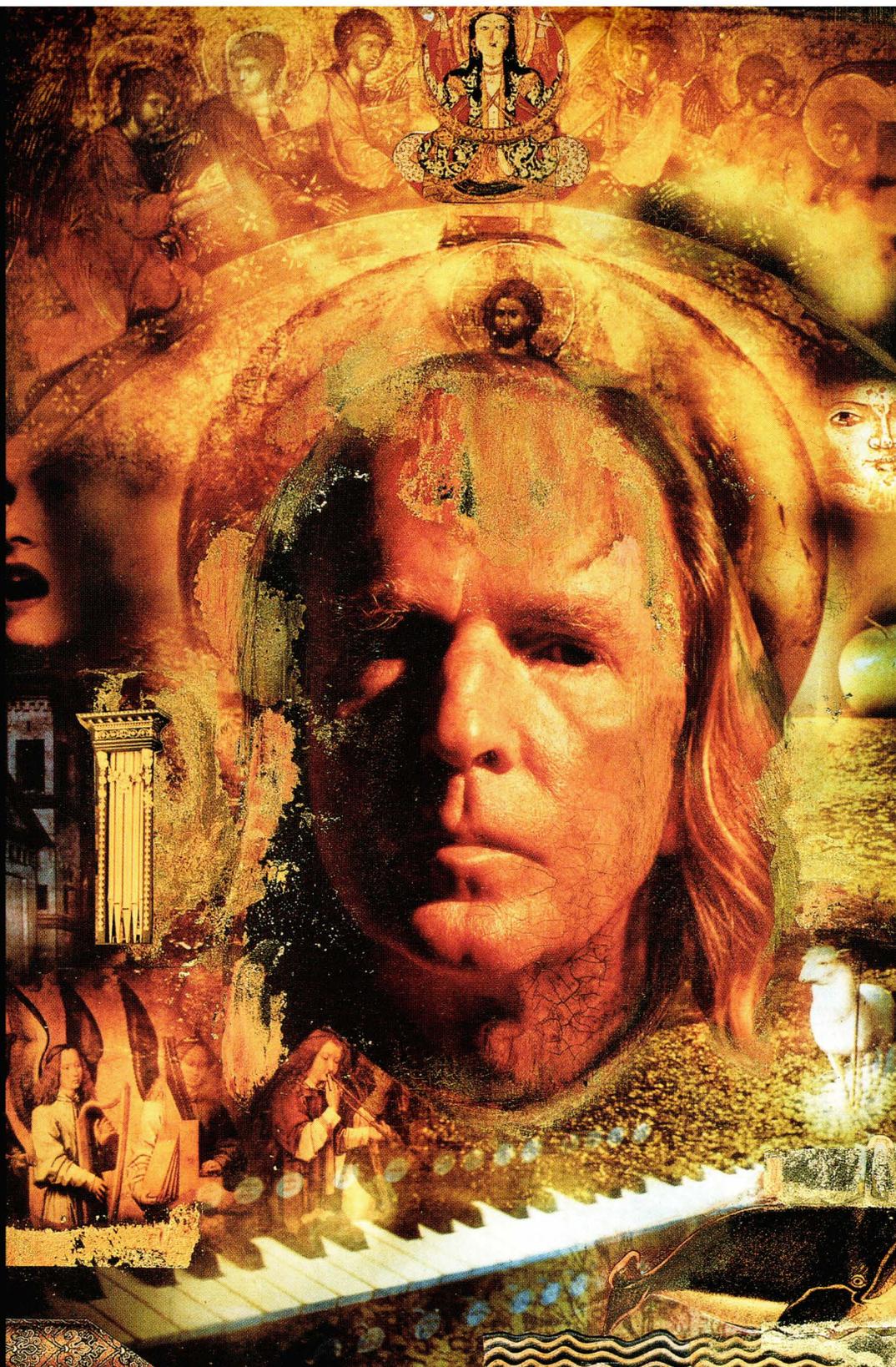
South Coast Speakers has launched two new hand-crafted loudspeakers. First is the Merlin 100, a standmounting near-field monitor with a 16.5cm polypropylene mid/bass cone and a 28mm fabric dome tweeter. Sensitivity is rated at 89dB, impedance is eight Ohms and the price is £899 per pair.

The second speaker is the Classic 200, a three-way standmounter employing a 20cm glass-fibre bass cone, an 11cm midrange driver with a treated paper cone and a 25mm fabric dome tweeter. A pair of exclusively designed Atacama Audio stands are also supplied. Prices start at £1,495 for standard real-wood veneers.

*SCS* ☎ (01703) 703221



SCS Classic 200 and Merlin 100.



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**Technics**



## THE SYSTEM

Myryad MC100 CD player	£700.00
Myryad MI120 integrated amp	£600.00
Myryad MA120 power amp	£480.00
Ruark Prologue One speakers	£899.00
SonicLink Violet interc. (1m pair x2)	£85.00
S'Link AST200 cable (5m pair x2)	£59.50
Total cost	£2,968.50

# AS GOOD as it looks

Looking for a sexy system with top-notch sound? **Lee Dunkley** auditions a set-up suggested by Systems Specialists in Sound.

**W**ith the recent consumer trend towards home improvement, hi-fi manufacturers are concentrating as much on looks as on the performance of their products. We're not talking mini systems, with their fancy displays and excessive mouldings. Oh no, we're talking "for the love of music" separates. With as much emphasis on attracting the eye as charming the ear, we asked a dealer to recommend just such a system.

This month we've thrown down the gauntlet to Cambridge-based dealer Systems Specialists in Sound. Go on, we said, give us a system, a stylish high-end CD-based system that won't

break the bank. A tall order, you might think. But it didn't take long for the guys to come up with a system they felt fulfilled our criteria with strong sonic abilities and great looks – albeit at a rather higher price than we'd budgeted for.

The system's electronics are from Myryad's flagship M series, with a pair of the recently introduced Ruark Prologue One floorstanders finished in sumptuous natural cherry veneer doing the loudspeaking.

Myryad's distinctive house style is attractive brushed alloy, silver facias with black inset function buttons. But if you need to match up with other gear it is also available in black.

Perhaps they're not an immediately obvious partnership, but both Myryad and Ruark share the philosophy of combining sonic performance and stylish design with strong emphasis on build quality. And the system certainly hits the top of the style-ometer.



**LOOKS APART**

To regular readers, this set of Myryad electronics may well look familiar – each has individually appeared in *HFC* at one time or another.

The system's source is the MC100 CD player, a 24-bit player with a centrally-mounted transport mechanism and some useful features including random play, 24-track programming and remote control. At the rear there's a coaxial digital output and a data-bus connection called 'My-Link', enabling synchronisation with the MI120 integrated amplifier.

The MI120 (see *HFC* 175) is a fully integrated amplifier with four line-level inputs, two tape loops – one with off-tape monitoring – and a headphone socket. An optional phono module is available to convert an input for MM or MC cartridges. Myryad's attention to styling is evident, but the recessed central volume control may prove fiddly to anyone with large hands or limited dexterity.

The supplied RC5 system remote control combined with the 'My-Link' system, allows full remote operation with source selection and motorised volume control. The MI120 is rated at 60 Watts per channel into eight Ohms and includes a

**“Be warned, this system has sophisticated taste. It's likely to reveal more than perhaps you or the CD producers hoped.”**

'pre-amplifier' output for a separate power amplifier, as in this set-up. The MA120 power amp (*HFC* 165) has a similar design specification to the MI120. Myryad recommends using the MA120 to drive the tweeters in a bi-amped configuration, which it claims offers a cleaner sound.

For speakers, Systems Specialist in Sound chose Ruark's Prologue One, as yet unreviewed in *HFC*. A two-way floorstander, it employs a twin 140mm treated paper cone mid/bass driver arrangement with an offset 28mm silk fabric dome tweeter. The model we

used came mass loaded, as recommended by Ruark, for maximum stability and improved bass and imaging.

Let's not forget the arteries of the system – all cabling came from SonicLink. Interconnects were two pairs of SonicLink Violet while speaker cables consisted of bi-wired SonicLink AST200 (*HFC* 192).

With such a stylish collection of components, the obvious question is: does the system's sound tantalise the ear as much as its appearance does the eye? There's no short answer to that one. After living with the system and listening to what would seem like the entirety of my CD collection, I've come to revel in the system's strengths and learned to live with its 'honesty'.

**SYSTEM SOUND**

With the system hooked up in its intended bi-amped configuration and fully warmed up, I settled down to listen. Several CDs later, a few pertinent descriptions began to emerge regarding the airy sound staging, sharp imagery, defined bass and detailed treble. The sum and balance of these vital characteristics brought me close to the music, with a level of involvement that could be described as an exceptional hi-fi experience.

The system's strengths are most apparent with well recorded and produced material. Classical, jazz and acoustic recordings especially are handled with tremendous depth and agility. Sound staging is wide and deep, with imagery and positioning so solid you feel you can walk around it. This is a notable quality of the Ruark speakers and is undoubtedly aided here by the bi-amping.

So far, so good. But be warned, this system has sophisticated taste. Put on a CD with heavy or less refined production and it's likely to reveal more than perhaps you or the producers had hoped. This system has a tendency to highlight the less appealing elements of cruder recordings. Its midband forwardness gets you closer to the music, but there are likely to be some recordings you just won't want to get *that* acquainted with. Upbeat tracks can pack a real

bass punch, but at times seemed to wander and lacked a sense of control on pumping dance beats.

To appreciate the system's bi-amped configuration, I also listened to it without the MA120 power amp. The result was much as expected – as a standalone piece of kit, the MI120 gave good dynamics and control but with a brittle and abrasive top end. Imaging was three dimensional, but not quite as impactful or as tactile.

**CONCLUSION**

This is a stylish and sonically compelling system that gets you closer to the music, revealing intricacies that are

usually masked. With its midband forwardness and detailed treble, this can be a musically fussy system that devours well-recorded material but is a bit *too* revealing on lesser recordings.

**VERDICT**

**SOUND** ★★★★★

**SYNERGY** ★★★★★

**VALUE** ★★★★★

**PRICE** £2,968.50

**An attractive system both physically and musically. Tells the truth with a brutal frankness – which might not always suit.**

Systems Specialists in Sound (01223) 461518

**THE SYSTEM COMPONENTS****INTEGRATED AMPLIFIER****MYRYAD MI120, £599**

A 60 Watts-per-channel amplifier with four line-level inputs and two tape loops. Has preamp output and a system link connection for synchronisation and control via the full system remote. An optional phono stage is also available.

Alternatives: Arcam Alpha 9, £500; Roksan Caspian, £695, Densen Beat B-100 MkII, £650.

**POWER AMPLIFIER****MYRYAD MA120, £480**

A stereo power amplifier with 60 Watts per channel based on the MI120. Sounds stunning when used to bi-amp with the MI120.

Alternatives: Arcam Alpha 9P, £400; Roksan Caspian Power, £595; Densen B-300, £800.

**CD PLAYER****MYRYAD MC100, £700**

Mid-priced CD player with an array of useful features. Handles music with a supreme scale and detail.

Alternatives: Arcam Alpha 9, £800; Rotel RCD 991, £750; Marantz CD-17, £800.

**CABLES**

For our system, System Specialists in Sound recommended SonicLink Violet interconnects (£85.00) and SonicLink AST200 speaker cable (£59.50/5m pair).

**SPEAKERS****RUARK Prologue One, £899**

A recently introduced two-way floorstander with twin mid/bass drivers and offset dome tweeter configuration. Sensitivity is rated at 89dB and impedance around eight Ohms.

Alternatives: Mission 753 Freedom, £798; Tannoy D300, £999; Acoustic Energy AE520 £1,000; Castle Harlech, £880.



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*Joe Hageman - Home Theater magazine, June 1999*



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Everything I listened to through the Silver Series speakers sounded just about as good as I've ever heard it sound. Why are you still reading this? Go buy these speakers!”

*Joe Hageman, Home Theater Magazine, June 1999*



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# DAVID VIVIAN

Home cinema versus hi-fi, the line has been clearly drawn.

And guess who's crossing it?

**C**ompromise is anathema to the hi-fi purist. The quest is for focus and simplicity, not catch-all competence. Which is why, I suppose, serious hi-fi and home cinema tend to remain as separate disciplines. Any AV amp or receiver worth its salt can play straight stereo. It's just that the ability to do so represents a small and comparatively insignificant part of the design brief. Given the fairly modest circa-£2k price of even the most function-festooned AV behemoths, the assumption is they can't be much good at it.

A fair bet, I'd say. I remember talking to a couple of movie sound engineers at Shepperton Studios a few years ago. Two things struck me. One was that while a good domestic stereo system needs only a source, an amp and a couple of speakers, a good cinema system, even back in 1993, comprised at least three six-foot tall full range speakers (left, centre, right) with active electronic crossovers and active electronic time alignment of the horns and bass cabinets, two sub-bass speakers fed from electronic crossovers and as many as eight subsidiary speakers for full surround sound capability. All driven by monster fan-cooled amplifiers.

No contest. Not even the best off-the-shelf home cinema set-up has a realistic shout at emulating the sheer sonic grunt delivered by a state-of-the-art cinema rig. But in giving it its best shot, it packs in a lot of hardware erroneous to the reproduction of hi-fi standard stereo.

The technical requirements of surround sound could hardly be less compatible with those of making music. True, most mainstream music CDs present a 'reality'

concocted by a team of engineers, a bank of effects processors and a mixing desk. But that's child's play compared with the post production routines involved in bolting together a major feature film soundtrack. Hi-fi needs only two channels, but feature films require side-to-side, front-to-back arrays: left, centre, right and ambient. There are planning meetings to discuss how to piece the sonic jigsaw together.

**“Any AV amp or receiver worth its salt can play straight stereo. But given the fairly modest price of even the most function-festooned AV behemoths, the assumption is they can't be much good at it.”**

The multi-channel processes – Dolby, MPEG, DTS, whatever... the bits that appear to make the sound live and move in three dimensions – are added at the final stage of post production in a cinema-sized mixing theatre. And it's a completely arbitrary business. Sound engineers have already deconstructed specific effects and sussed how they will work when processed; what's going to the left and the right; what's wanted for the surround channels; whether there's going to be panning and so on.

Of course, there's overlap between what the record producer and film soundtrack maker do – but not much. One's job involves crafting a soundscape sometimes as unreal as the images on the screen, the other's making an individual or group of musicians sound as real as possible. And if such fundamental differences exist at this stage, it's hard to see, within the bounds of

affordability, how they can be coerced into cohabiting at the user end of things.

So you'd think the best a product like Myryad's T-50/T-70 preamp processor/five-channel power amp combo could hope for is a soft landing somewhere between two stools. For a level of competence in both trades, but mastery of neither. Nothing wrong with that. Despite the conflicting interests outlined above, the market for a do-it-all hi-fi/home cinema compromise not only exists but is bound to grow.

But "compromise" isn't a word that appears in the accompanying publicity. To quote: "The T-50 gives as much priority to the delivery of outstanding stereo as it does to the accurate reproduction of multi-channel sound." This is the deal: 'audiophile quality' preamp with on-board Dolby Pro Logic processing, a choice of three rear speaker verb delay times, three centre channel modes (normal, wide and phantom) and three subwoofer filter points and enough inputs to accommodate 5.1 discrete digital sound from an external decoder – say a DVD player so equipped.

Thumbing the 'Stereo-Direct' button provides the shortest signal path from input to output and automatically bridges the 5-channel T-70 power amp to deliver maximum stereo power (a lusty 100 Watts a side). There's even a pseudo-surround function which uses the Pro Logic decoding circuitry to "add ambience and three-dimensionality" to stereo sources.

Myryad's managing director, Chris Short, says: "We wanted to offer the user the choice of high performance multi-channel audio while preserving a clean path back to stereo. We've taken a purist approach, providing useful features but prioritising performance at all stages in the design."

Nice theory. But is it any good? I've been using the Myryad combo in its intended music-cinema dual role guise for a few months now as a system for my office. A Samsung DVD-909 (Dolby Digital/DTS decoder included) spins the discs, while AV1 NuNeutrons (stereo) have been joined by a Castle Keep centre speaker and a pair of dinky JBLs on sticks bringing up the rear.

And you know what? It works brilliantly.

As a cinema system it's gutsy and agile, yet brings plenty of finesse and refinement to the party. As a music-playing system, it has an alluring iron fist/velvet glove personality that tackles all styles with effortless aplomb. If corners have been cut, it's difficult to see where.

The intelligence that has gone into this design is impressive. That someone bothered to sit down and think about audiophile needs in a multi-channel world was remarkable enough. That the result costs just £950 all in is something to celebrate.



Photo: Chris Richardson



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# KEF Cresta 2

About four years ago, KEF launched the Coda 7, a speaker which took the budget speaker market by the scruff of the neck and soared to the top of the bestseller list, ultimately spawning Coda 8 and 9 rangemates to boot. But as history has shown, success in the fickle, fashion-oriented budget bookshelf speaker rarely lasts more than a couple of years. KEF's Codas had a better innings than most, but Tannoy's Mercurys came along and took over the top spots.

Much of the Coda's success was due to their curvaceous moulded front panel, which looked good as well as offering some acoustic advantages. However, it was also a bit flimsy, especially in the way it was joined onto the rest of the box. Part of Tannoy's sales pitch for the Mercurys emphasised the strength and solidity of using wood-based panels throughout the enclosure, so it's not that surprising to find that KEF's new Cresta 2 has a box which uses vinyl-covered particle board for all six faces.

The new model isn't a direct replacement for Coda 7. It costs £20 more, and has an enclosure that's taller, deeper and narrower than the little Coda, giving an internal volume of about 12 litres. I'm sure it's no coincidence that the Cresta 2's dimensions are so similar to two highly successful models – Tannoy's Mercury 2 and Acoustic Energy's Aegis One.

Like the Coda 7, this Cresta 2 is built in Belgium, so the little Union Flag decal stuck on the back presumably celebrates our imminent annexation of the Low Countries. The Cresta's box and build seem more solid than its predecessor, with even an internal brace which combines with the rear port to stiffen the sides and back.

But the overall formula is familiar enough in most respects, the main driver using a 100mm flared paper cone in a plastic frame, and the tweeter a 25mm soft fabric dome. Bi-wire terminals are fitted to the rear, and feed a crossover that's more complex than most.

Cosmetics are neat and tidy, thanks to slight chamfering around the front and back box

**Paul Messenger** has a go on the new Cresta run.



KEF's Cresta 2: neat and tidy.

edges, and the fact that both drivers are flush mounted into the 'leatherette' front panel. The latter, however, leaves very little chipboard depth for the woodscrews securing the drivers to bite into. As a result, trying to tighten the screws properly will merely serve to loosen their ultimate grip.

**"The Cresta 2 does have its good points, with a notably even and neutral balance across most of the band."**

KEF claims an eight Ohm impedance, which stretches the truth beyond breaking point, as the load nears four Ohms at the 50Hz port resonance, and drops below 4 Ohms 200-400Hz, a vital part of the midband which demands high levels. The Cresta offers usefully high sensitivity of about 91dB as compensation, but it's not an easy load for a (presumably) budget amp to drive.

The in-room frequency balance is impressively flat and neutral, if lacking smoothness through the broad midband. However, the relative treble level is definitely a little stronger than its immediate rivals, which again might not suit budget systems too well. The bass alignment also proved decidedly suspect in our

listening room – some wall reinforcement is needed to help fill in the lean 70-140Hz octave, but this only exaggerates an already too-strong port output at 50Hz.

## SOUND QUALITY

It was tough on the Cresta to come up for review in the same month I was covering half a dozen models in the £1,000-£2,000 price band. Bringing this cheapie into the equation only served to highlight the gulf that separates the budget sector from the serious end of the hi-fi market today.

Still, the Cresta does have its good points, with a notably even and neutral balance across most of the band, and attractively 'open' voicing that helps maintain good intelligibility even at very low listening levels. The speaker does pretty well as long as the source remains relatively simple and undemanding, but the more complex the music becomes and the louder you play the system, the less well the Crestas seem to cope.

The full orchestral magnificence of Tchaikovsky's *Violin Concerto* live from the Albert Hall during the Proms was a singular disappointment, lacking scale, dynamic tension and obscuring subtle tonal texture, while applause was desperately unconvincing.

Much the same could be said of the harder-edged electronic sounds of the Chemical

Brothers, again because the music is complex and densely textured. I played a wide range of old and new favourites, and invariably found the Cresta impressively neutral but also fundamentally limp and feeble in its dynamic delivery, and further hampered by a thumpy and ill-defined bottom end.

In fairness, weak dynamics are typical enough of this breed of loudspeaker, and the KEF is not significantly worse in this respect than its immediate competitors. More serious is its over-enthusiastic port output, and the high probability that this will be further exaggerated by the main floor-to-ceiling mode in many typical lounges. KEF's £200 Q15 (Recommended in HFC 187), which has a similar size ported enclosure and slightly larger (Uni-Q) main driver, manages to avoid this 'thumpy' bottom end, and is the better for it, delivering an altogether more coherent and communicative sound than its newer, lower-priced sibling.

## CONCLUSIONS

The Cresta 2 looks a good prospect with neat cosmetics and decent perceived value for money, but is let down by suspect driver fixing and poor bass alignment. It'll sound impressively loud in a showroom comparison, but the current-hungry impedance and relatively bright balance seem ill suited to budget system use.

In the final analysis, the far superior musical coherence of KEF's Q15 comprehensively undermines the Cresta's heat-seeking potential.

## VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

**VALUE** ★★★★★

**PRICE** £149.99

Neat cosmetics and good perceived value let down by suspect driver fixing and bass alignment. The current-hungry impedance and relatively bright balance seem ill-suited to budget system use, while it's also undermined by the far superior musical coherence of KEF's similar-sized Q15 model.

■ FIVE YEAR GUARANTEE

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Designed on computer • fine tuned by ear • hand built by music lovers

REFERENCE SERIES MODEL 109  
**THE MAIDSTONE**



# TEAC A-E2000



**TEAC looks set to make waves in the budget market with its latest integrated amp. Paul Miller takes a look.**

**H**aving already made its mark at both ends of the spectrum with high quality midi-systems and high-end CD players, TEAC has turned its innovative eye to the highly competitive budget amplifier market. Not that the A-E2000 looks particularly unusual, with its relatively insubstantial fascia sporting volume, balance, tone (with bypass) and input selection for six line sources. But at £180, the A-E2000 was never going to be a battleship. Indeed, this *Heat Seeker's* 'secret' payload is only hinted at by a small, gold-coloured logo – Unifactor.

So what is Unifactor and why does it make the A-E2000 so special? TEAC provides an 18-page discourse on the subject which is rather less than illuminating. Frankly, if the manufacturer really wanted us to appreciate the engineering effort behind its A-E2000, then a few concise paragraphs would have done the trick. Here then, is my interpretation of Unifactor, a very cost-effective but not unsophisticated switch-mode power supply.

Unifactor is all about supplying power to the amp in the most efficient manner possible. First, it takes the 240V/50Hz AC mains and rectifies this to 339V(pk-pk)/100Hz. An active network (called Power Factor Correction) takes into account the power

required and position on the rectified waveform, moment by moment, to provide sufficient gain (or 'boost') to achieve a continuous 400V DC supply. This feeds its central switch-mode power supply which chops up the DC signal at 50kHz to create a high voltage AC waveform.

The voltage is reduced via a step-down transformer and then filtered of high-frequency switching noise to reveal the appropriate +/-39V DC supply rails used by the A-E2000's MOSFET power amp stage.

Although the entire, screened switch-mode supply is

**“The A-E2000 sounds unusually sophisticated for a sub-£500 amplifier, let alone a model costing just £180.”**

both ingenious and unique in a product at this price, at least the step-down transformer is kept very small (read cheap) because its action is much more efficient at these higher frequencies (that is, 50kHz as opposed to 50Hz). Moreover, the Unifactor supply pulls current continuously over 99-odd per cent of the mains cycle, unlike conventional linear supplies which draw in surges that coincide with the peak of the mains 50Hz cycle.

There are other tricks, too. Both its left and right channels are amplified out of phase to split the peak demand of all common L and R signals. Ordinarily, a bass transient, for example, appearing on both channels simultaneously would draw maximum current

from the amp's power supply at the same time. TEAC's ruse 'spreads' this load while simultaneously helping to cancel earth currents.

On the back of the amplifier the 'black' terminal of the left channel is actually 'red', or hot, so you should never – I repeat, never – connect the A-E2000's speaker outlets into the high-level inputs of an active subwoofer, for example. If you're in any doubt, your dealer should have received the right training from TEAC.

Auditioned without my usual REL Stentor subwoofer, the A-E2000 still gave a very gutsy account of itself. But don't confuse gutsy with crude – the A-E2000 sounds unusually sophisticated for a sub-£500 amplifier, let alone a model costing just £180. There's a clean, dark quality to musical silences, while individual performers are depicted in sharp relief. Most CDs positively shine with this amp, which boasts a gloriously open and communicative midband.

Cassandra Wilson's latest Blue Note recording, *Travelling Miles*, sounded rock-solid, the percussion lighting what seems to be a very pure and natural acoustic while her voice lifts the performance still further. Few budget amplifiers will match the stereo imaging of this little wonder through the midband, although many will prove more tolerant of difficult speakers and, arguably, realise a more consistent performance in different systems.

This is where TEAC's limited specification starts to fall down. It rates the A-E2000 at 50 Watts/8 Ohms, while figures of 30 Watts, 40 Watts and 50 Watts at 20Hz, 1kHz and 20kHz are more appropriate. Into

◉ **A-E2000: brimming with potential.**

lower, 4 Ohm loads, the A-E2000 sags to just 53 Watts – well short of the rated 70W/4 Ohms. At higher frequencies, distortion increases to 0.1 per cent while the response is rolled off, dropping gradually to -1.3dB at 20kHz. This, and the relatively high 0.2 Ohm output impedance, may help explain the 'dark' sounding treble, free of any 'tizziness' or brightness but also lacking that last breath of top-end air.

Many of the advantages of using a switch-mode supply, including high power output and low distortion, are yet to be realised in the A-E2000. After all, there are already plenty of 40 Watt amps at £180 using conventional, linear power supplies. Evidently, there are a few design and production wrinkles yet to be ironed out before the A-E2000 not only meets its basic spec but also achieves the great potential glimpsed from this early sample. When the issues raised in my report are dealt with, and we receive an A-E2000 complete with serial number, *Hi-Fi Choice* will be the first with the concluding chapter of TEAC's novel Unifactor amp.

## VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

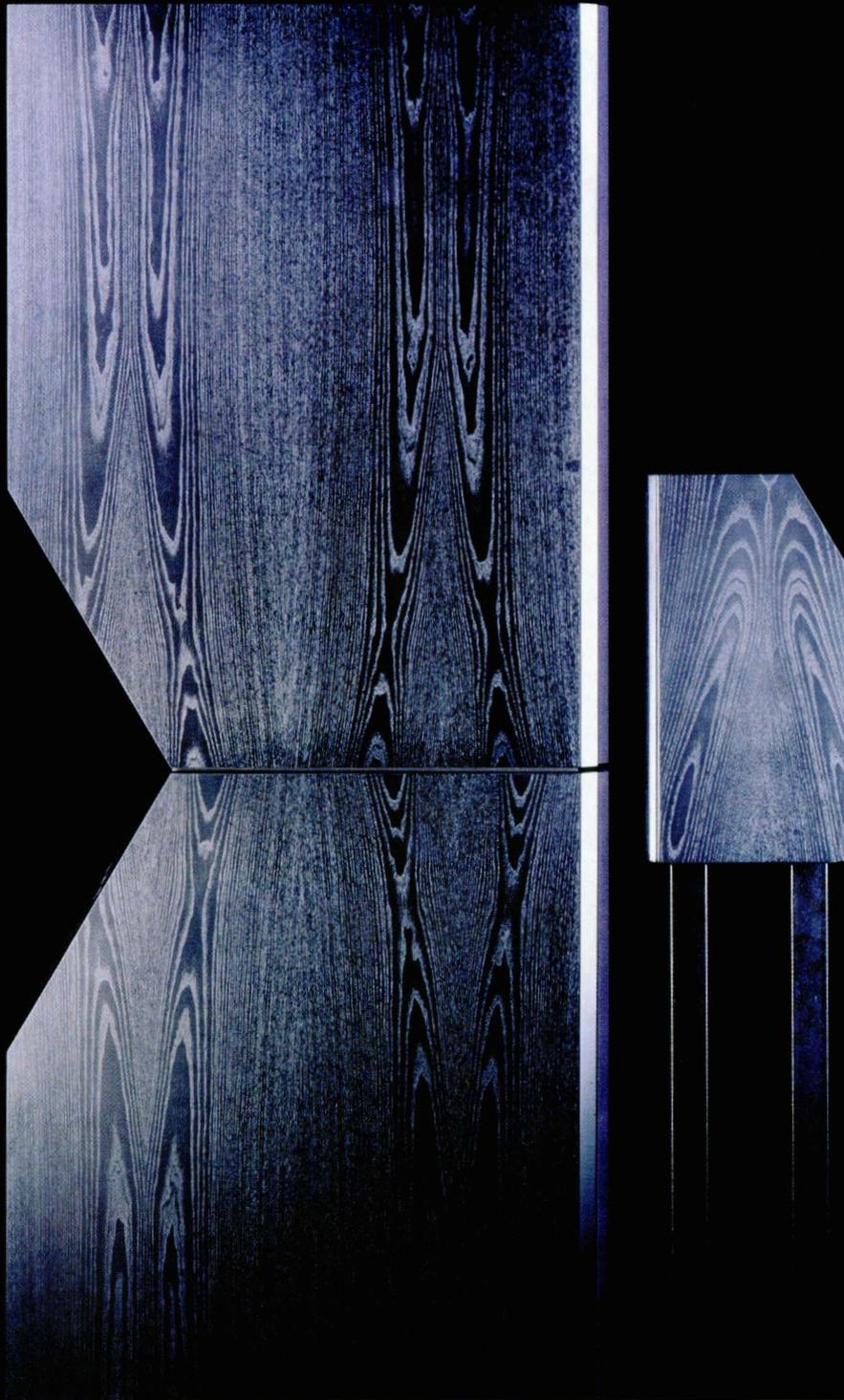
**VALUE** ★★★★★

**PRICE** £179.95

▮ This *Heat Seeker* has the potential to wreak some significant damage in the budget sector although, for now, its motors have caused it to wander a little off-course.

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# LETTERS

**Hi-Fi Choice's very own 'points of view' page, where you, the reader, can express your opinions!**

## LETTER OF THE MONTH

### IMPOSSIBLE STANDARDS

Having read the recent Super Test on equipment supports (issue 193), I am consumed with curiosity as to what type of interior decoration you believe your readership engage in. Do all hi-fi enthusiasts choose to reside in warehouse flats with minimalist furniture, space age lighting and chrome plated fixtures? I think not, somehow.

Looking once more to your article, I would like to offer my own analysis of the support offerings available: we have the nasty black ones; the cheap looking ones (which look as though they have come from a furniture store with a three letter acronym for a name); and the space age metallic ones. Now don't get me wrong, I think that the space age category look fantastic, I really do. But not in my lounge.

I think it would also be useful to acknowledge some important truths, namely, most of your readership are male. Most of this male readership live with a female and most females have the final say regarding interior design. I myself am engaged in a long-running battle to keep the black ash floorstanding speakers resident in our lounge. They sound great, but I agree with my partner when she describes them as black monolithic bachelor pad monstrosities. And at the end of the day, despite my enthusiasm for sound quality – sex is better than hi-fi!

*Paul Townsend, via e-mail*

*The Editor replies... I'm sorry to hear that none of the equipment supports appeal to your tastes and agree that form does bow to function rather a lot. But just as with loudspeaker models, you will find that many of the equipment supports do indeed come in a number of attractive finishes. Some of these may even appeal to both you and your partner's tastes.*



◻ Not one for the ladies, apparently.

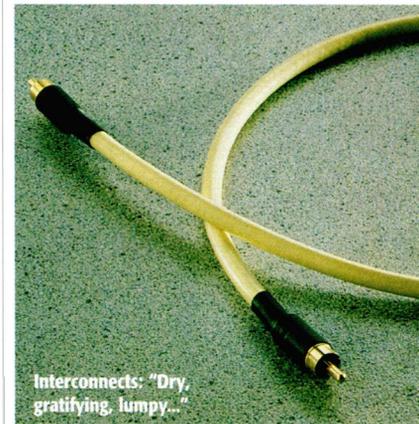
head about something my audiophile friends and I have been saying for years.

A few months back, *Hi-Fi* (for the love of music) *World* looked at a reader's system. It was typical *Hi-Fi World* fare: single-ended triodes, Voigt speakers and a completely vinyl music collection. However, near the end of the piece, the reader was asked about his musical tastes. He replied: "Anything, as long as it's vinyl."

I'm probably too dogmatic, and think the phrase "anything, as long as it's vinyl" means that the reader has no musical tastes. I'd rather hear Beethoven or UB40 on a ghetto blaster than almost any audiophile recording on a \$100,000 system.

For anyone who reads American hi-fi magazines – this kind of thinking is precisely why I read British hi-fi magazines.

*S. James Moore, USA*



Interconnects: "Dry, gratifying, lumpy..."

### DIGITAL CONNECTIONS

As an IT consultant and a hi-fi enthusiast, I am prepared to bow to others' knowledge on the subject of most things hi-fi related. In particular, I read the comments about various analogue interconnects with great interest. Although I feel the various comments made about them in your magazine are pretty subjective, I am nevertheless prepared to accept that analogue interconnects can influence the sound and may be described as 'dry', 'gratifying', 'lumpy', 'coloured' and so on.

However, it's simply beyond my level of tolerance to accept that these same descriptions can be validly used to describe digital interconnects. There's simply no way that, within the known laws

### CLASSIC CONCERN

I am a BBC Radio 3 listener. Occasionally I listen to Classic FM when Radio 3 programming is not to my taste. However, I am concerned with the broadcast quality of Classic FM and find the quality of Radio 3 so very much better. Specifically, I find that the microphone techniques used give a chesty sound to some presenters voices and a number of CDs have a pronounced rumble on them.

Having just read the Tuners Super Test by Richard Black in the September issue, I wondered whether you might be able to answer my concerns about the broadcast quality of Classic FM.

I do find it so very painful to listen to at times – and I'm not talking about the programming.

*Mr Lautenberg, Pinner, Middlesex*

*Richard Black replies... Your concerns are almost certainly explained by the station's use of compression. This boosts quieter passages in the music so that the overall output level is fairly constant. All the commercial stations, and BBC Radios 1 and 2, use compression in this way to make them the 'loudest on the dial' so that people notice them over others and to make music more audible in the car. BBC Radios 3 and 4 use compression to a relatively small extent.*

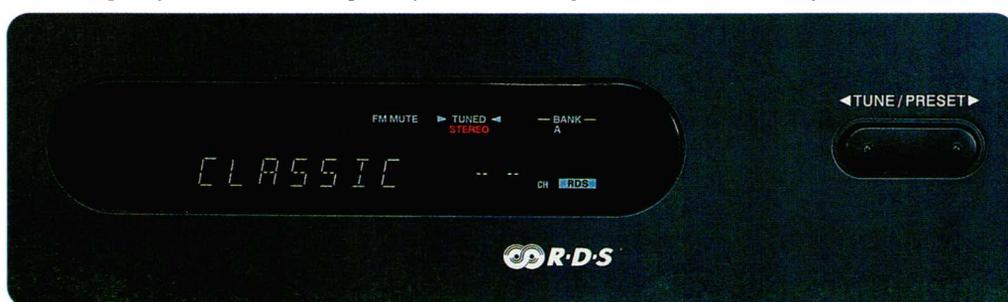
*Classic FM's microphone techniques probably don't themselves give a*

*chesty sound. Compression may make it sound that way by boosting the lower-frequency bits of the speech which are normally quieter. Likewise, quieter moments are boosted so not only the music but also background noise is louder. Other noticeable side-effects include 'spittiness', 'breathing' and 'ducking'. In my opinion, the resulting sound on Classic FM and most other stations is lamentable.*

*Despite its other problems, DAB is broadcast without compression – try to hear a demo of it some time and you'll soon see the difference.*

### FOR THE LOVE OF MUSIC

Bravo! Hurrah! Well done to David Vivian for his September column. He has finally hit the nail on the



# CYRUS





# LETTERS



◉ Is the Web ready for Miller's graphs?

of physics, a digital interconnect can affect a sound's 'fizz', 'integration' or 'liveliness' (your words, not mine). True, they could, if they were bad enough, damage the digital coding such that a DAC further down the line may have to resort to more error correction and this could affect the overall resolution, but this effect can hardly be attributed to the interconnect as 'fatiguing'.

Surely, this is subjectiveness gone mad. If we can't rely on a stream of digital bits to get from one end of a cable to another without it being made 'lacklustre', then I hold out very little hope for the 21st century.

*Martin Connolly, via e-mail*

*Richard Black replies... On the face of it, you're right. The problem is that the same wire that transmits the data also has to transmit the timing of the data. An electronic 'flywheel' (usually a cunning device called a Phase-Locked Loop) in the DAC should average out any errors in the timing of the data in the cable ('jitter') well enough to make the cable 'disappear'. But in fact many authorities (including our own Paul Miller) have shown through their careful measurements that it doesn't always work that way. The better the DAC's performance in regard to jitter rejection, the less the cable matters.*

*Unlike the degradation caused by analogue cables, those due to digital cables can actually be reduced later in the chain by a suitably jitter-resistant DAC, and if you're simply copying to a CD-R, for instance, the cable is a good deal less important.*

## ALL THINGS KRELLIAN

I've just finished reading the review of the Krell KAV 500i amp. First, I applaud the decision to include high-end equipment among your reviews. Including aspirational high-end kit as a reference makes everything else more

meaningful – like adding another octave of musical information to the magazine. However, I think some adaptations need to be made before this can be managed most effectively.

The reviewer may be right in finding the Krell rather mediocre. I was nonetheless surprised by his views, since the 300i seems to me an exceptional product for the price, and I'd expect this newcomer to continue the trend. Of course, I haven't heard it.

I wonder, though, if the reviewer's being fair to equipment

**“I often marvel at the lightning skills of experienced reviewers. However, with the idols of our hobby maybe more devotion is demanded.”**

of this calibre. To try it with only one pair of speakers, however exalted, doesn't seem enough exposure to justify the review.

As a devourer of audiophile magazines and a haunter of dealers' demo rooms I often get asked to recommend equipment. A year ago a friend purchased some Martin Logan SL3s on my advice and wanted a suitable amp to go with them. I'd auditioned the 300i a while back and was hugely impressed.

He listened and bought the Krell. Hearing it at his home, I was anxious, and wondered if I'd given the right (expensive) advice. Fortunately, the 300i steadily improved, but it was not until after at least two months' use that it proved itself to be all I'd

◉ Krell's KAV500i doesn't look cuddly.

promised, and more besides. Its special strength in this set-up is utterly convincing timbre and tone – noticeable on strings and operatic voices above all. Indeed, its abilities here include an almost valve-like naturalness and believability – not qualities that are normally touted as distinctively Krellian.

The reviewer reacts against a certain “cuddly” quality to the 500i – which might be related to my comments above. I do, however, feel that relatively rapid judgements based on a restricted partnering range aren't doing justice to quality equipment or to interested readers. Maybe the special strengths of the 500i have been missed?

Since it takes me months and sometimes years of tweaking to get equipment sounding nearly right, I often marvel at the lightning skills of experienced reviewers. However, with the idols of our hobby maybe more devotion is demanded.

*David Bunyan, Grahamstown, S. Africa*

*The Editor replies... I realised my review wouldn't meet with universal enthusiasm, especially from those already converted to the faith. However, the amp is specified as producing 250 Watts per channel and thus should be well up to the task of driving most loudspeakers. I used the Nautilus 802s because they were by far the most revealing speakers available and their price suggests that the partnership could be appropriate. But the similarity in balance of amp and speakers was at the root of some of my misgivings, and a more forward speaker with less bass extension would probably be a better match.*

*Interestingly, when I reviewed the KAV300i it seemed to be a more appealing amp than its elder brother turned out to be. So maybe we do agree after all.*

## HINTS AND TIPS

As a long-time reader, I enjoy the magazine and believe the mix of reviews covers an appropriate price range, although there can be a tendency towards the esoteric.

I would be interested in some coverage of new products from manufacturers such as Rega Research, which seems to make well-regarded audio equipment at very reasonable prices. I'm the owner of an 'Aktiv' Linn system, and enjoy analogue (LP12) as well as digital, so long as it's music. I have seen some advertisements for new source items but no reviews anywhere – unless I've missed them?

I enjoy the occasional series on readers own systems and find it extremely readable. Let's have some more if possible. Also, Instant Systems could be improved with a little more background on the dealer. It seems many readers would be interested to know how they operate and deal with the public before making a purchase. Keep up the good work.

*Mark Eley, Northumberland*

*The Editor replies... We are big fans of Rega here at Choice, but the brand's mixed fortunes in some group tests has made it a little shy of proffering its latest progeny for our attentions, but we will continue to ask.*

*As for Instant Systems, this element of the magazine has virtually run its course – we'll be devoting the space to more new products in coming months.*

## BARRING MAD

Congratulations on your Web site – it's the best around for general information and reflects the high standards set by your fine magazine very well indeed.

I would like to suggest that you include the bar graphs into your on-line reviews as well, at least as an option, so as not to increase the download times? I make the suggestion because I believe your bar graphs are a very important point in your favour over other hi-fi magazines. So why not on-line as well?

Please keep up the good work. I and many like myself rely on your reviews for our systems.

*Dejan V. Veselinovic, via e-mail*



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Coupar 01382 229588 <b>DUNSTABLE</b> Technosound 01582 663297 <b>EASTBOURNE</b> Smythe & Barrie 01323 729192 <b>EAST GRINSTEAD</b> Audio Designs 01342 314569 <b>EDGWARE</b> Musical Images 0181 952 5535	<b>EDINBURGH</b> Hi-Fi Corner 0131 2201535 Hi-Fi Corner 0131 556 7901 Richer Sounds 0131 228 3544 <b>ENFIELD</b> Audio T 0181 367 3132 Electra etc 0181 342 2333 <b>EPPING</b> Chew & Osborne 01992 574242 <b>EPSOM</b> Electra etc 01372 720720 <b>EXETER</b> Audio Excellence 01392 491194 <b>EXMOUTH</b> Laves 01395 272838 <b>FALKIRK</b> Hi-Fi Corner 01324 629011 <b>GATESHEAD</b> Linton Audio 0191 460 0999 Linton Audio 0191 477 4167 <b>GLASGOW</b> Glasgow Audio 0141 332 4707 Hi-Fi Corner 0141 248 2840 James Kerr 0141 226 5711 Richer Sounds 0141 226 5551 <b>GLOUCESTER</b> Audio Excellence 01452 300046 Sight & Sound 01452 503681 <b>GUERNSEY</b> Teleskill 01671 722323 <b>GUILDFORD</b> Rogers Hi-Fi 01483 561049 Sevenoaks Hi-Fi 01483 36666 <b>HAILSHAM</b> Smythe & Barrie 01323 840550 <b>HALIFAX</b> Huddersfield Hi-Fi 01422 366832 <b>HARROW</b> Electra etc 0181 863 2288 Harrow Audio 0181 863 0938 May's Hi-Fi 0116 282 5625 Richer Sounds 0116 255 4656 <b>HELSTON</b> Superfi 01326 573285 <b>HEREFORD</b> English Audio 01432 355081 <b>LIVERPOOL</b> Beaver Hi-Fi 0151 709 9898 Richer Sounds 0151 708 7484	<b>HORNCHURCH</b> Rhythms Hi-Fi 01708 455646 <b>HOUNSLOW</b> Musical Images 0171 580 1577 Audio Concept 0181 567 8703 Audio T 0171 794 7848 Bartletts Hi-Fi 0171 607 2148 Brians Hi-Fi 0171 631 1109 Chelsea A.V. 0171 352 2596 Electra etc 0181 855 8016 Francis of Streatham 0181 769 0466 Garland Electronics 0181 200 7676 Grahams Hi-Fi 0171 226 5500 Hi-Fi Confidential 0171 233 7225 Hi-Fi Surplus Store 0171 323 6712 Hi-Spek Electronics 0181 349 1166 Kamla Electronics 0171 323 2747 KJ West One 0171 486 8262 Martin-Kleiser 0181 400 9555 M. 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Coupar 01738 634809 <b>PETERBOROUGH</b> Audiovision 01733 352752 Link Electronics 01733 553333 Sevenoaks Hi-Fi 01733 897697 <b>PLYMOUTH</b> Richer Sounds 01752 222256 Movement Audio 01202 730865 <b>PORTSMOUTH</b> Now That's Hi-Fi 01705 811230 <b>PRESTON</b> Audio Excellence 01772 253057 Practical Hi-Fi 01772 883958 Sevenoaks Hi-Fi 01772 825777 <b>PRESTWICH</b> Richer Sounds 0161 773 0333 <b>READING</b> Audio T 0118 958 5463 B&B Hi-Fi 01734 583730 Richer Sounds 01734 591111 Sevenoaks Hi-Fi 01508 570829 Music Matters 01384 444184 <b>ROMFORD</b> Richer Sounds 01708 747727 <b>ROSSENDALE</b> Cryers 01706 216305 <b>SAFFRON WALDEN</b> Chew & Osborne 01799 523728 <b>SALE</b> Hi-Fi Stereo 0161 973 5577 <b>SALISBURY</b> Salisbury Hi-Fi 01722 322119	<b>SEVENOAKS</b> Richer Sounds 01732 456573 Sevenoaks Hi-Fi 01732 459555 <b>SHEFFIELD</b> Audio Images 0114 273 7893 Moorgate Acoustics 0114 275 6048 Richer Sounds 0114 266 1616 Sevenoaks Hi-Fi 0114 255 5861 Superfi 0114 272 3768 <b>SHREWSBURY</b> Creative Audio 01743 241924 Shropshire Hi-Fi 01743 232317 <b>SLOUGH</b> Frasers Hi-Fi 01753 520244 <b>SOUTHAMPTON</b> Richer Sounds 01703 231311 Sevenoaks Hi-Fi 01703 337770 Southampton Hi-Fi 01703 228434 <b>ST. ALBANS</b> Radlett Audio 01727 855577 <b>ST. AUGUSTINE</b> E.T.S. 01726 75400 <b>ST. NEOTS</b> A N Audio 01480 472071 Audiovision 01480 471202 <b>STEVENAGE</b> Audiovision 01438 355507 <b>STOCKPORT</b> Richer Sounds 0161 480 1700 Superfi 01625 526213 Wickets 0161 429 9080 <b>STOCKTON-ON-TEES</b> MSV 01642 676444 <b>STOKE</b> Living Designs 01782 260047 Superfi 01782 265010 <b>STOURBRIDGE</b> Music Matters 01384 444184 <b>SUTTON</b> COLDFIELD Music Matters 0121 354 2311 Sound Academy 0121 321 2445 <b>SWANSEA</b> Audio Excellence 01792 474608 Quinn's A.V. 01792 773644 Sevenoaks Hi-Fi 01792 465777 <b>SWINDON</b> Audio T 01793 538222 Sight & Sound 01793 611253	<b>TAUNTON</b> Mike Manning Audio 01823 326688 <b>TEWKESBURY</b> Sight & Sound 01894 298109 <b>THORNTON HEATH</b> AWE 0181 653 3657 <b>TRURO</b> E.T.S. 01872 79809 <b>TUNBRIDGE WELLS</b> Sevenoaks Hi-Fi 01892 531543 Sounds of Music 01892 547003 <b>TUXFORD</b> nr. Newark Chantry Audio 01777 870372 <b>UXBRIDGE</b> Uxbridge Audio 01895 465444 <b>WALLINGFORD</b> Astley Audio 01491 839305 <b>WARRINGTON</b> Doug Brady Hi-Fi 01925 828009 Practical Hi-Fi 01925 632179 <b>WATFORD</b> Hi-Fi City 01923 226169 Richer Sounds 01923 218888 Sevenoaks Hi-Fi 01923 213533 <b>WEYBRIDGE</b> Cosmic 01932 854522 <b>WILMSLOW</b> Swift Hi-Fi 01625 526213 <b>WITHAM</b> Sevenoaks Hi-Fi 01376 501733 <b>WOKING</b> Bartletts Hi-Fi 01483 771175 <b>WOLVERHAMPTON</b> Superfi 01902 772901 <b>WORCESTER</b> Sight & Sound 01905 22335 Sevenoaks Hi-Fi 01905 612929 <b>WORTHING</b> Bowers & Wilkins 01903 264141 Phase 3 Hi-Fi 01903 245577 <b>WREXHAM</b> Acton Gata Audio 01978 364500 <b>YEovil</b> Mike Manning Audio 01935 79361 <b>YORK</b> Vickers Hi-Fi 01904 629659
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1996

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1998



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## Hi-Fi Choice

(December '96)

Cable Talk Studio 2  
Sound \*\*\*\*\*

## THE VERDICT

▲ Tonally, dynamically and rhythmically a truly first-class cable

▼ Very little to criticise.

Price: £65 (1m pair)

## Home Entertainment

(August '98)

Cable Talk Studio 2  
Verdict \*\*\*\*\*

▲ . . . handles music & video sound with equal aplomb . . .

▼ . . . the cable is excellent & can be used almost anywhere.



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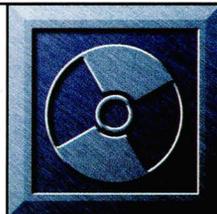
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# ON TEST!

# CD PLAYERS



Is it really worth considering investing in a good old-fashioned CD player when the next generation of disc-spinners is just around the corner? **Alvin Gold** and **Paul Miller** think so.

## THE CAST LIST

Arcam Alpha 75E	£350.00 p29
Audio Note CD2	£999.00 p43
Denon DCD-1650	£700.00 p35
harman/kardon HD760	£499.99 p31
Myryad T-20	£600.00 p37
NAD Silverline S500	£1,100.00 p45
Rotel RCD-991	£750.00 p38
Sony CDP-XB930E	£299.00 p33
Talk Electronics Thunder 3	£999.00 p47
TEAC VRDS-25X	£1,000.00 p49
Tube Technology Fusion	£1,100.00 p51
YBA Spécial	£695.00 p41

## GLOSSARY

### DIGITAL TO ANALOGUE

**CONVERTERS (DACs):** The slice of silicon that converts the digital music data off disc into an analogue (music-like) waveform. They come in various forms: multibit, Delta-Sigma, the one bit or Bitstream type and variants. Including the Ring DAC created by dCS and found in the Arcam Alpha 9 last tested in issue 188.

**FILTERS:** Intrinsic to digital audio is the extensive use of filters, both analogue and digital. These are often very sophisticated in design, and in sum total probably have more to do with the 'personality' of a CD player's sound than most other factors.

**OUTPUT IMPEDANCE:** A measure of resistance to alternating current, representing a music signal in this case. A low output impedance (say, below 100 Ohms) helps ensure compatibility with most amplifiers. A high impedance, especially in conjunction with an amplifier with a low input impedance (some are as low as eight kOhms, though the standard is 47-100 kOhms) can result in audible loss of treble.

**JITTER:** Jitter represents the uncertainty in the timing of digital signals. High values have such effects on sound quality as harshness and loss of resolution. State of the art is a bit below 150psec, but figures over 1000psec are not uncommon.

The last time we looked at a group of CD players, reference was made to the imminent launch of new optical music storage media – namely, SACD and DVD-A. By the time you read this, a stereo SACD player (not multi-channel) should be on sale, albeit at a high price (the first player costs about £2,500), and supported by a bare handful of recorded titles. So although DVD-A won't happen until next spring, a new era really has begun. The question is: how will this affect anyone contemplating buying a new CD player? Will he be buying a pig in a poke? Is CD obsolete?

In one way, compact disc was obsolete almost as soon as it hit the shelves, and the last fifteen years or so has seen designers busy papering over the cracks in what even at its launch was obviously a seriously flawed system. But that time has been well spent, and the best of today's CD players, and the discs, really are a great improvement on what came before. And the new high resolution media, which really can sound a lot better despite some ill-informed comments to the contrary in some magazines, show every sign of being rushed to market as part of a proxy battle between some major electronics multinationals (mainly Sony/Philips versus the rest).

The rush will be reflected by high player prices, immature performance standards, limited features (multi-channel SACD may be as much as a year away) and severely restricted software catalogues for years to come. Taking everything into account, and assuming a normal product lifetime, this is still a good time to buy CD – especially if you have a large collection of discs which you want to be able to reproduce to the highest possible standards.



From top to bottom: Arcam Alpha 75E p29, Audio Note CD2 p43, Denon DCD-1650 p35, harman/kardon HD760 p31, Myryad T-20 p37.

If that's your ambition, this month's group may be of interest. We have models from £300 to £1,100, with the majority pitched over £600. Some of them are cracking examples of their type, and almost unrecognisably better than the mainstream, even when used in high-end systems such as that chosen for the main testing.

Use the tests that follow as a guide. Check out the best of the rest at the end of the review and in the product listings at the back of the magazine (all of which were assessed using the same criteria), and then audition your shortlist at your local dealer. You may be surprised how audible the differences are.



LEFT top to bottom: NAD Silverline S500 p45, Rotel RCD-991 p38, Sony CDP-XB930E p33, Talk Electronics Thunder 3 p47.  
BELOW top to bottom: TEAC VRDS-25X p49, Tube Technology Fusion p51, YBA Spécial p41.



- GROUP A** £299-£500
- GROUP B** £501-£750
- GROUP C** £751-£1,100

**HINTS & TIPS**  
Extracting the best from your CD player is, to a large extent, a matter of common sense. CD players don't like being run from cold, so don't expect the best sound for the first half hour or so, unless yours is one of the growing number with a standby feature. Ideally, try to avoid stacking the player on top of other hi-fi components, especially if it's a copious heat generator such as an amplifier. But if needs must, then try to arrange some space and mechanical isolation between the 'layers', as it were. We've found that Sorbothane rubber isolating feet can give surprisingly good results.

**GROUP A**  
**£299-£500**  
The first group in the test consists of three models, of which the Arcam Alpha 7SE is second only to the Sony in the low-price stakes. The fact that the Arcam was more than able to hold its own in such mixed company is a real tribute to the improvements that the company has made to the UK's best selling CD player, which are substantial and well worth the £20 price hike over its previous incarnation, the Alpha 7. The other two models are strong representatives of middle territory CD players, the Sony having been re-engineered specifically for the UK market.

Arcam Alpha 7SE	£350.00
harman/kardon HD760	£499.99
Sony CDP-XB930E	£299.00

**GROUP B**  
**£501-£750**  
This group covers a fairly narrow spread of prices – but, in common with Group C, there is real design diversity here. Myryad's T-20 is a simplified, lower cost variant of the M-100, or if you prefer, a more sophisticated variation on the T-10 theme. The Spécial is YBA's entry-level model, and turned out to be not quite what was expected from this famous French marque. The Denon and Rotel models are both battleship class bruisers, with the Rotel the more interesting of the two on technology grounds with its adjustable dither feature and HDCD compatibility.

Denon DCD-1650	£700.00
Myryad T-20	£600.00
Rotel RCD-991	£750.00
YBA Spécial	£695.00

**GROUP C**  
**£751-£1,100**  
The five players in this group again represent real diversity. The NAD Silverline is a fairly radical diversion from NAD's standard recipe, while the Audio Note model is a purist design with a valve output stage. Tube Technology's Fusion also has valves in its output stage, but is chiefly notable for its novel D/A converter. The final two models are developments of existing players. TEAC continue to develop its VRDS transport within the VRDS-25x, and the Thunder 3 is a rather more sophisticated variant on the Talk Electronic Thunder 2.

Audio Note CD2	£999.00
NAD Silverline S500	£1,100.00
Talk Electronics Thunder 3	£1,000.00
TEAC VRDS-25X	£1,000.00
Tube Technology Fusion	£1,100.00

**HOW THE TESTS WERE DONE**

Our eleven CD players were subject to the usual battery of tests, including a close physical examination, unsighted panel-based listening tests, hands-on listening, mainly using a more representatively priced range of speakers and amps, and a computerised measurement test programme (by Paul Miller). Each player was run in and warmed up prior to being auditioned. Panel testing, over two days, included a large number of repeats, with no panel member knowing the identity of the player on test, and with levels

carefully normalised between test runs. The system used on this occasion included a Musical Fidelity X-P100/ Nu-Vista 300 pre/power amplifier and B&W Nautilus 802 speakers for both the unsighted and hands-on tests. Speaker cables and interconnects were from Nordost. Hands-on listening was broadened to include an Arcam Alpha 10, and a YBA Intégréα DT amplifier, and speakers included were from Tannoy (the R1), Celestion (the A1) and others. The CD player used for reference purposes was the Linn Sondek CD12.

**THE LISTENING PANEL**  
Our usual sincere thanks go to those who contributed their listening skills and time, that is our listening panel, industry luminaries one and all. This month's batch included the following: Abbas Hussein (Orelle), David Inman (Castle Acoustics), John Bamford (Pioneer), Keith Haddock (REL), Mark Hockey (Kenwood) and Russell Kaufmann (Morel & Densen). Cheesy lunchtime consumables were supplied by Pizza Express, but we had to pay!  
**TEST MUSIC**  
Extracts from the following four CDs

were used for the blind panel tests: *Intermezzo* from the Kodály *Hárry János Suite* – Iván Fischer/Budapest Festival Orchestra – Philips 462 824 2PH  
*Astor Piazzolla – Regreso Al Amor* from *Astor Piazzolla Key Works 1984-1989* – Music Club MCCC 165  
Claire Martin – *Riverman* from *Take My Heart* – Linn Records AKD 093 (HDCD encoded)  
*Allegretto* from Beethoven's *Piano Sonata No 17 in D Minor Opus 31 No 2 'The Tempest'* by Emil Gilels – DGG 419 161-2  
Plus various others for hands-on testing.

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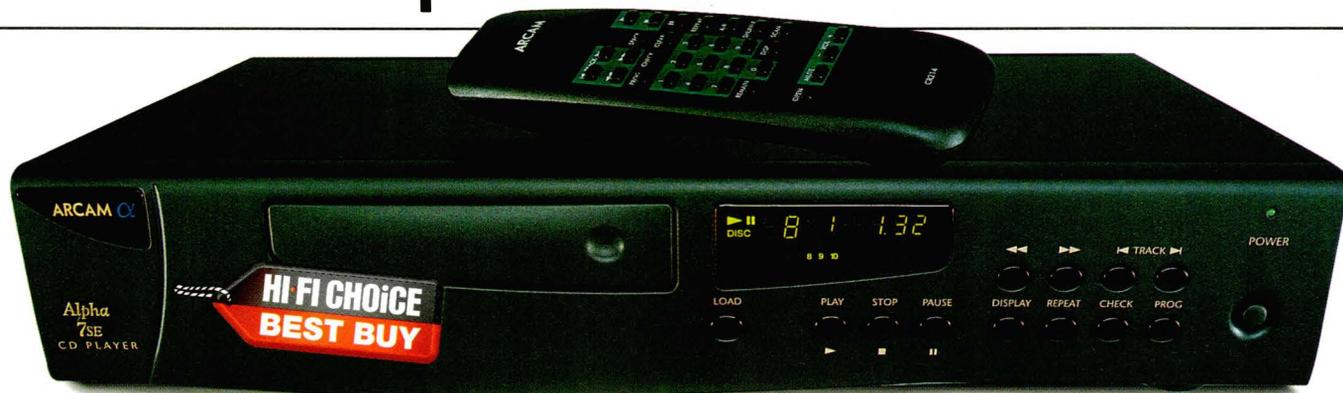
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# ARCAM Alpha 7SE



**A** new entry-level CD player from Arcam isn't an everyday event, and the unfortunate reality is that so alike are its models to look at, you might not notice when it happens. That would be a shame, because the Alpha 7, latterly the Alpha 7 Improved, has topped the sales charts (according to highly authoritative GfK market data) for the past three years.

The 7SE is the replacement, and with it comes a new price: £350 (£20 more than its predecessor). It features a new motherboard, a new and more modern D/A converter – the 24-bit (word length, not resolution) Burr-Brown device – and a new, better remote control. The transport mechanism is from Sony, as before. Reduced levels of jitter are among the design aims.

The 7SE bears the familiar curvy mid-grey fascia with a bright green, dimmable display and a full set of CD navigation keys. The newly hatched remote is a snappy little number with additional space, repeat, programming and display dim/off key – the latter is also on the front panel.

**“This is perhaps not the most seductive player around, but it does have strong clarity, diction and communication abilities.”**

Connection possibilities have been expanded from analogue and electrical digital to include an optical digital output on a standard Toslink socket which will be useful for MiniDisc users, but electrical S/PDIF remains the optimum choice on performance grounds.

In common with its precursor, the 7SE can be upgraded to any of the more costly models in the range, through to the flagship Alpha 9. Maybe there's a reason to keep the styling consistent from model to model after all.

#### SOUND QUALITY

The Alpha 7SE demonstrated an easy superiority over the Alpha 7 and turned in a very good set of results from the listening panel.

They were, of course, unaware they were listening to the least costly player in a group where price, on the whole, correlated fairly closely with sound quality.

This is perhaps not the most seductive player around, but it does have strong clarity, diction and communication abilities. Typical comments included: “smooth, clear, light, musical”; “breathy quality to violin”; “good ambience and vocal projection”; and “good sense of space”.

The 7SE impressed with its light touch, clarity and open midband and treble. But the bass tended to lack impact, which contributed to a loss of soundstage depth and sonority. As one listener put it: “It's all a bit flat and breathy,” noting “a slightly restricted depth of image”.

Remaining criticisms were sporadic and mainly concerned a feeling that instruments were not always fully separated, comments about colorations – a “grubby violin”, for example – and a suggestion of blandness.

#### CONCLUSION

The criticism should be weighed against the price, which leaves no

doubt that this is an excellent value CD player – and moreover, one that can be easily and economically upgraded, making Best Buy status obligatory.

This player might not suit all set-ups well is right. Thin, bright systems in particular will be rubbed up the wrong way, but the Arcam Alpha 7SE's inherent resolving ability and control wins through. And in this group context it has proved even better than we suspected in our standalone test (see *Heat Seekers*, issue 194).

AG

#### VERDICT

SOUND	★★★★★
BUILD	★★★★☆
VALUE	★★★★★
PRICE	£350.00

**This is an excellent updating job on an old and respected favourite that should keep it aloft for a while, although it may prove to be strong medicine in some low-cost systems.**

#### TWO YEAR GUARANTEE

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## THE LAB REPORT

**D**espite appearances, Arcam's 7SE does represent a worthwhile technological advance on its lookalike predecessor, the Alpha 7 (see *HFC* 163). The latter used a Burr-Brown hybrid

PCM1710 converter while the 7SE has a superior PCM1716. This assists in reducing distortion,

improving low-level linearity and, perhaps most important of all, dramatically curtailing its output of spurious, ultrasonic noise. Distortion is pretty close to 0.001 per cent through the midrange at its peak 2.4V output, and increases fractionally to 0.0028 per cent at -30dBfs – an excellent result. This DAC will accept input wordlengths up



to 24 bits but, as I'm fond of repeating, this does not mean the player can or will offer a 24-bit (140-odd dB) dynamic range. In practice, the 7SE offers a 103.4dB S/N ratio and a practical dynamic range that's mid-way between that

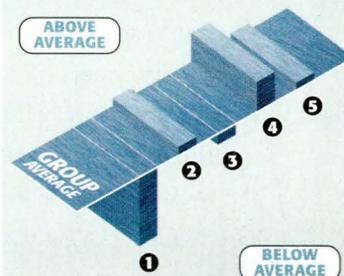
achieved by the harman/kardon and Sony models.

All three players, incidentally, use contrasting DAC technologies. Otherwise, the much-improved 7SE uses a tickled-up version of the 7's analogue stage, giving a slight (-0.6dB) treble cut, a moderate 150 Ohm output impedance, excellent channel balance and separation. Jitter is also mercifully low at 165psec, concluding a clean datasheet for the Alpha 7SE. **PMI**

## HOW IT COMPARES

**A**lthough the 7SE's rejection of digital 'images' and ultrasonic noise is very good by modern standards, the harman/kardon and Sony players are still better and this weighs the bargraph out of Arcam's favour.

1 SUPPRESSION OF DIGITAL IMAGES	-45%
2 JITTER	5%
3 PRACTICAL DYNAMIC RANGE	-5%
4 HARMONIC DISTORTION VS LEVEL	-20%
5 LINEARITY	5%



## SPECIFICATIONS

PARAMETER	MANUFACTUR'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	<0.01%	0.0013%
■ Maximum output level	2.3V	2.4V
■ A-wtd S/N ratio	100dB	103.4dB

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\*Source: GfK Lektrak 52 w/e Dec '98

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# harman/kardon HD760

The first thing you'll notice is the plain

black fascia, punctuated by a loading drawer and good quality display alongside with single line, calendar-style track readout. Along the bottom are the main navigation and other controls, using a mixture of rounded dimple buttons, which are quite large, and slightly awkward-to-use, vertically-oriented rockers. These access time and display options, programme and programme check, repeat, random and, finally, edit and tape size functions which show that more than just lip service has been paid to tape editing.

The HD760 is also home to a once common feature that is fast disappearing – a headphone socket with an associated level control, which means it has a life away from the host hi-fi system. The player can be interconnected with a h/k-branded amplifier and other components and driven by a single system controller, and it will also talk to external digital components through its electrical and its optical outputs. An auto-play switch allows the unit to start in play mode at power-up.

The HD760 is noteworthy for its HDCD compatibility, courtesy of a Pacific Microsonics PMD-100 digital filter, which has become a favourite in players ranging from less than the cost of the HD760 to others costing the best part of



**“The HD760 is home to a once common feature that is fast disappearing – a headphone socket with associated level control.”**

£20,000. The digital hardware includes dual 20-bit Burr-Brown PCM1702K D/A converters (a version of which is used, with the same digital filter, in the £12,000 Linn Sondek CD12), apparently in a noise-cancelling dual differential configuration, with 8x oversampling provided by the PMD-100.

The analogue stage is fully discrete (no opamps) and is designed for low feedback and a wide operating bandwidth to minimise group delay – traditional harman/kardon priorities.

#### SOUND QUALITY

Previous harman/kardon players have usually set fair standards without being in any imminent

danger of establishing new industry goalposts, and the rather disappointing outcome here is that the HD760 fails to better this showing, despite the sophisticated internal architecture.

One of the consensus findings, which is not entirely out of character with previous h/k CD players, is that the HD760 sounds rather hard, although the fact that this is matched to a dry, thin overall balance suggests that the problem may be tonal.

There is some evidence to support this view from the rather better showing in the hands-on testing in other systems, especially when used with speakers with a smooth tonal quality. Models from Tannoy and ATC (at different ends of the price spectrum) were used with good results, but even here the HD760 lacks the spirited refinement and purity of, to give an example, the similarly priced Sony CDP-XB930E.

The panel's comments were a little more varied and occasionally more contradictory than for some of the other players, but the following give the flavour. “The presentation is lightweight with a

hard, shrill sounding mid/lower treble”; “focused, balanced [orchestral]... smooth and detailed, good textures”; “excellent piano tone, despite the edge of the recording”; “impressed by the lack of HF nasties... nice diction in the voice” and “piano: right hand very nice, left hand missing!”

#### CONCLUSION

Well endowed it may be, but ultimately this is a slightly unbalanced player that fails to completely live up to expectations. The HD760 turns out to be system fussy, and for that reason may be worth trying in yours. Otherwise, roll on the Mark 2.

AG

#### VERDICT

SOUND	★★★★☆
BUILD	★★★★☆
VALUE	★★★★☆
PRICE	£499.99

A classic example of a whole that is less than the sum of its parts.

#### TWO YEAR GUARANTEE

Gamepath Ltd, 28 Heathfield, Stacey Bushes, Milton Keynes MK12 6HR  
(01908) 317707

## THE LAB REPORT

I'm bound to say the HD760 ranks as the most impressive h/k player to have passed through my lab in the last decade. As with many of its costlier players in recent years, the HD760 uses a variation of its RLS (Realtime Linear Smoothing) conversion technology. This involves a pair of Burr-Brown PCM1702 DACs per channel, each offset by



right across the audioband at -30dBfs without the drawback of errors in linearity and response at HF. This, and the freedom from ultrasonic 'rubbish' ties in with the player's clean upper treble. No doubt the supremely low 170psec jitter – another profound improvement by h/k – also aids in this technology's subjective rehabilitation!

The technique works well enough, but the smallest mismatch in the linearity of either DAC would be manifest in magnified errors at HF. That is until the HD760, which combines the benefits of a wide 111dB S/N ratio and a low 0.0055 per cent distortion

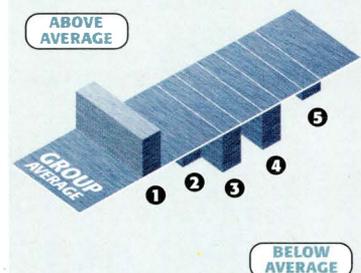
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PMI

## HOW IT COMPARES

Undoubtedly harman/kardon's best CD player for a very, very long time and one that finally realises the full benefit of RLS (which was originally launched in 1992).

- 1 SUPPRESSION OF DIGITAL IMAGES -25%
- 2 JITTER -5%
- 3 PRACTICAL DYNAMIC RANGE -25%
- 4 HARMONIC DISTORTION VS LEVEL -25%
- 5 LINEARITY -5%



## SPECIFICATIONS

PARAMETER	MANUFACTUR'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBfs	0.002%	0.0025%
Maximum output level	2.1V	2.1V
A-wtd S/N ratio	110dB	110.8dB

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"one of the most rewarding AV processors we've heard to date for both music and movies alike and comes with the strongest recommendation" (Home Entertainment April/May 1999). And what better to partner the CasaNova than Theta's new Dreadnought multichannel power amplifier. You start with the channels you need and add later what you want. Dreadnought is Theta's answer to those underpowered and sonically bare acceptable multichannel amps foisted on videophiles. Theta call it an amp that 'truly serves the music'.

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Home Entertainment magazine was sufficiently impressed to award the Editor's Choice and say "turns in the best performance we have yet seen from a DVD player" (Home Entertainment April/May 1999)

Voyager is a Universal DVD/CD/LD transport that will play any digital disc out there and some more when they become available. Its performance was described as: "a definitive lesson in what separates a true high-end product from the mainstream" (Jonathan Valin Fi-Delity January 1999).

Pearl brings Theta quality into a new price range. Pearl features the jitter reduction technology and multiple high quality power supplies that made the early more expensive Theta transports perform so well.

Jade is Theta's new high-end CD transport which draws on technology from the Pearl. To quote one reviewer "it stretches the compact disc medium about as far as it will go and a long way further than many not exposed to this level of ability would credit" (Alvin Gold, Hi-Fi News September 1998).

Miles is Theta's first integrated CD player and is available in both balanced or single ended output forms. Alan Sircom was "entranced with the sheer sophistication of the sound. Every time I played a disc, I had to play another" (Hi-Fi Choice March 1998).

We still feel the Theta Data Basic II and Pro Basic IIIa make a magical combination, providing a true state-of-the art, high value CD player/DAC combination at under £5500.

High-value high-end products from Theta include the Chroma D/A converter available with or without HDCD offering unbelievable performance under £1000 and TLC Timebase Linque Conditioner' is a staggering anti-jitter bargain at just £199. This tiny box reclocks the optical output of a CD player or transport for a jitter-free feed to a D/A converter. "The TLC will treat you, regardless of the calibre of your playback system, to a reduction in glare and harshness" (Ken Kessler, Hi-Fi News April 1995).

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Voyager

Casablanca

DaViD

Miles

# SONY CDP-XB930E

The CDP-XB930E is the latest in the line of players modified for the UK market. In addition to a model name that is close to being unmanageable, the CDP-XB930E has a number of attributes designed to limit microphony, including a rigid, reinforced and damped chassis, a slanted circuit board and the now familiar fixed pick-up mechanism with manual disc stabiliser puck.

On the electrical side, the Synchronous Time Accuracy Control Pulse complementary mode D/A converter (S-TACT) is a novel clock topology designed to remove various forms of noise from the time (jitter) domain. The UK contribution to this list includes revisions to the damping, a new puck, a copper plate below the transformer, additional power supply filtering, some copper screws replacing steel ones, and the removal of the headphone socket and associated circuitry.

The very deep drawer with its viewing window makes the player look like a cassette deck. It has a typically well stuffed fascia, with a 5-position, switchable coefficient digital filter switch (familiar from previous models), two rows of tiny buttons controlling the various special play modes and some tape dubbing features. A bank of larger controls includes that marvellous innovation, a rotary track selector, for the standard play



**“The similarity between this player and Sonys past is fairly obvious, and the new model continues with the same lean, keen presentation.”**

modes. The big stick-type remote control is an object lesson of its kind, and includes a display on/off feature. This is a CD Text player, and both optical and electrical digital outputs are provided, alongside system link sockets.

## SOUND QUALITY

As with previous models, the various filter options were used with a range of material, this time prior to the panel listening tests which were carried out with the standard setting – the nearest to a brick wall filter. Filter 1 was sometimes preferred in individual tests for its smoothness and 3D qualities, but these qualities were worn like an overcoat rather than springing from the recordings

themselves – in the final analysis, the basic filter was simply more consistent. The remaining two filters were clearly not in the same class.

The similarity between this player and Sonys past is fairly obvious, and the new model continues with the same lean, keen presentation and open midband. “The timing on this one appears better than average, making all tracks enjoyable to listen to,” wrote one panellist, concluding that the player has a “fine balance”. A second drew attention to the Sony’s fine spatial qualities and “vivid [orchestral] presentation”. He also heaped special praise on the piano track, which he described as “tuneful and articulate”, and this track drew similar comments almost all round on two separate presentations.

The only dissenting voice called into question the Sony’s mid and upper midband balance, which can sound a little too forward, and lead to a slightly exaggerated quality where the detail can take precedence over the substance of the music. This can make the Sony strong medicine with some

systems, making some familiar titles sound a bit too fierce. On the whole, though, this is a marginal problem, and the Sony’s open mid, explicit imagery and dynamic integrity make it among the strongest performers in the test.

## CONCLUSION

The recent strength of the brand has been reflected in a run of well priced, well engineered models with consistently excellent sound quality. The CDP-XB930E continues this tradition with a strong, spirited performance with vivid tonality and dynamics – Best Buy. **AG**

## VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

**VALUE** ★★★★★

**PRICE** £299.00

**Fine, flexible player, which also has an excellent feature set – including CD Text – and good build quality to match.**

### ■ ONE YEAR GUARANTEE

☐ Sony UK Ltd., The Heights, Brooklands, Weybridge, Surrey KT13 0XW  
☐ (0990) 111999

## THE LAB REPORT

The basic digital technology for this ‘UK special’ is derived from earlier players like the CDP-XB720E (see HFC 184) with special attention paid to peripheral power supply and analogue circuits. The upshot is a player that, technically at least, is no less spectacular than its forebears.

Thanks to the CXD-8735N, which combines oversampling, noise-shaping and bitstream D/A conversion, the CDP-XB930E continues to offer very low distortion (0.003 per cent re. 1kHz/-30dBfs), excellent low-level linearity (+0.0/-0.4dB over a 100dB range) and very low 165psec jitter. Its response is ruler flat but the output impedance slightly high, by absolute standards, at 580 Ohms.

The greatest bone of contention lies with Sony’s measurement of S/N. Its integral Pulse DAC is specifically designed to switch off when the digital zero data used during S/N tests is detected, yielding a highly improbable figure of 125dB.

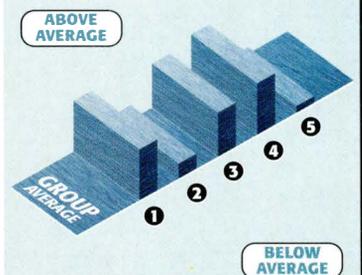
It’s usually possible to defeat this digital trickery by offsetting the digital zero test by 1 or 2 LSBs, but Sony has now applied its own countermeasures to this loophole. And all so that its players will measure better than the competition. The fib is proved by the equally improbable +22.5dB noise modulation suffered by the CDP-XB930E, when a figure of +4 to +6dB is much more likely. This puts the ‘real’ A-wtd S/N ratio somewhere in the region of 106dB. **PMi**



## HOW IT COMPARES

Another Sony and another set of results that most of the competing manufacturers can only dream about. Until Sony releases its key digital ICs on an OEM basis, that situation is unlikely to change.

- 1 SUPPRESSION OF DIGITAL IMAGES 35%
- 2 JITTER 10%
- 3 PRACTICAL DYNAMIC RANGE 30%
- 4 HARMONIC DISTORTION VS LEVEL 35%
- 5 LINEARITY 5%



## SPECIFICATIONS

PARAMETER	MANUFACTUR'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	0.0025%	0.0014%
■ Maximum output level	2.0V	2.4V
■ A-wtd S/N ratio	113dB	106dB

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Chief Musical Officers' Warning

# DENON DCD-1650AR

One down from the DCD-S1011 and, like the latter, based on the DP-S1/DA-S1 transport/DAC combination, this is one of Denon's sexy-looking champagne gold range. A full-sized player that weighs almost 12kg, the DCD-1650AR borrows the DP-S1's impressive centrally mounted mechanism and matches it to a D/A converter stage that uses four 20-bit differential mode DACs in a configuration designed to eliminate zero-cross distortion, and Denon's Alpha waveform-smoothing algorithm. Extensive measures have been taken to reduce acoustic feedback and control resonances.

Denon has ensured no one will feel short-changed by this player, which boasts a full range of tape dubbing features, including a peak (level) search function, various auto-editing features and the ability to deliver smooth fades. Headphones can be connected – a volume control is available for this purpose and to vary the output of one of the two analogue outputs. This means that, at a pinch, the Denon could be used with just a power amp and a pair of loudspeakers. The handset has large, well spaced keys.

## SOUND QUALITY

After three separate presentations to the panel, the majority view was that this was a rather uneven

player which on the whole sounded fine when driving music hard, but was otherwise short on subtlety and instrumental separation, and rather rough sounding into the bargain.

It even seemed a little noisy at lower levels, although this could have been a side-effect of the general low-level messiness. "A good spread of sound," was one opinion following the Kodaly test track, "but it's a bit fizzy overall, and not graceful on the ear." "Piazzolla's tone doesn't focus properly – the instruments aren't well separated. It's all rather smeary, and imaging is messy." Another panellist wrote in similar terms, suggesting the Denon "lacked image integrity" and that it was "phasey and unclear". He then went on to make clear his lack of sympathy with the sound, noting that it was "lacking in focus" and seemed "slightly incoherent".

If all this sounds rather severe, it's because the Denon was tested alongside some particularly strong competition. In fact, not all the comments were so negative:

**"The view was that this was a rather uneven player which on the whole sounded fine when driving music hard, but was otherwise short on subtlety."**

"Detail is excellent – there's some real momentum and gusto here (and) incredible detail and energy," was another comment on the Piazzolla test track.

In his sum-up comments, the same panellist remarked: "This player appears to be in a different class compared with what has come before. For my money, this is top notch."

But this was not the consensus view, which was of a player that could work well, but was just a little untidy around the edges. This broadly coincides with the results of the hands-on tests, in which the Denon consistently trailed a little behind the leaders, lacking the last

ounce of control and discipline, and sounding a little hard nosed into the bargain.

## CONCLUSION

This impressive player has plenty of high-class engineering, and its feature count is extensive. Musically, however, it just fails to hit the G-spot because of a lack of clear musical articulation and finesse, especially from quieter passages, although there's plenty of authority and "slam". **AG**

## VERDICT

SOUND	★★★★☆
BUILD	★★★★★
VALUE	★★★★☆
PRICE	<b>£700.00</b>

A year or so ago, this player would probably have looked much more convincing, but by the best standards it now sounds crucially lacking in some of the more subtle strengths of its rivals.

### TWO YEAR GUARANTEE

Hayden Laboratories Ltd, Hayden House, Chiltern Hill, Chalfont St Peter, Bucks SL9 9UG. (01753) 888447

## THE LAB REPORT

Like h/k, Denon is using a pair of Burr-Brown's 20-bit PCM1702 DACs per channel though, unlike h/k, this looks to be a differential implementation rather than the latter's proprietary RLS scheme. Still, a reduction in noise and even-order distortions of up to 6dB is possible, in theory. In practice, midband, mid-level distortion is rather higher – although not high – than most modern players at typically 0.013 per cent. Its performance at treble frequencies is superb, however, with figures as low as 0.0055 per cent (re. 20kHz at -30dB). The lack of requantisation noise at ultrasonic frequencies also enhances compatibility



with different amps, while its output impedance remains moderate at 150 Ohms.

The huge 118dB A-wtd S/N ratio also suggests a wide dynamic range, but when the equally high +19dB noise modulation is taken into account,

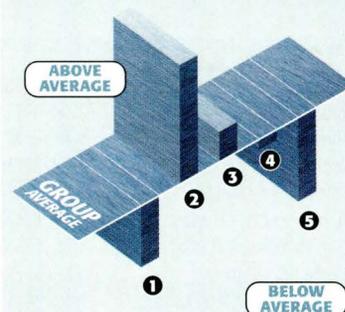
the result is on a par with most bitstream-based players.

Poorer distortion at lower signal levels (sub-60dBfs) and slightly poorer low-level linearity (errors of -5dB were measured over a 100dB range) are typical. Jitter is very low indeed at 200psecs while the relatively surprising +155psec clock error also demonstrates that clock accuracy and jitter need not be adversely linked. **PMi**

## HOW IT COMPARES

Based on proven 20-bit technology but the huge noise modulation may contribute to some subjective untidiness. Low jitter, a wide S/N ratio and very low high frequency distortion are its principal strengths.

1 SUPPRESSION OF DIGITAL IMAGE	-40%
2 JITTER	80%
3 PRACTICAL DYNAMIC RANGE	20%
4 HARMONIC DISTORTION VS LEVEL	-5%
5 LINEARITY	-55%



## SPECIFICATIONS

PARAMETER	MANUFACTR'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBfs	0.0018%	0.0011%
Maximum output level	2.0V	2.3V
A-wtd S/N ratio	118dB	117.9dB

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# MYRYAD T-20



Nobody could accuse Myryad of inconsistency. Its hi-fi components uniformly have neat, rather matter of fact styling, and are always well finished and well presented, although at worst they might be accused of a lack of the intangible 'wow' factors that some brands seem able to turn on at will. But behind the aluminium fascia extrusion, the T-20 casework is a little rattly, and the Sony loader uncharacteristically noisy.

The T-20, which is pitched at mid-market territory, is a more affordable development of the M100, and an enhanced version of the T-10 (reviewed in *HFC* 184). Front panel controls include track skip and scan, plus open, play/pause, stop and a display key which pulls up an alternative time readout. The remote control plugs the gaps, with a numeric keypad, programming keys, repeat, shuffle, and a second set of the standard navigation keys. An electrical S/PDIF output is fitted.

Under the bonnet is a 20-bit Crystal Delta Sigma converter with a 128x oversampling linear phase digital filter and a 4-pole FET

analogue filter. Compared with the T-10, the T-20 offers a number of enhancements, such as an additional regulated power supply, bringing the total to eight, a servo-controlled DC coupled output stage, a high-speed FET op-amp in the analogue low pass filter, derived from the M100, and improved power supply decoupling components. Output impedance is specified as 220 Ohms, which is low enough to make system matching fairly simple, although the output voltage level is a little higher than usual, which should be taken into account in any shop demo. The player is available in brushed silver or anodised black.

## SOUND QUALITY

The earlier comments in relation to the physical presentation of the T-20 are equally relevant to the way it sounds, and in this player the panel found a model that could be best described as unexceptionable. The player is just on the bright side of neutral. It sounds, as one panellist noted: "Clean, no fizz or distortion... [with] good stereo imagery, especially

**"In this player the panel found a model that could be best described as unexceptionable. The player is just on the bright side of neutral."**

the positioning of the individual instruments and the space between and around them."

This listener also found voices a little coloured, and the left-hand piano-playing a little shallow and lightweight. This view was widely held, one listener describing the T-20 as "pretty good, but a bit lightweight", while another felt it was "screechy". "Where's the lower mid?" he asked.

On the whole, though, the following comments were more representative, and closer to the outcome of the hands-on testing: "Very good detail and resolution"; "Piazzolla doesn't have his back to us on this playthrough. The whole effect is crisp, clear and detailed"; "well spread, clean and clear... if a

little shallow in the low frequency region", while another listener commented on the T-20's "strong detail", although he also felt that the player sounded "a little grainy". The hands-on listening painted a picture of a player which was a little lean and dry, and which did tend to sound a little grainy.

## CONCLUSION

This clean, rather matter-of-fact sounding player is a respectable performer, and certainly musical, but it's outclassed by some very strong competition at the same price level – not least some of the other models in this issue. **AG**

## VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

**VALUE** ★★★★★

**PRICE** £600.00

Worthy rather than exciting, the T-20 is voiced on the lean, dry side of neutral.

### THREE YEAR GUARANTEE

Myryad Systems Ltd, 2 Pipers Wood, Waterberry Drive, Waterlooville, Hants PO7 7SU  
(01705) 265508

## THE LAB REPORT

When we reviewed the T-10 CD player back in *HFC* 184, I mentioned the provision on Myryad's main PCB for extra components. This

provision is fully utilised by the extra power supply

regulation, the dual analogue op-amps, extra DAC decoupling and a direct-coupled output stage (with DC servo) that marks out the T-20 over the T-10. Otherwise, the players share the same building blocks, including a reliable Sony transport mechanism and a miniature, surface-mount version of Crystal's older '20-bit' CS4327 bitstream DAC.

Once again, the player enjoys a very low 162psec jitter, which is on a par with

players like h/k's multi-bit HD760, despite its use of very different technology. This is largely down to a textbook implementation

of the CS4327 which, in turn, also defines the player's good low-level linearity

(errors of just +0.0/-0.6dB over a 100dB range) and its 99.7dB A-wtd S/N ratio. This is a little short of that obtained with the latest CS4390 Crystal DAC, but sufficient for 16-bit CD.

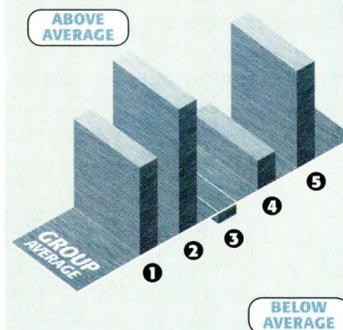
The key advantage wrought by Myryad's revised output stage and DAC decoupling is in the significant cut in treble distortion from 0.02-0.06 per cent (0dBFs to -30dBFs @ 20kHz) to just 0.01-0.018 per cent over the same range from the T-20. Some small cause for celebration, then. **PMi**



## HOW IT COMPARES

A technical refinement on the T-10 Aplayer that, sadly, seems to have little impact on the player's lack of musical 'colour'.

- |                                |     |
|--------------------------------|-----|
| 1 SUPPRESSION OF DIGITAL IMAGE | 60% |
| 2 JITTER                       | 85% |
| 3 PRACTICAL DYNAMIC RANGE      | -5% |
| 4 HARMONIC DISTORTION VS LEVEL | 20% |
| 5 LINEARITY                    | 65% |



## SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBFs	0.003%	0.0014%
Maximum output level	2.5V	2.6V
A-wtd S/N ratio	100dB	99.7dB

# ROTEL RCD-991

**R**otel's flagship is this imposing new-comer, which went under Paul Miller's microscope in HFC 193, where its unusual switchable dither option attracted interest. It's a sophisticated and well specified player built around the Burr-Bro 20-bit PCM-63P D/A converter, with the Pacific Microsonics PMD-100 8x digital filter giving HDCD compatibility. The Rotel has a feature that is almost unique: switchable dither levels and types, which is an internal facility in the PMD-100 that Rotel has tapped into. To our knowledge, the feature is only paralleled in the £12,000 Linn Sondek CD12, which uses the same digital filter.

The RCD-991 is solid and businesslike and, although not pretty, it's in no sense unfriendly enough to alienate granny. The front panel is typical Rotel, but taller, barer, and with a handful of basic controls (open, play, pause, stop, and skip) the remote control adding the usual extras – a numeric track access keypad, repeat, scan, random and programming, but not display dim.

The fluorescent display is complete with a calendar style readout and a separate numeric display which indicates the various dither modes, numbered up to seven. Connections from the RCD-991 can be made in single-ended (phono) and balanced

(XLR) form, and from electrical and optical digital outputs.

## SOUND QUALITY

I spent a considerable time auditioning the various dither modes, and came to the same conclusion as Paul Miller in the previously mentioned review. The high numbers tended to sound a little wooden, with a suggestion of a "singing" (resonance) quality not related to the music.

The low numbers performed better, with Dither setting 2 fairly close to 4, and Dither 3 being in the same ballpark, but softer. Dither 4 sounded coherent and solid, and also smooth and integrated with better defined transients than the other settings. These differences could not be tied down absolutely, but were reasonably consistent, and best appreciated with percussive material – I used a piano recording for much of the time.

The issue of adjustable dither levels has little relevance in day-to-day use: once you've determined which one suits you best, you're unlikely to find much

**"One you've determined which dither setting suits you best, you're unlikely to find much mileage in switching them around."**

mileage in switching them around, partly because the differences can be quite subtle, but mainly because when you've found the right setting, it seems to be the right choice for all types of music.

In any case, this is a good to excellent player, although I wouldn't rate it in the high-end class – and neither did the panel. "It plays with enthusiasm, if not the last word in resolution," wrote one, while another wrote of its "good dynamics and image... [and] spaciousness with good tonal accuracy and resolution". "It's all very solid and musical," he wrote. A third panellist concluded that it was a "classy player, sophisticated, well balanced... melodious and

tuneful". Just occasionally there were complaints that it sounded loud and fatiguing, and of a slight loss of presence, but certainly not output, in the deep bass.

## CONCLUSION

Here's a player that offers near-battleship build, is extremely well endowed and has been voiced superbly. It offers the kind of performance that wouldn't disgrace some well liked players at twice the price, and easily earns a Best Buy flag. Some brief tests at the end of the test period showed real improvements in stature in balanced mode.

AG

## VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

**VALUE** ★★★★★

**PRICE** £750.00

■ This player offers near high-end performance at a mid-market price.

■ TWO YEAR GUARANTEE

✉ Gamepath Ltd, 28 Heathfields, Stacey Bushes, Milton Keynes, Bucks MK12 6HR  
☎ (01908) 317707

## THE LAB REPORT

**F**or the full technical details on Rotel's RCD-991 CD player, including a description of the user-configurable dither options, refer to HFC 193. Briefly, Rotel is employing a mix of Pacific Microsonics' PMD-100 digital filter with Burr-Brown's 20-bit PCM-63 DAC.

The former confers compatibility with HDCD software but also gives access to a

variable dither facility that enables subtle changes in both distortion and noise. This is hardware, not software-dependent, and the optimum setting for the PCM63 DACs is No. 4. The +6dB gain-ranging required by HDCD is accommodated in Rotel's analogue stage rather than in the digital

domain, thus optimising its dynamic range. In this mode, the RCD-991 offers an ideal mix of low distortion (just 0.0025 per cent at -30dBfs and 0.0016 per cent at its 2V peak output), good low-level linearity (+0.0dB/-0.9dB over a 100dB range) and a

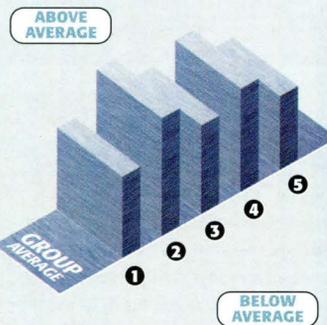
wide 116dB S/N ratio. The symmetrical board layout helps to keep channel separation better than 115dB at all frequencies while the use of a refined, multi-bit technology ensures the sort of ultrasonic noise associated with bit-stream players is vanishingly low here. The Rotel's excellent performance in this regard bodes well for its compatibility in a wide range of systems. **PMi**



## HOW IT COMPARES

**A** very solid performer with, arguably, the best all-round technical performance of the 20-bit players in our survey. Dither setting No. 4 is mandatory, however!

- |                                |     |
|--------------------------------|-----|
| 1 SUPPRESSION OF DIGITAL IMAGE | 55% |
| 2 JITTER                       | 80% |
| 3 PRACTICAL DYNAMIC RANGE      | 60% |
| 4 HARMONIC DISTORTION VS LEVEL | 70% |
| 5 LINEARITY                    | 50% |



## SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	0.0025%	0.0016%
■ Maximum output level	2.0V	2.0V
■ A-wtd S/N ratio	117dB	116.3dB

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# GENESIS SILVER SPIRAL

# YBA Spécial

**Y**BA is the progeny of Yves-Bernard André, one time

designer of turntables for Goldmund and a pickup arm for Pierre Lurné, along with various other electronics projects. He later founded the company that bears his initials, with the intention of applying high end engineering to compact low and medium power amplifiers. The Spécial is the entry level CD player, but it looks the part, being dressed to match the amplifiers, and with characteristic attention to detail, such as the use of three feet instead of four to channel unwanted acoustic energy to ground.

This contender is an extremely simple looking unit, apparently well constructed externally – but hardly well-endowed internally. The jarring feature is its low weight, which leaves little in hand for such essentials as decent size transformers and power supplies.

The fascia is simple, functional and attractive, with skip, play, pause, stop and forward cue buttons and an LCD display whose backlighting is rather unevenly lit, and whose brightness level is forever dipping and recovering as the other functions are engaged – opening the drawer, for example, or entering play mode.

A chunky but four-square handset adds a numeric keypad, the usual navigation keys, cue (in both directions this time), and

various programme, repeat and special play modes. Rear panel connections are limited to a single pair of quality analogue outputs. There's no digital output, which could be limiting.

Upgradeability is available via a £420 option which adds an internal blue diode, which bathes the disc in blue light, claimed to improve reading performance. Apart from being a high price to pay for a diode (even a blue one), this may not be the best use of resources given the basic performance of the player.

## SOUND QUALITY

It would be unfair to suggest that the YBA received an unanimous thumbs-down from the panel, which reflects the fact that its failings did not necessarily make it sound unpleasant. That's not to say that its shortcomings went unnoticed, however. They did not. Loss of definition was consistently identified by the panel.

The player "lacks air and clarity" said one, while another described the Piazzolla test track as "easy to listen to, but with no detail – and it seems slow". Soundstaging was

**"It doesn't take very long to discover that this is a musically rather empty performer, with little ebb and flow or sense of occasion."**

also amorphous, and this, too, was clearly identified by the panellists: "Poor stereo focus... vocal positioning poor" were typical comments, along with more general complaints about a "lack of edge or excitement" and of "soft dynamics".

And so it continued. There's nothing unpleasant about this player, which at first seems to have a sense of flow of the kind that puts the listener at ease, but it doesn't take very long to discover that it is a musically rather empty performer, with little ebb and flow or sense of occasion, and which failed to lift itself to reach dynamic peaks without also sounding metallic, clattery or shut in, depending on the spectrum of the

music. Finally, the YBA sound simply lacks clarity: fine detail is swamped in the presence of loud foreground events.

## CONCLUSION

It's difficult to understand what is going on here. The Spécial bears a famous name. It comes from the stable responsible for the superb Intégré amplifier, one of the best of its type. The player is also beautifully finished to match in a style that matches the amp; only its unusually low weight provides any clue that all may not be as it seems. Here, for once, the emperor truly has no clothes. **AG**

## VERDICT

SOUND	★☆☆☆☆
BUILD	★☆☆☆☆
VALUE	★☆☆☆☆
PRICE	£695.00

The pricing can't be justified by this crude and inadequate performance, which is reminiscent of the bad old days of CD.

### THREE YEAR GUARANTEE

Sound Image UK Ltd, 52 Milton Road, East Sheen, London SW14 8JR  
(0181) 255 6868

## THE LAB REPORT

This player is *deeply* unimpressive. Much of the associated literature seems difficult to justify, with talk of "blue lasers", an audio output level of 20V and bandwidth up to 400kHz. Bespoke casework conceals a basic, presumably Far-Eastern sourced player, with nary a blue LED, let alone blue laser. The 2345psec of jitter is largely accounted for by data-induced patterns, which tend to bring a pall to a player's sound, and smattering of low-rate peaks that, typically, impair the sharpness and stability of stereo images.

The DAC is basic and hard-wired to the output via a pair of paralleled capacitors which may influence both distortion (which

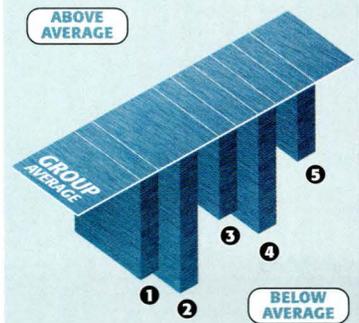
exceeds 0.1 per cent at 0dBfs/20kHz) and its response (which peaks at +1dB at 14kHz before dropping away to around 0dB at 20kHz). The latter may just as equally be caused by the oversampling filter (see *Oasis, HFC 188*) which offers just 40dB of stopband attenuation and prompts -63dB worth of IM distortion within the audio

band. Odd-order analogue IM distortion reaches a massive -38dB (over 1 per cent). Noise is at the 16-bit level but linearity is poor and output low at 1.7V. Neither is the power supply adequately regulated – it's even possible to see the backlit display being modulated by the transport as it searches out a track! **PMi**

## HOW IT COMPARES

Clothes might maketh the man, but the slick livery of this machine can't conceal the true nature of the underlying player. In this instance, the barchart says it all.

1 SUPPRESSION OF DIGITAL IMAGE	-65%
2 JITTER	-90%
3 PRACTICAL DYNAMIC RANGE	-55%
4 HARMONIC DISTORTION VS LEVEL	-80%
5 LINEARITY	-45%



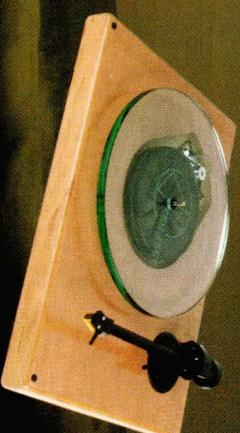
## SPECIFICATIONS

PARAMETER	MANUFACTUR'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBfs	<0.03%	0.028%
Maximum output level	20Vp-p	1.7V
A-wtd S/N ratio	Not Given	97.6dB

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# AUDIO NOTE AN-CD2

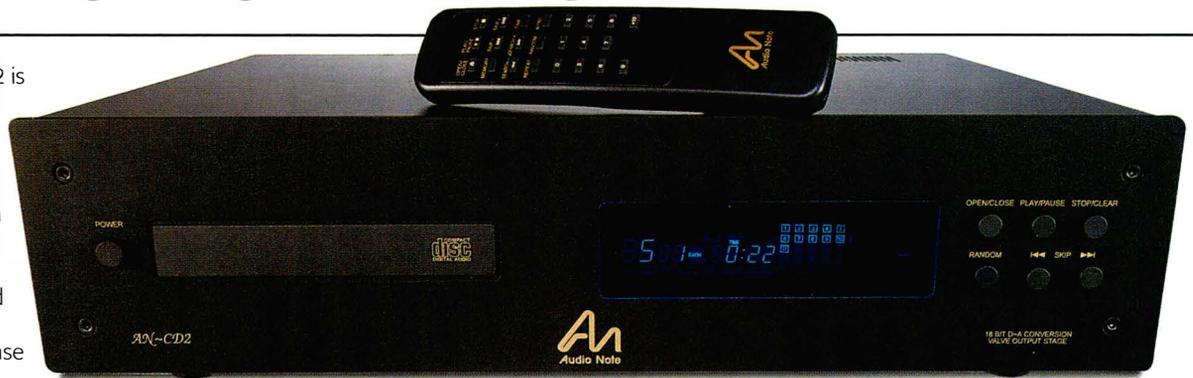
The AN-CD2 is a step above and beyond the CD1 which has been reviewed in these pages, but the style is still recognisable, and so is its use of valves – in this case a sub-miniature

triode type known as the 6111WA which is used in the output stage.

This particular device, which is believed not to have been used in audio equipment before, generates little heat, and claims an operating lifetime of more than 100,000 hours, or 11 years continuous operation. However, the configuration chosen by Audio Note results in a high output impedance (see lab report) which means it should be used with amplifier inputs with a suitable input impedance, ideally around 47kOhms. In other words this is a tube CD player made for tube amplifiers, such as AN's own.

This is an 18-bit player using an Analogue Devices D/A converter with 8x oversampling and a third order passive filter. Other points include unusual aluminium foil paper in oil coupling capacitors and metal film resistors.

Physically big, the AN-CD2 is simply made but well finished, and has a fairly smooth, if slightly clunky, drawer mechanism. A big, no-nonsense fluorescent display includes a big – although not very pretty – calendar style display, while around the back are the analogue outputs and an electrical



**“For better or worse, this player ploughs its own furrow. Rather than ramming detail down your throat, this one gives an impression of being a little constrained.”**

digital S/PDIF output. Remote control is provided by a compact, handset which is easy to use one-handed and includes a numeric keypad, standard and memory functions, random play, repeat, intro scan, time and the usual disc navigation keys.

## SOUND QUALITY

For better or for worse, this player ploughs its own furrow. Rather than ramming detail down your throat in the manner of many players, this one gives an impression of being a little rounded and constrained, with perceptible losses of the frequency extremes, which at times led to a rather dry, airless quality. There was also a lack of

body in the deep bass, which may have been caused by the high output impedance.

It received a mixed reception from the panel, which generally found it unexceptional on balance, with particular praise reserved for its midband quality, and less for its performance out towards the frequency extremes.

There were complaints, for example, that the piano track sounded like a Malcolm Binns early piano recording – in other words, very dry and percussive, which again is possibly related to the impedance problem. More generally, the Audio Note was felt to be on the laid back, even lazy side of neutral, which is a known (although certainly not inevitable) side-effect of valves.

Other comments were more positive. The panel pointed to a reasonable sense of space around the orchestra, a solid presence, and real personality, for example in recorded violin playing. “Smooth and balanced,” concluded one, while another talked of “nice detail, but it doesn’t have the tonal authenticity of [the previous player]. It tends to overcook the detail, which

sounds somewhat detached from the body of the music.”

## CONCLUSION

The ambivalent listening panel comments are at least partly attributable to the high output impedance, as later listening with a range of amplifiers showed marked system related performance variations. At its best, this is a warm, communicative and ripe sounding player, but at worst it is cool, dry and unbalanced. It never really scales the heights of CD replay as exemplified by the best of the rest. **AG**

## VERDICT

SOUND	★★★★☆
BUILD	★★★★☆
VALUE	★★★★☆
PRICE	£999.00

A valve CD player offers a smooth, attractive midband, but high output impedance makes system-matching problematical.

### ONE YEAR GUARANTEE

Audio Note UK Ltd, Unit C, Peacock Industrial Estate, Lyon Close, Hove, East Sussex BN3 1SG  
(01273) 220511

## THE LAB REPORT

The bigger brother to Audio Note's CD1 player (HFC 188) may use a superior 8x oversampling filter (the SM5843 from NPC) but its choice of DAC – the 18-bit AD1865 from Analogue Devices – remains unusual. It's the power supply, passive I-to-V, passive filtering and active 6111 triode-based analogue output stage that retains the strongest, subjective impact. A lone 2nd-harmonic distortion rises from typically 0.013 to 0.18 per cent



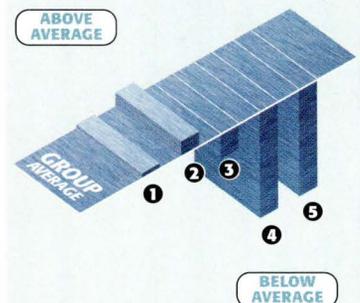
near its 2V peak output while, at lower frequencies, the spectrum is coloured by an extended pattern of supply harmonics. These extend into the digital domain, 'modulating' the data along with 2nd-order data-induced patterns to 396psec.

Noise is at -93.6dB and low-level linearity shows errors as great as +2dB/-5dB over a 100dB range. Nevertheless, by feeding the output directly off the valve's anode, its high 3.8kOhm output impedance proves the biggest limitation to the CD2's compatibility. A 6.5dB loss at 20Hz was experienced when driving a 10kOhm preamp load, for example, so do expect big variations in bass performance from amp to amp. Also expect some modification in treble with different interconnects. Audio Note's own amps typically feature very high 100-500kohm input loads where the CD2 will measure – and sound – far more uniform through bass, mid and treble. **PMI**

## HOW IT COMPARES

Not exactly representative of the modern, high performance player, rather this is a specialist machine whose valve colour and high output impedance is destined for similarly specialised systems.

1 SUPPRESSION OF DIGITAL IMAGE	1%
2 JITTER	10%
3 PRACTICAL DYNAMIC RANGE	-15%
4 HARMONIC DISTORTION VS LEVEL	-70%
5 LINEARITY	-70%



## SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBfs	Not Given	0.18%
Maximum output level	2V	2.05V
A-wtd S/N ratio	>85dB	93.6dB



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**MUSICAL FIDELITY**

# NAD Silverline S500



**N**AD has recently changed hands, and is now Canadian-owned. A recent visit showed the company to be in rude health, with Silverline (which will be renamed in due course as Silver Series, for consistency with other NAD products) apparently meeting with some success.

The S500 is easily the prettiest player in this group, the matt silver finish and the fluting on the side panels vying for attention with the general level of fine detail. The loading tray is on the left, an attractive deep blue dot matrix display is in the middle, and play/pause, stop/open, skip and scan controls are on the right. The latter uses dual function buttons which respond to the length of time the button is held down.

Around on side two are the usual phono analogue and electrical digital S/PDIF outputs, fully buffered and fed via transformer, along with a set of balanced alternatives, namely an XLR AES/EBU digital output, and XLR-based analogue outputs. The player also has a NAD LINK remote in/out sockets so that it can be linked with NAD systems for control purposes.

**“The S500 is easily the prettiest player in this group, the matt silver finish and the fluting on the side panels vying for attention with the general level of fine detail.”**

The S500 is one of the growing number of players with balanced as well as unbalanced outputs, which has probably been included primarily for the US market. In the UK it will simply add to the cost, but NAD Silverline system owners will be in a position to benefit.

The digital converter is a 24-bit design from Crystal, coupled to an unusually elaborate five-pole analogue filter, and a discrete low output impedance Class A output amplifier, which accounts for its internal complexity compared with its op-amp equipped rivals.

The S500 converter stage has been implemented in modular form, and the maker claims it will be upgradeable by NAD service agents, although as yet there is no

information on what kind of upgrades are envisaged or what they will cost.

## SOUND QUALITY

The NAD emerged from our tests with a clean set of results and a raft of enthusiastic comments from the panel, who variously remarked on the “drive and power in its presentation compared to what has gone before... good authority and dynamics, detail and imaging... breathy detail, excellent resolution”, and more in a similar vein. The player was summed up by one listener as “very inviting and musical”. The overall balance of the player was on the warm, effusive side, with “good body and texture” in the piano recording and an effusive, lively quality with complex recordings.

Some losses of extreme treble were occasionally noticed, but this didn't affect the resolution of fine detail, which was a noticeable strength of the design. As one panel member put it: “Full” and ‘warm’ sometimes means sluggish and veiled, but not here.” My own tests gave consistent and consistently likeable results in several systems, where the

player's natural warmth and grace was never cloying or musically damping, though the player lacks the easy informativeness of one or two players in the group.

## CONCLUSION

Lack of frivolous extras and excellent aesthetics make this a very desirable player, with the cost fully justified by the quality and performance of the design. Unlike many mainstream players, the NAD's full, easy sound balance will suit systems of varying abilities well, where some other players will end up sounding strident or edgy. An accomplished player, and Recommended. **AG**

## VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

**VALUE** ★★★★★

**PRICE** £1,100.00

The S500 player is well up to Silverline standards, with a warm, refined sound and attractive external design to match.

### ONE YEAR GUARANTEE

The Audio Club, 15 Faraday Road,  
Aylesbury, Bucks HP19 3RY  
(01296) 482017

## THE LAB REPORT

**T**his is a slim but superbly-engineered player based around a Philips CDM12 mechanism, Crystal's CS4390 '24-bit' bit-stream DAC and a complex analogue filter/balanced output using both discrete devices and high quality Burr-Brown op-amps. It uses a derivation of the 5-pole analogue filter used by NAD in countless players before, though here it helps push high frequency distortion lower than ever before in a Crystal-based player (0.0035 per cent at 20kHz/0dBFS). Reduced levels of ultrasonic requantisation noise ensure the S500 will enjoy slightly greater compatibility than similar players like the Talk Thunder 3, for example. Errors in low-level linearity,

meanwhile, are also minimal at just +0.1/-0.4dB over a full 100dB range.

Talking of which, NAD's specified 112dB S/N ratio is only obtained by digital muting (the DAC turning itself off) while 102dB is achieved in practice.

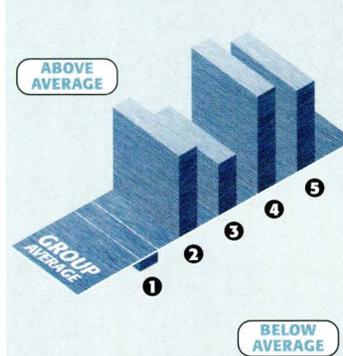
The '24 bits' in this instance simply refers to the rounding accuracy of the DAC's mathematics and not the dynamic range realised in practice (see *Oasis*, *HFC* 187). Otherwise all is well here. A smattering of data-induced peaks and a 'unknown' pair at +/-1600Hz contribute to the mere 230psec total jitter while channel separation remains >105dB across the band, the response flat to within 0.1dB and the output at little over-budget at 2.25V. PMi



## HOW IT COMPARES

**A** very slick implementation of Crystal's 24-bit DAC offering very low distortion, good low-level linearity and low levels of jitter. Analogue circuitry looks a little complex, though.

- |                                |     |
|--------------------------------|-----|
| 1 SUPPRESSION OF DIGITAL IMAGE | -5% |
| 2 JITTER                       | 55% |
| 3 PRACTICAL DYNAMIC RANGE      | 35% |
| 4 HARMONIC DISTORTION VS LEVEL | 65% |
| 5 LINEARITY                    | 55% |



## SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBFS	0.005%	0.0006%
Maximum output level	2.2V	2.25V
A-wtd S/N ratio	>112dB	102.3dB

THE SPIRIT OF MUSIC



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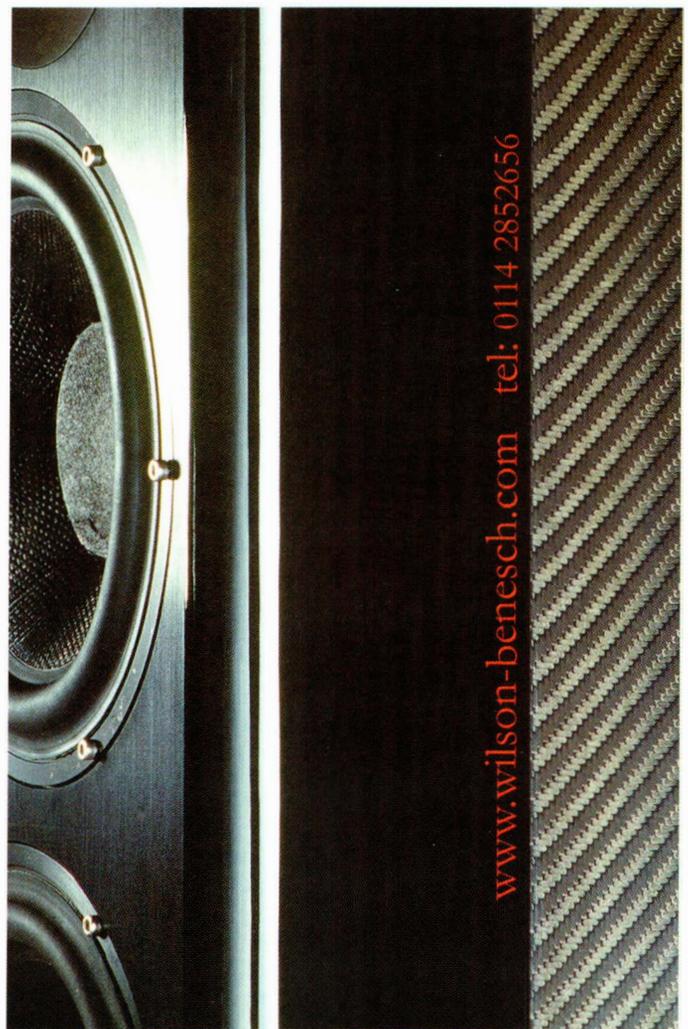
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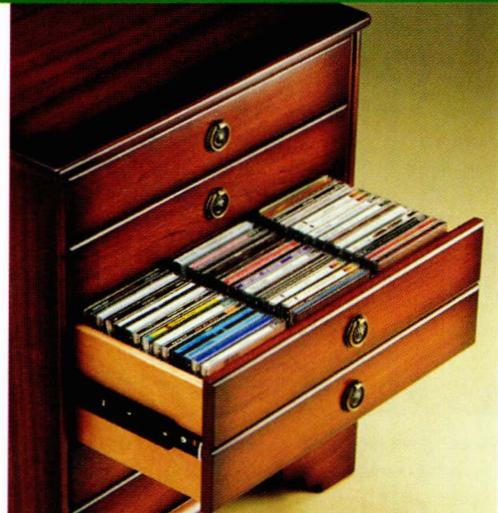
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# TALK ELECTRONICS Thunder 3



**W**e reviewed the next model downstream from the Thunder 3 some time ago. The Thunder 2 looks very similar to this one, and has similar features – which, in this case, means not very many. Differences are mainly limited to the power supply, which boasts 16 separate low noise regulators with benefits including reducing the transmission of jitter through the power supply, says Talk. The output stage is a discrete Class A amplifier, and the D/A converter stage is built around a Crystal 24-bit (wordlength) part. The digital filter is supplemented by an improved version of the Thunder 2's two-pole analogue filter which uses better quality components.

The player is nicely finished, but not particularly impressively built. It is also quite light in weight. The main feature of the brushed metallic front is a wavy dividing line running across the fascia, and a matt section below that is set a few millimetres back. There's a loading drawer which is sourced from Sony, a small display area alongside, and a set of buttons

**“Hands-on listening revealed a player that was lean, clean and mean, with a powerful quality and transients that helped piano recordings grow in stature.”**

following the curvy divider which accesses the standard functions.

The remote control has colour-coded keys and a strong range of features for programming and other more complex play options, and a control to change the panel display lighting. You don't get a digital output as standard, although one can be specified or added at a later date if required.

You will, however, find a pair of analogue outputs on high quality connectors, and some extra connectors which allow the player to be upgraded using one of the Talk's Whirlwind power supplies, which have a starting price of £349.95. The player can be also

be upgraded to the Thunder 4. By the time you read this, it should also be available in a silver finish.

## SOUND QUALITY

The improvement in sound quality over the Thunder 2 was difficult to miss even given the time that has elapsed between the two tests. Hands-on listening revealed a player that was lean, clean and mean, with a powerful quality and transients that helped piano recordings grow in stature and believability after listening through some of the lesser players. It also had strong timing cues that gave music a sense of momentum and flow. Dynamic qualities of this kind make all the difference.

The panel agreed: "The sound is 3D, quite bold and times well," said one, while another noted: "This is the best [player] so far, and the first time [today] that the piano track has made sense."

Another listener wrote sum-up comments that were virtually identical, while a third focused on the Thunder 3's "good speed, tonal balance and openness", concluding that it was capable of

an "above average sense of weight" in the orchestral test "without loss of resolution". Negative comments were limited to occasional complaints of a loss of stereo focus and of a "muddy" bass quality, although neither observation was widely supported.

## CONCLUSION

Thunder 2 owners can upgrade to this model for the difference in retail price – £300 – and on this showing they would be well advised to do so. An excellent player: Recommended. **AG**

## VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

**VALUE** ★★★★★

**PRICE** **£999.00**

**Fine, articulate and detailed sounding player that can be upgraded in various ways, or arrived at from lesser models in the range.**

### ■ THREE YEAR GUARANTEE

✉ Talk Electronics Ltd, Unit J, Albany Park, Camberley, Surrey G15 2PL  
☎ (01276) 684422

## THE LAB REPORT

**H**ard on the heels of the Thunder 2 (see HFC 191), the Thunder 3 utilises the same Sony CDM14 transport and Crystal CS4390 DAC and, essentially, the same analogue filter topology. The extra cost is dissipated on a chunkier power supply (bigger transformer, caps and regulators) and lower-noise transistors, for example. Ironically, the Thunder 3 offers 2dB less S/N than the 104dB Thunder 2, although both are well within the limits of a 16-bit CD source and the former clearly sounds better which, frankly, is all that's important. There's plenty of evidence to suggest that, with CD at least, a practical S/N much beyond 100dB



only opens the subjective 'window' to distortions that might otherwise be hidden...

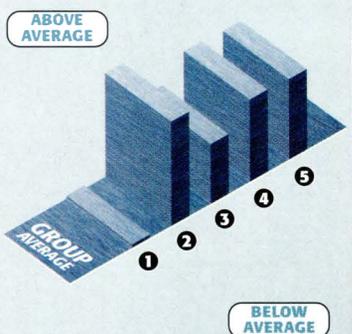
Otherwise, Talk's Class A output buffer produces its characteristic -0.5dB drop at 20kHz with a 2.2V output from a usefully low <5 Ohm source.

Different interconnect and preamp loads won't prove a problem. Low-level linearity is extremely good, even by the standard of Crystal's DAC, with errors of just +/-0.2dB over a full 100dB range. Distortion is also very low at just 0.0025 per cent across the musically important -30dBfs level (midband) just as digital images are suppressed by >105dB by the DAC's on-chip digital filter. This brand is making strong progress. **PMi**

## HOW IT COMPARES

**L**ow jitter, low distortion and a decently low output impedance mark the Thunder 3 as an evolved and compatible example of the so-called 24-bit breed. And soon to be available in silver.

- |                                |     |
|--------------------------------|-----|
| 1 SUPPRESSION OF DIGITAL IMAGE | 1%  |
| 2 JITTER                       | 70% |
| 3 PRACTICAL DYNAMIC RANGE      | 40% |
| 4 HARMONIC DISTORTION VS LEVEL | 55% |
| 5 LINEARITY                    | 55% |



## SPECIFICATIONS

PARAMETER	MANUFACTUR'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	0.001%	0.001%
■ Maximum output level	2.1V	2.2V
■ A-wtd S/N ratio	102dB	102.2dB

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REVIEW OF CASPIAN AMPLIFIER, HI-FI CHOICE, NOVEMBER 1998

*'It is gloriously vivid and involving sound; looks the bizzo too'*

REVIEW OF CASPIAN CD PLAYER, WHAT HI-FI, AUGUST 1998, ★★★★★

*'Makes a Rockin Upgrade'*

REVIEW OF ROKSAN POWER AMPLIFIER, WHAT HI-FI, DECEMBER 1998, ★★★★★

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# TEAC VRDS-25x

The VRDS-25x is based closely on the VRDS-25, which was reviewed back in issue 163. Weighing in at a back-breaking 16.5kg, it features a TEAC VRDS mechanism with its slim, solid loading drawer. Internally it employs four 20-bit AD 1862N D/A converters whose internal architecture is designed to minimise zero cross distortion, an 8x oversampling filter, and a third-order analogue Butterworth output filter.

The casework has the integrity of a battleship, and it has a superbly engineered feel, while the display is simple and clear. The analogue output is available in balanced (XLR) and unbalanced form, while a display dimmer and output level controls are fitted.

Improvements incorporated into the VRDS-25x are limited to unspecified enhancements to the output op-amp, and a revised version of the VRDS mechanism which features changes to the chassis – although to what effect is, again, not specified. In every other respect, including visually, the VRDS-25x is virtually identical to the VRDS-25, but the price has come down from £1,399 to a much more palatable £1,000.

## SOUND QUALITY

One of the four test recordings was from a CD-R, which the TEAC failed to play at all during one of the panel presentations, and which in a second session



**“The balance is highly individual, leaning towards a big, bold presentation, with listenability taking precedence over ‘warts and all’ reality.”**

sounded noisy and unpleasant, indicating errors severe enough to cause interpolation. Other CD-Rs caused no such response, so this isn't a general problem, but it should be said that none of the other players, and indeed some that were not part of the test, had any difficulty with this disc.

The TEAC sounded solid and propulsive, with a refined, well integrated quality across the frequency band. The Kodaly orchestral piece, for example, was described by one listener as “an enjoyable, bold performance... [which was] atmospheric, enjoyable and seductive, as well

as being bold and dramatic”. Of the Piazzolla, another panellist wrote that he liked “the balance, the controlled power, and the feeling of atmosphere and of depth”, and the Beethoven piano piece was deemed to have a sound that as far as could be judged was “an accurate reflection of the real event”. This track is not easy to reproduce well, and can suffer an inelegant, abrasive quality. Here it received plaudits all round, with just one complaint of a dry acoustic – in fact, a fair reflection of the recording.

Good as the TEAC is, one panellist talked of “subtle veiling” and thought it “lacks resolution”, and others described a “rich, almost opulent tonality” and a “big sound, but [a] lack of detail”. One went so far as to describe the player as sounding “muddy”. The hands-on testing showed the TEAC to be consistently excellent, with a large image scale, good front-to-back image differentiation (given appropriate recordings), and a balance that favoured the bass, but which sounded slightly

less lively and detailed than the Denon, NAD and Sony models from this month's test group.

## CONCLUSION

The TEAC was a conspicuous success – only its inability to show some less costly players a clean set of heels and its incompatibility with the test CD-R counted against it. The balance is highly individual, leaning towards a big, bold presentation, with listenability ultimately taking precedence over ‘warts-and-all’ reality. **AG**

## VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

**VALUE** ★★★★★

**PRICE** £999.95

Big, bold and tonally colourful, this is a classy player, but the CD-R compatibility problem encountered with the test sample is a concern.

### ONE YEAR GUARANTEE

TEAC UK Ltd., The Croxley Centre, Watford, Herts WD1 8YA  
(01923) 819630

## THE LAB REPORT

Supporting the same 20-bit AD 1862 DACs as the older VRDS-25 (see HFC 163), this TEAC model is like Denon's DCD-1650 in many ways. Both enjoy excellent high frequency distortion (0.006 per centre, 20kHz at 0dBFs) but a hike in odd-order harmonics pushes this to 0.018% across the audioband at mid (-30dBFs) levels. Modern, bitstream-based players are typically 10-15dB better than this through the midband, but none will match the TEAC or Denon's excellent suppression of ultrasonic noise. At lower levels still, the TEAC bests the Denon with its improved linearity and reduced distortion.

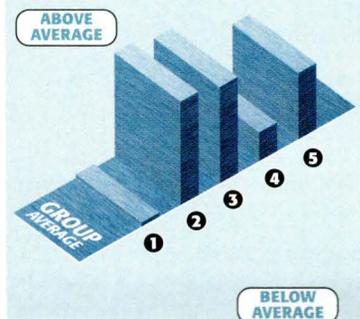


The 110dB S/N ratio isn't huge by multi-bit standards but then, by way of recompense, neither is the +9.8dB of associated noise modulation. Jitter, too, is very low at 180psec, just as its use of a superior NPC SM5843AP oversampling filter ensures all digital images are suppressed by at least 105dB. But again, TEAC's application of advanced digital technology isn't matched by the final analogue stage, which suffers the high 1.15kOhm output impedance of its forebear. A figure 10x lower would be more appropriate for such a player, if only to reduce its sensitivity to different interconnect/preamp loads. PMI

## HOW IT COMPARES

In terms of its underlying technical performance, the VRDS-25X is as close to the older VRDS-25 as makes no difference, though the new digital inputs undoubtedly enhance the player's flexibility.

- 1 SUPPRESSION OF DIGITAL IMAGE 1%
- 2 JITTER 70%
- 3 PRACTICAL DYNAMIC RANGE 65%
- 4 HARMONIC DISTORTION VS LEVEL 20%
- 5 LINEARITY 45%



## SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBFs	0.0015%	0.0014%
Maximum output level	2.2V	2.2V
A-wtd S/N ratio	110dB	110dB

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**TAG McLaren**  
audio

# TUBE TECHNOLOGY Fusion

And now for something completely different: a CD player-cum standalone D/A converter with a new and radical Pulse Array converter topology and a valve hybrid output stage based on miniature 6922 double triodes, which are surface-mounted like the rest of the circuit. As a D/A converter, the Fusion will accept data clocked at up to 96kHz/24 bits – but that's not the same as 24-bit resolution, which the Fusion certainly hasn't.

The DAC is built using a Field Programmable Gate Array which is programmed to behave as a DAC. The chip has its own noise-shaper and modulator, and 24 DAC elements, each of which behaves rather like a single Bitstream converter. The 24 outputs are summed, which means the FPGA behaving effectively as though it had 4608x oversampling, increasing resolution and reducing noise and distortion. The digital filter is Pacific Microsonics PMD-100, so this is an HDCD player.

The smallest player in the group, the Fusion is styled to look smaller still thanks to its angled back base section. The main control and display section is on a small chromed sub-facia which shows through a rectangular cutout in the main dark brushed facia, an effective and original treatment. But just before press



**“Smooth to the point of being soporific, the Fusion bared its claws with percussive material, but just occasionally it would beguile.”**

time, the makers told us the case is due to be redesigned. It will be larger and more conventionally styled, and have a better quality vacuum fluorescent display.

The rear panel is equipped with quality analogue phono outputs, optical and BNC digital outputs and similar inputs for external sources. The transport is the 213CC from Sony, and the unit normally lives in standby mode to keep the valves and DAC stage warm. It practice it ran very hot, and build quality is clearly below par, but it soon became apparent from an internal examination that this was in fact a prototype player.

## SOUND QUALITY

The player failed to read the level set-up test track, which meant setting the volume by ear. The results were uneven. At one moment it would sound “strident” and “loud and tiring”, with one reference to transient leading edges sounding “not quite clean”; the next it practically sent the panel to sleep with its “muted quality”. “Vocals lack presence” and “vocals a little recessed in the middle of the soundstage” were fairly typical comments. One panel member summed up the dichotomy thus: “A little forced, a little tiring, yet surprisingly (to me) the voice is lovely and silky. Bizarre... lovely piano sound, it is full and round and sounds authentic,” though this is perhaps not the most appropriate epithet for Gilels’ tumultuous Beethoven.

Smooth to the point of being soporific, the Fusion bared its claws with percussive material, but just occasionally it would beguile with beautifully formed sounds, especially with well recorded solo and chamber music.

## CONCLUSION

The manufacturer confirmed that the unit is indeed preproduction, which we didn't know when we started the test, and the results should therefore be seen as work in progress. Certainly the player is not right yet: there are some startling weaknesses, but also some equally startling areas of strength which suggests there is a really good player inside struggling to get out. Keep your pennies for now; we'll keep you informed. **AG**

## VERDICT

SOUND	★★★★★
BUILD	★★★★★
VALUE	★★★★★
PRICE	£1,100.00

**Intriguing player with novel DAC technology is simply not ready yet, but it is good enough to ensure we will follow its development closely.**

### ■ TWO YEAR GUARANTEE

✉ Tube Technology, Technology House, 214 Station Road, Addlestone, Surrey KT15 2PH  
☎ (01932) 821111

## THE LAB REPORT

In common with the Tube Technology player auditioned in *HFC 194*, this model uses the Pulse Array DAC technology licensed from Robert Watts. This innovative idea is embedded into two FPGAs. One comprises a 96kHz digital input receiver and 4x oversampling (if the Fusion is used as an outboard DAC) while the other comprises the P9 pulse-array DAC. In its standard guise as a 44.1kHz CD player, the Fusion uses Pacific Microsonics' HDCD 8x oversampling filter with the final FPGA pulse-array DAC. See next month's *Oasis* for more details.

Exciting technology, but its implementation in this preproduction sample was not

without its problems. For example, its high 1149psec jitter is largely composed of complex but symmetrical clusters of sidebands of unknown origin, with some 440psec of this accounted for by data-induced jitter.

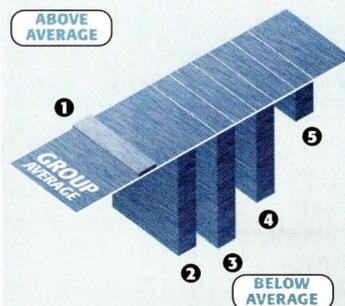
The baseline noise floor is 10-12dB higher than expected and is reflected in the sub-16 bit 86dB S/N ratio. Low-level linearity is excellent. Distortion is probably influenced by the ECC88 double-triodes used in the analogue output stage, increasing by a factor of 10x from a low 0.001 per cent midband to 0.01 per cent at HF. But the low <5 Ohm output impedance and good stopband rejection are aids to its compatibility. **PMi**



## HOW IT COMPARES

The underlying Pulse Array technology of this player is sound enough and the 96kHz-compatible digital inputs provides some future-proofing, but the overall implementation still needs plenty of work.

1 SUPPRESSION OF DIGITAL IMAGE	1%
2 JITTER	-65%
3 PRACTICAL DYNAMIC RANGE	-75%
4 HARMONIC DISTORTION VS LEVEL	-60%
5 LINEARITY	-20%



## SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	0.006%	0.0011%
■ Maximum output level	2.0V	1.93V
■ A-wtd S/N ratio	98dB	85.8dB

# CD PLAYERS

# CONCLUSIONS



## THE BEST IN THE TEST

### ARCAM Alpha 7SE £350.00 Best Buy

Starting with the most affordable model in the test group, Arcam has scored a notable success with the latest version of the evergreen Alpha 7, the Alpha 7SE. This model was awarded Best Buy for its fluency, clarity and all-round class, because it is well priced, because it is a clear (if

incremental) step up from its predecessor and, finally, because it can be readily upgraded right through the Arcam hierarchy.

The new model also boasts a new and nicer remote control and an optical digital output is a new addition to the electrical one, a sop to MiniDisc users. And on the negative side? The aesthetics are increasingly dated,



although consistency with the past provides a clear upgrade path for existing Arcam owners. On a more

substantive tack, the player has a lean balance, but other complaints were scattered and muted.

### SONY CDP-XB930E £499.00 Best Buy

Not many mainstream manufacturers have the chutzpah to sell CD players at mainstream prices with manual pucks. But such are the benefits as perceived by Sony's development team that they have taken the risk, not just with this model, but with a whole series of middle and upmarket models. This player also offers a range of digital filters, though the most consistent



sounding remains the default, which is also the most conventional. This is a extensively breathed-on mainstream player with some useful features, and it is a thoroughly excellent musical performer with a typically clean, clear and open sound which is full of life.

### ROTEL RCD-991 £750.00 Best Buy

It is invidious to compare a £750 player with the other Best Buys, both of which cost less, but it is obvious that the Rotel is the star of this show. It sets new standards for CD players at its price level and, indeed, for Rotel itself. Switchable dither is an interesting diversion, but as there appears to be one 'right' setting, the feature appears to be redundant, except that it



prevents the maker from locking the player into the 'wrong' mode. This aside, the RCD-991 is an extremely well balanced and capable player that would be a credit to virtually any system, and that is quite capable of holding its own in exotic company.

### TALK ELECTRONICS Thunder 3 £999.00 Recommended

This is an up-market variant of the Thunder 2 (see HFC 191) which has had a power supply and low pass filter transplant. The Thunder 3 can in turn be upgraded, eventually into the top-of-the-line Thunder 4 with outboard Whirlwind power supplies, for the difference in retail price, which ultimately makes it a much more attractive long term proposition than a



conventional purchase, however good. More to the point, the Thunder 3 is a great improvement on the Thunder 2 with a strong balance of qualities, including accurate tonality, excellent dynamics and an ability to reproduce transient-led material with conviction yet without undue emphasis.

### NAD Silverline S500 £1,100.00 Recommended

NAD has a name for good value products which are sometimes rather dowdily turned out, but its Silverline series breaks the mould with a range of components which have the same simplicity, but with superior internal build, less compromised circuits topologies, and looks to die for. The S500 is well endowed player built around the Crystal 24-bit DAC, with a discrete output filter, 5-pole analogue



filter and the ability to upgrade the DAC, although no specifics on this are yet available. At £1,100, the S500 is pitched at the serious end of the market, but it lives up to examination with a clean, lively and transparent sound, and a hint of warmth allied to excellent overall control.

## CD PLAYER COMPARISON TABLE

MAKE MODEL	ARCAM ALPHA 7SE	AUDIO NOTE CD2	DENON DCD-1650	HARMAN/KARDON HD760	MYRYAD T-20	NAD S500
PRICE	£350.00	£999.00	£700.00	£499.99	£600.00	£1,100.00
SOUND	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BUILD	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
SIZE (W×H×D)	43x8.5x29cm	47x11.6x35cm	43.4x13.5x34cm	44x11x34cm	43.6x9.4x28.6cm	45x6.7x29cm
WEIGHT	3.6kg	725kg	11.9kg	6.1kg	5.4kg	6.2kg
RATED DISTORTION @ 1KHz/0dBFS	<0.01%	not given	0.0018%	0.002%	0.003%	0.005%
ACTUAL DISTORTION @ 1KHz/0dBFS	0.0013%	0.18%	0.0011%	0.0025%	0.0014%	0.0006%
RATED MAXIMUM OUTPUT LEVEL	2.3V	2V	2.0V	2.1V	2.5V	2.2V
ACTUAL MAXIMUM OUTPUT LEVEL	2.4V	2.05V	2.3V	2.1V	2.6V	2.25V
RATED A-WTD S/N RATIO	100dB	>85dB	118dB	110dB	100dB	>112dB
ACTUAL A-WTD S/N RATIO	103.4dB	93.6dB	117.9dB	110.8dB	99.7dB	102.3dB

**W**ith the audio version of DVD around the corner and SACD just about on sale as you read this, it wouldn't have been surprising if compact disc technology had effectively come to a full stop, but the evidence of this test is the opposite. We have lived through the false dawn of early Bitstream and the days of relatively crude multibit conversion where performance was increasingly caricatured at lower levels.

Now we have 20-bit and 24-bit processors which may not be everything that is claimed, but which are at least good enough to do fair justice to Red Book-style 16-bit PCM audio. Of course, the latest and most capable technologies aren't spread evenly across the industry or all price bands, and, as in previous tests, a strong ranking order emerged from the models tested.

It's intriguing that there remain so many ways of skinning the cat, technology-wise. This month's group sees a novel parallel DAC architecture called Pulse Array from Tube Technology's Fusion, which also provided one of two examples of players with valve or valve-hybrid output stages, the other being the Audio Note CD2. Both use miniature valves, neither

apparently used in the audio field before, but there was no clear evidence from this test that either added anything not available from other technologies. Indeed, both designs were frustratingly uneven, although the Tube Technology player was supplied in pre-production form, so we'll keep an eye on how it develops.

One unwelcome surprise was the YBA Spécial, which turned out to be a very routine, apparently old-fashioned, low-cost player chassis decanted into high class YBA clothing. This player is definitely not what it seems, and it does not reflect well on a brand with a deservedly strong reputation for other products.

**BEST BUYS & RECOMMENDATIONS**



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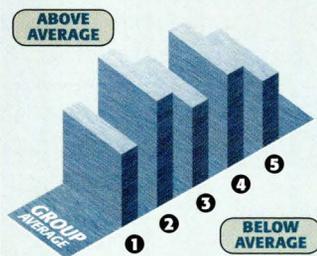


**RECOMMENDED:** Recommended products are first-class audiophile propositions, losing out to Best Buy status only because of a higher price or less competitive overall sound quality.

**UNDERSTANDING OUR BAR-GRAPH MEASUREMENTS**

**B**ehind *Hi-Fi Choice's* unique bar graphs are some of the most advanced measurements made anywhere on the planet. They are provided by our Technical Editor, Paul Miller, using both GPIB-controlled measurement hardware and his own, award-winning, PC-based Virtual Instrument software. Each bar-graph value is derived from a weighted statistic of several key measurements and is displayed relative to a notional zero per cent which represents the group average for that particular category.

**THE BAR-GRAPHS**



**1 SUPPRESSION OF DIGITAL IMAGES:**

This indicates the effectiveness of the player's digital filter in removing 'aliasing' or 'stopband' distortions immediately outside of the audio band.

**2 JITTER:** Any uncertainty in the timing of the digital code produces digital jitter which manifests as an insidious form of distortion during digital-to-analogue conversion. The lower the figure the better.

**3 PRACTICAL DYNAMIC RANGE:** This is determined by the player's Signal-to-Noise ratio and to what degree it is compromised by any Noise Modulation occurring under real signal conditions.

**4 HARMONIC DISTORTION VS. LEVEL:** This bar chart value is derived from the variation in distortion both with frequency and signal level. The consistency and nature of the distortion also forms part of the equation.

**5 LINEARITY:** Linearity is a measure of the player's low-level resolution. If a signal coded at -80dB emerges from the player at -80.5dB then this represents a deviation in its linearity of 0.5dB.

**RIVAL BUYS**



**MERIDIAN 506** £1,100  
Crisp styling makes this design timeless, as well as having great charm and resolving ability. The 506 is supplied with the MSR standalone system remote control.

**MARANTZ CD17KI SIGNATURE** £1,100  
Bears the imprimatur of Ken Ishiwata, Marantz's resident guru, and offers fabulously refined, articulate sound quality, although perhaps not quite the edge-of-seat involvement that should be part of the deal.

**SONY CDP-XB920** £300  
Like other recent Sonys, this one has a choice of digital filters to help fine-tune the player to the system and the music, but the main reason for buying is its unusually clean, clear and open sound quality.

**ROTEL RCD-971** £350  
One of the less expensive players with HDCD compatibility. A surprisingly refined and detailed all-round performer, this player underlines the recent turnaround at Rotel.

**MUSICAL FIDELITY X-RAY** £799  
Musical, accurate and even refined, but only erratically engaging was our test conclusion on this 24-bit (wordlength) Burr-Brown equipped player, which is packaged in the stylish X-series oval casework.

**ARCAM ALPHA 9** £800  
Player based on dCS Ring DAC converter technology and the Pacific Microsonics HDCD digital filter, the Alpha 9 offers fabulous resolving power and naturalness following early teething problems.

**TEST INNOVATOR OF THE YEAR**

Our Technical Editor, Paul Miller, has been awarded Test Innovator of the Year by *Test* magazine, the leading European journal of the test and measurement industry. This gong came in recognition of Paul's Jitter Measurement Suite, as used to test CD players for *Hi-Fi Choice*.



**CD PLAYER COMPARISON TABLE**

MAKE MODEL	ROTEL RCD-991	SONY CDP-XB930E	TALK ELECTRONICS THUNDER 3	TEAC VRDS-25X	TUBE TECHNOLOGY FUSION	YBA SPECIAL ∂
PRICE	£750.00	£299.00	£999.00	£1,000.00	£1,100.00	£695.00
SOUND	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BUILD	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
SIZE (WXHXD)	44x12.2x36.3cm	43x11.5x29cm	43x9x30cm	44.2x15.3x34.4cm	35x9x27cm	43x10.5x34.5cm
WEIGHT	77kg	6kg	5.5kg	16.5kg	7kg	4kg
RATED DISTORTION @ 1KHz/0dBFS	0.0025%	0.0025%	0.001%	0.0015%	0.006%	<0.05%
ACTUAL DISTORTION @ 1KHz/0dBFS	0.0016%	0.0014%	0.001%	0.0014%	0.0011%	0.028%
RATED MAXIMUM OUTPUT LEVEL	2.0V	2.0V	2.1V	2.2V	2.0V	20Vp-p
ACTUAL MAXIMUM OUTPUT LEVEL	2.0V	2.4V	2.2V	2.2V	1.93V	1.7V
RATED A-WTD S/N RATIO	117dB	113dB	102dB	110dB	98dB	not given
ACTUAL A-WTD S/N RATIO	116.3dB	106dB	102.2dB	110dB	85.8dB	97.6dB



# Five Stars

Paul Messenger explains why you should visit an independent

Why use a specialist hi-fi dealer? The short answer is because he knows one hell of a lot more about hi-fi than you do. And if you've gone to the trouble of picking up a specialist magazine on the subject, you're obviously interested in something rather more than a mini system from the nearest electrical superstore.

You've probably bought this magazine for one of two reasons. You're looking for advice (presumably unbiased and good) on choosing and using your hi-fi system, and/or you're checking out the ads to decide where to go and buy it.

The independent specialist dealer doesn't know everything, and he doesn't know much about you, but if music's an important part of your life, he's the only guy around who's able (and hopefully willing) to help you choose the equipment which will give you the best long term satisfaction.

## Power of the Press

Dealers sometimes moan to me about the power of the press, and the disproportionate influence of its 'Best Buy' and multi-star ratings. Well, I've been in the press for twentysomething years, and still feel more ignorant than powerful.

The more I mess around with hi-fi gear, the more I become aware of our lack of real understanding of the subtleties involved, and the more I appreciate the importance of the dealer's skills and experience, in bringing together components so that the whole is greater than the sum of its parts.

We hacks get paid to write words, often about components in isolation, because individual product reviews are still the staple diet of the press. They can sometimes provide a useful guide to the way a product performs, but only under the particular circumstances in which the review was conducted.

The hi-fi reviewer attempts, with varying degrees of success, to evaluate a particular component, and find something interesting (and

hopefully positive) to say about it. That's about the end of it, and it's on to the next product.

The magazine prints the review, and that very process magically confers a measure of authority. Experienced hi-fi enthusiasts, who read reviews over a period of years and try out various products themselves, soon start to realise the limitations of that approach. Some reviews are better than others, but none can get to grips with the real heart of the problem - whether a given product will improve your musical satisfaction, in your system and your room.

## The Role of the Dealer

The dealer's role is very different, and potentially much more valuable. He has the chance to talk one-on-one. If he's good at his job, he'll use that opportunity to find out what you as an individual are looking (or listening) for.

His motivation is very different too. Sure he wants to make a sale. That's the lifeblood of any shop. But he also knows that if something he sells really does deliver long term satisfaction, there's a very good chance you'll come back again to see if he can repeat the trick some time in the future.

If you go into a shop and demand a particular CD player, on the basis that it got seven stars (out of five) in last month's magazines, the shop will probably simply take the line of least resistance and sell it to you. (Or switch-sell you to a similar price alternative, if he's fresh out of stock of that particular flavour-of-the-month.)

If you go in and say you're looking for a CD player, and want his advice on what to choose, things are liable to become more interesting. The



# for Value

**specialist dealer if you are searching for real hi-fi satisfaction**

onus is now on the dealer to show what he can do. His first task is to ask the right questions to try and get some idea of what you might be after.

Asking the questions is the easy bit. The real skill comes in using the information to come up with a shortlist of likely contenders, and then conducting a demonstration so that you have a real chance to play a central role in the decision making process.

Putting together a successful hi-fi system might not be as difficult as it was twenty or thirty years ago, but it's just as easy to make a mess of things. Put the 'wrong' combination of components together and it'll still sound a lot better than any cute little mini system package. It might even

**"If music is an essential ingredient in your daily diet, you owe it to yourself to become a member of the discriminating minority."**

rate a five star review. But it won't match the potential of a carefully balanced and properly installed system, and it certainly won't cater for your own particular preferences and personality.

We British are notoriously indiscriminating consumers, at a mass market level at least. The majority of the population don't even bother to drive a car they're thinking of buying, never mind take the trouble to listen to hi-fi equipment.

The majority will therefore end up with hyperstore mediocrity, and hi-fi that's about as tasty as supermarket bread. But if music is an essential ingredient in your daily diet, you owe it to yourself to become a member of the discriminating minority.

You know full well that your music collection is as individual as your wardrobe, and just as precious too, so it's worth taking the time and trouble to search out the dealer and equipment

that will make that collection come alive, and give you a new buzz every time you play your favourite discs.

The independent specialist may not beat the chain store on price, but he continues to thrive in a hostile environment because real hi-fi is so much more than a matter of price. The people who work in these shops are themselves enthusiasts, often with many years of experience in meeting customer's needs, and the very necessary expertise to ensure that the whole thing is properly set up to deliver the best results.

The better the hi-fi, the more important it is to get the fine details right at the installation end of things, but even the least expensive equipment can be made to sound a whole lot better if good care is taken over the fine details - the support furniture, the cabling, the positioning of speakers and so on.

Without expert assistance even high class hi-fi can give mediocre results. With it you'll stand a very good chance of ending up with something rather more than a consumer durable - something which will be a source of considerable pleasure and genuine emotional satisfaction for decades to come.

I agreed to write this signed piece, irrespective of the specific sponsors, because I believe the independent specialist dealer plays a vital role in giving customers long term hi-fi satisfaction. The views and opinions expressed here are my own and not necessarily those of Hi-fi Choice.

Paul Messenger

*The specialist Dealers listed here are professional and enthusiastic.*

*Give your nearest a ring for a demonstration.*

## STAR QUALITIES

value for money  
service  
facilities  
verdict



### LONDON

**N1 GRAHAMS HI-FI**  
190a New North Road  
0171 226 5500

**SW11 ORANGES & LEMONS**  
61/63 Webbs Road, Battersea  
0171 924 2040

**W4 MARTIN-KLEISER Ltd**  
109 Chiswick High Road  
0181 400 5555

### SOUTH

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40 High Street  
01233 624441

**Chelmsford RAYLEIGH HI-FI**  
216 Moulsham Street  
01245 265245

**East Grinstead**  
**AUDIO DESIGNS**  
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01342 314569

**Kingston-upon-Thames**  
**INFIDELITY**  
9 High Street Hampton Wick  
0181 943 3530

**Lakeside Retail Park**  
**RAYLEIGH HI-FI**  
Dansk International Furniture  
World  
01708 680551

**Rayleigh, Essex**  
**RAYLEIGH HI-FI**  
44a High Street  
01268 779762

**Southend-on-Sea**  
**RAYLEIGH HI-FI**  
132/4 London Road  
01702 435255

**Uxbridge UXBRIDGE AUDIO**  
278 High Street,  
01895 465444

### MIDLANDS

**Banbury OVERTURE**  
3 Church Lane  
01295 272158

**Birmingham SOUND ACADEMY**  
152a High Street, Bloxwich  
01922 493499

**Leicester CYMBIOSIS**  
6 Hotel Street  
0116 262 3754

**Northampton LISTEN INN**  
32 Gold Street, 01604 637871

**Shrewsbury**  
**CREATIVE AUDIO**  
9 Dogpole 01743 241924

### NORTH

**Headle (Stockport)**  
**AUDIO COUNSEL**  
14 Stockport Road  
0161 428 7887

**Oldham AUDIO COUNSEL**  
12/14 Shaw Road  
0161 633 2602

**Sheffield MOORGATE**  
**ACOUSTICS**  
184 Fitzwilliam St  
0114 275 6048

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# HELP!

Tim Bown is here, warmed stethoscope at the ready, to cure you of all your hi-fi ills.

## QUERY OF THE MONTH



I recently bought a Pioneer PDS-505 Precision/A-300R Precision CD and amp combination for £400. At the time, I 'phoned a reputable dealer for advice and they told me to buy the NAD 524 CD player with a C320 amp instead. It would have cost the same money, but the saving I made on the Pioneer gear, together with its Best Buy status, tipped my decision in its favour.

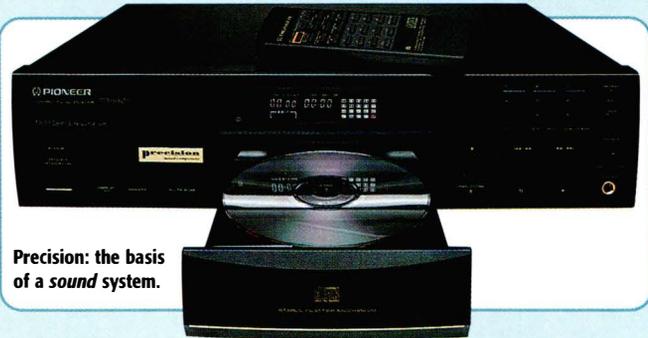
All this has got me thinking. Has the pace of technology gathered so much speed that equipment costing £860 a few years ago can be outclassed by £450-worth of more recent gear?

*J. P. McLoone, Glasgow*

The short answer is no. Your Pioneer gear forms the basis of an excellent system, still well worth the £860 it generally sells for. At £400 for the pair you've got an absolute bargain on your hands; the NAD kit makes an

### GET A GORGEOUS GREEN GARMENT!

The reader whose letter is our Query of the Month will receive one of these stylish, lovingly crafted and, dare we say it, groovy green clothing items courtesy of – well, us.



**Precision: the basis of a sound system.**

impressive entry-level system, but it can't match the depth and subtlety delivered by the two Precision components.

Certainly, the threat of competition and improvements in technology have brought ever-greater bargains to our ears. It's amazing how good a decent budget system can sound these days, but kit that really cut the sonic mustered a few years ago will still do the business today. So rest assured – there's no doubt you made the right decision.

## CARTRIDGE CONUNDRUM



After hearing a friend's Linn Sondek set-up I decided it was time to upgrade my old Thorens TD 160 record deck. I didn't have the funds to go the Linn route, so I built my own – I combined an Origin Live Standard DC motor kit with a Roksan Tabriz tonearm and my old Ortofon MC10 Super cartridge, all mounted on individual granite blocks. The rest of the system is mainly from Musical Fidelity: XLP phono stage, The Preamp, a pair of Typhoon power amps and MC2 speakers, together with a Marantz CD63II KI-Signature CD player.

Unfortunately, the turntable set-up isn't quite performing as I'd hoped. It looks stunning, and its sound is dynamic and spacious, but it's also somewhat bright and thin. By comparison, the sound from CD is warm, smooth, detailed and bassy. I think the problem is down to the cartridge – it's pretty old and worn out. Can you suggest one that will give a fuller sound for up to £200?

*Nigel Gledhill, Cambridgeshire*

It's not very often we get the chance to review cartridges these days. You see, they don't pull in the punters like they used to, which is

**“My cartridge is pretty old and worn out. Can you suggest one that will give a fuller sound for up to £200?”**

really a bit of a shame: there are still plenty of vinyl users left out there in hi-fi land, and a good cartridge is vital to their enjoyment.



**If you're able to break your budget, this Sumiko Blue Point is worth it.**

That said, we did manage to squeeze a few alongside the turntable test in our July/August issue; the results re-emphasised the vital contribution a good cartridge makes to the hallowed sound of vinyl. Of those, the one most likely to fit the bill is Sumiko's moving coil Blue Point Special. It's a little over-budget at £250, but its engaging and full-bodied sound will breathe life into your records. Contact Path Premier on (01494) 441736 for details of your nearest stockist. As alternatives, try Denon's moving coil DL304 (£200) and Reson's moving magnet Recca (£250).

## WIRING WORRIES



I used to use Cable Talk's Talk 4.1 and have since changed to Nordost Flatline II Gold, with mixed results. The new speaker cable opens music up and improves clarity and soundstaging, but it also tends to push things a bit too far forward.

I'm now looking for an interconnect that can counteract this forwardness and lack of depth, with a budget of £100. I'm looking at Supra EFF-ISL, Cable Talk Studio 2 and LAT IC-100-D. *David Sam, Singapore*

Of the three names you mention, the LAT cable is probably a little too forward for your purposes, but both the Cable Talk (£65) and Supra (£80) wires will take you in the right direction. We'd plumb for the Supra, an excellent all-round interconnect.

You should also seriously consider van den Hul's D102 MkIII (£70), a natural and even-sounding cable that should balance out the Nordost's characteristics well. Mixing brands can pay great dividends if they find synergy, but if philosophies differ it can all get a bit messy.



**KIWI KLOUT**



**I** want to improve my system, and I know my speakers can deliver more than they do right now. For that reason I'm thinking of replacing the amp – currently a Harman/Kardon HK6300. The rest of my system consists of the following: Harman/Kardon HD7450 CD player, Marantz LD300 cassette deck, Akai 4000 DS MkII reel-to-reel recorder, Sony PS 515 turntable and ProAc Studio 1 MkII speakers.

The amps that have been recommended to me are the Arcam Alpha 9, Marantz PM-17, LFD Integrated 0 and Denon PMA-2000R. It must have at least six inputs, including one for phono, and a headphone socket is a must. Also, could you recommend some good budget speaker cable? I listen to 70s and 80s rock, acid jazz and R&B.

*Glenn van der Busse, New Zealand*

Your input requirement really narrows things down – high quality amps with that kind of socketry are a little thin on the ground. Of those you mention, all of which supply the input flexibility you're after, we'd go for the Arcam Alpha 9

**Arcam Alpha 9.**

**“To open up your choice a little, don't forget you can buy dedicated phono stages and headphone amps separately.”**

(£500, above) – its sonic style makes it the one most likely to complement your ProAcs. It would also give you an effective upgrade path for the future – adding a 9P power amp (£400) to bi-amp your speakers would make a big difference with the ProAcs.

If you want to open up your choice a little, don't forget you can buy dedicated phono stages and headphone amps separately; that way you could by an amp with just six line-level inputs, and they'll do more justice to your turntable and headphones to boot. How about this: Musical Fidelity X-A1 amp (£479) with Musical Fidelity X-LP phono stage (£130) and Creek OBH-9 headphone amp? Have a listen and see what you think.

**TAKE A LEAK**



I use a 27-year-old Leak Delta 30 amp with Leak 150 Sandwich speakers and a Goldring Lenco 75 record deck (a Pioneer tuner and a Philips CD player are more recent additions). The Leak and Lenco equipment is in almost immaculate condition, but the amp has developed the habit of cutting out on the left or right channel. It seems like a minor fault, but I'm aware that Leak now exists only in gramophone heaven, and there are no spare parts. I approached a repairer in Edinburgh, but he wouldn't touch anything so old.

My quandary is, do I persevere and find someone to repair the Leak Delta 30 (which I'm quite attached to)? Or should I buy, say, a new NAD? I must admit I'm surprised at how many amps now need a separate preamp to link with a record deck.

*Jim C. Wilson, East Lothian*

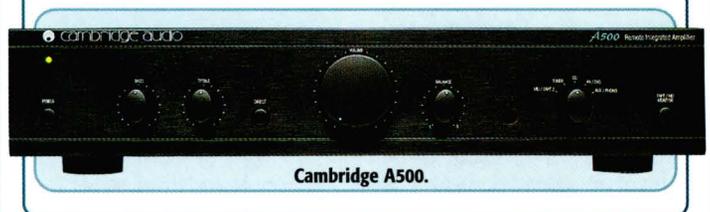
You're obviously fond of your old Leak, but it's no surprise you're having difficulty getting it repaired. Even if you do find someone to do the job, it's debatable whether the repair will be worth the money you're charged. Leak made some classic valve amps in the early

1960s, but later transistor models like the Delta 30 haven't stood the test of time so well. So perhaps it's time to bite the bullet...

As you mention NAD, we assume it's a relatively inexpensive amp you're looking for. Check out the NAD C320 (£200) or C340 (£270), or the Cambridge A500 (£200, below). If you want to spend a little more, think about the Musical Fidelity X-A1 (£479) or Audio Analogue Puccini (£450).

On the subject of separate phono stages, that's a sign of times. Fewer and fewer people require a turntable input, which demands special amplification to boost the signal from a cartridge to a suitable level. Removing an in-built phono stage is an obvious way to keep costs down, but it's not necessarily a bad thing – a good off-board phono stage will beat most integral designs hands down.

**“My quandary is, do I persevere and find someone to repair my old Leak Delta 30 amp? Or should I buy, say, a new NAD?”**



**HINTS & TIPS**



Readers with long memories may recall that, back in the early 70s, many Japanese amps were supplied with 'shorting' phono plugs – plugs with the signal pin short-circuited to ground. These plugs were intended to be inserted into unused amplifier inputs – although quite why was never explained. It was only years later that some of us realised that shorting-out unused inputs seemed to improve firmness and solidity.

One explanation could be radio frequency (RF) noise. Having lots of inputs on an amp can provide multiple entry points for any stray RF. Shorting plugs helps counter this, leading to a cleaner, more precisely defined sound. You can't buy ready-made shorting plugs, but it's easy to make your own – just get an ordinary phono plug and connect 'hot' to ground.

**SONUS FAVOURABLE?**



A couple of months back I got hold of a pair of Sonus Faber Electa Amators to complement my Michell Orbe turntable. Now I need to upgrade my amp. I listen to 60s/70s rock, classical and a smattering of jazz, and my room is 4.5x3m. Any suggestions?

*Andrew Boil, Oxford*

Your Sonus Fabers are fine speakers, and should be treated

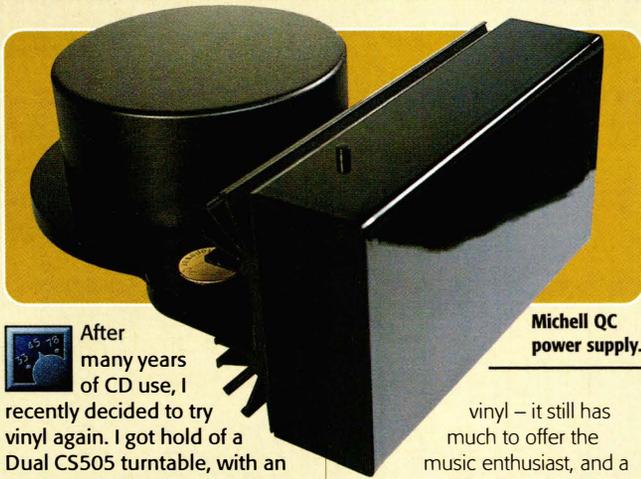
with care – they deserve top-notch amplification. If you were to put the question to Absolute Sounds, Sonus Faber's UK distributor, the chances are you'd be recommended Krell.

We wouldn't have a problem with that – Krell is responsible for some very fine amplification, and the model that best suits your budget, the KAV300i (£2,495), received a favourable review when thoroughly examined in Choice some years back.

But you should certainly try to listen to alternatives such as Lavardin's Model IT, a splendid integrated amp at £3,200. There's some unique technology under its lid, and it achieves the best of valve and transistor characteristics.

You should also check out Plinius, a brand fresh to these shores from New Zealand. We've heard impressive things thus far in terms of sound per pound, and it should match your speakers well.



**TURNTABLE TURMOIL**

Michell QC power supply.



After many years of CD use, I

recently decided to try vinyl again. I got hold of a Dual CS505 turntable, with an Audio Technica AT-110E cartridge and Musical Fidelity X-LP phono stage, and the resulting sound was really quite surprising. It gave me the urge to kit myself out with an even better deck which would really complement the rest of my system, and so I bought a Michell Gyro 'SE' with a Rega RB300 arm and Sumiko Blue Point cartridge. It sounds good, but I think there's still room for improvement.

Can you recommend a phono stage, cartridge and maybe even a PSU I can try? The rest of my system is: Audiolab 8000CDM CD transport and 8000DAC, Chord CPA-220 preamp and SPM-600 power amp, with Jamo Concert 8 speakers.

Lee Mitchell, London

Nice one, Lee. It's great to hear about people getting back into

vinyl – it still has much to offer the music enthusiast, and a set-up like yours should do it real justice. So, let's start with the phono stage. Your Musical Fidelity is a great budget model, but your set-up deserves better. Try Moth's 30 Series Phono, a top all-rounder at £249, or Michell's Iso (£400) with a Lithos power supply (£199).

We would also recommend you add an external power supply to your Gyro 'SE'. Michell's own QC supply (£399, above) makes a significant difference to the deck's sound, with real gains in resolution and dynamic expression, and adds the convenience of electronic speed change to boot.

Your Sumiko Blue Point cartridge is a great little design, and it might be worth holding on to it while you make your initial upgrades; you may find a change isn't necessary. If you do want to try something else, have a listen to Lyra's Lydian Beta (£599).

**DISCRETE REPLACEMENT**

I've owned a Rotel RCD-965 CD player since 1994, but I've been thinking about replacing it for a while – it's too clean-sounding for its own good.

I'm looking for a player in the £300-£600 region, and perhaps some way beyond if it's really worth the extra (I can always live

With a budget that flexible you've got plenty of choice, so let's start at the lower end. Have a listen to Arcam's Alpha 7SE (£350), Sony's CDP-XB930E (£300) and Rotel's RCD-971 (£350) – a very different beast to your older Rotel.

Moving up the scale, check out Musical Fidelity's E624 (£500) and Pioneer's PD-S505 Precision

**"I'm looking for a CD player in the £300-£600 region, and perhaps some way beyond if it's really worth the extra money (I can always live like a monk and save up)."**

like a monk and save up). The rest of my system consists of a Yamaha KX480 tape deck, Audiolab 8000A amp and I.P.L. S3 TLM Reference kit speakers, bi-wired with Cable Talk Talk 3.1 cable. I listen to all kinds of pop, rock and classical music, but definitely no jazz!

A. Wells, Nottingham

(£460). Audition them against the one you like best from the cheaper selection, and decide if it's worth spending the extra. If the answer is "yes", and you really fancy a life of funky monkey, have a listen to Rotel's fabulous RCD-991 (£750, below), Roksan's Caspian (£896) and NAD's S500 Silverline (£1,100). Happy listening!



Rotel RCD-991.

**MAKE YER OWN CDS**

I want to buy a CD-RW recorder, but I don't know which one to choose. I don't want to pay much more than the asking price of the Philips CDR-880. I read about that model in your Best Buys issue last year and it sounds great, but I'd like to pay less if possible. How about the CDR-765? Is it as good with recordings from both analogue and digital sources?

Glen, via e-mail

Of all the CD-RW recorders that emerged last year, Philips' CDR-880 (£499) was probably the one to own. It was well built and capable of virtually perfect copies from CD, as well as high quality recordings from analogue sources. But by the time you read this it will have been replaced by the CDR-950, which has a useful roster of additional features. It's obviously good – it featured in the EISA Awards last issue – but its

UK launch is coming later than elsewhere in Europe, so we've yet to hear it for ourselves. It should be excellent however, and at £400 it costs less than its predecessor.

The CDR-765 is also due to be replaced by a new model, set to weigh in at an even lower price (see this month's news pages). If it's like its predecessor it'll offer great value, although lacking the level of quality boasted by the CDR-950. Our advice would be: go for the CDR-950.



Philips CDR-950.

**HINTS & TIPS**

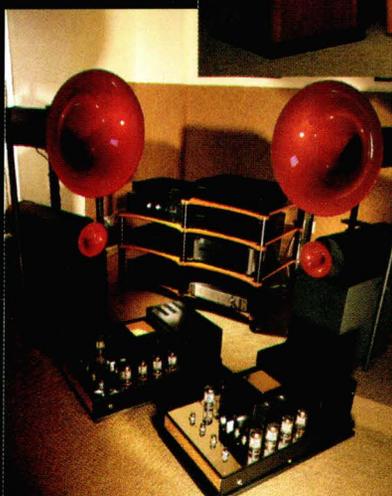
Although it's convenient to describe products like CD players and turntables as source components, the true sources of music are things like CDs and LPs. One useful if now slightly forgotten tweak is the green felt-tip pen. Putting a green line around the outer and inner rim of a CD seems to subjectively enhance its sound, making the treble seem smoother yet better focused.

The most favoured explanation is that the presence of a green line stops light scatter, helping the laser to focus more precisely. However, green penning improves CDs that have an opaque aluminumised edge – most CDs pressed by Polygram in the early to mid '80s were like this – and putting a green line around the circumference of an LP is known to improve its sound too! Just forget 'explanations' and enjoy the improvement....



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**BEST OF BRITISH**

I have a Meridian 206B CD player, Linn LP12 turntable, Exposure 15 amp and an old pair of Linn Basik speakers on Target stands. Speaker cables are Linn K20 and interconnects are van den Hul The Source AB, and my room is 9.5x11.5 feet.



Linn Keilidh: tip-top timing, taut bass.

I want to upgrade my system, but I'd like to keep my CD player and amp, which leaves the speakers and associated cables. Please advise.

*John Lennon, Hertfordshire*

John Lennon?!? Not *the...* naaaah, he's in heaven, not Hertfordshire. So, you want to replace your Linn Basiks, eh? As a starting point, why not look at one or two newer Linn designs? The Keilidh Passive should work well with your set-up, a £750 floorstander with excellent timing and taut, deliberate bass.

**"I want to upgrade my system, but I'd like to keep my CD player and amp..."**

If you want a bigger, bolder sound try the Kelly KT2 at £700, though you may find it's a little hefty for a room the size of yours. A floorstander more suited to smaller spaces is Triangle's Zephyr II, a truly invigorating speaker at £599. On the standmounting front, check out Dynaudio's Audience 50 at £577, or if you're feeling a little more flush have a listen to Jamo's Concert 8 at £1,365 – it's a cracker.

On the speaker cable side of things, it depends greatly on the speakers you eventually choose. Check out the likes of QED Qudos Silver (£5/m), Straight Wire Quartet (£8/m) and DNM LSCB500 (£12/m).

**A MULTI-CHANNEL MISSION**

I'm building a system for both stereo and multi-channel home cinema

purposes. Thing is, I'm not sure which speakers I should buy. I've heard both the Mission 77 series speaker package and Bose Acoustimass 15 system, and liked them both for different reasons. The Bose gear sounded best for home cinema, and its discreet nature is ideal for my small room (4.5x3.8m), but I much preferred the Mission speakers in stereo mode.

The shop assistant was very helpful, and told me the Missions aren't at their best if placed in the corner of the room, while the Bose speakers can be placed anywhere. On the other hand, the Missions have the advantage in terms of upgradability – they can be switched bit by bit, whereas the Bose set-up can't be separated.

Which should I go for?  
*James Harmer, via e-mail*

A classic conundrum. Putting five speakers all around the room is all well and good, but if your place is small, the last thing you want is a bunch of indiscreet black boxes littering the room. That's where Bose gear comes into its own – you can hide the little subwoofer away and hang the five tiny satellite speakers from the wall. It's almost invisible, yet the sound it makes is surprisingly large.

However, there tends to be a certain amount of compromise in hi-fi terms. The Bose set-up you mention is rather flabby in the bass and recessed in the midrange, qualities that are very apparent if you listen to two-channel music. The Mission package is more 'hi-fi' in its presentation and should certainly do a better job with music, and probably home cinema too – over time, you'll appreciate its qualities even more.

You do need to be careful about tucking the speakers into corners, but give them a foot of breathing space either side and you should be OK.



Mission: as big as they look.

**HINTS & TIPS**

Many loudspeakers make provision for bi-wiring.

But having two lengths of cable can be expensive, especially if you choose good quality audiophile-grade stuff and have long runs. So, if you're currently running a set of bi-wireable speakers with one cable but want to sample the possible delights of bi-wiring, why not buy some inexpensive solid core 'twin and earth' mains cable from your local hardware or electrical store?

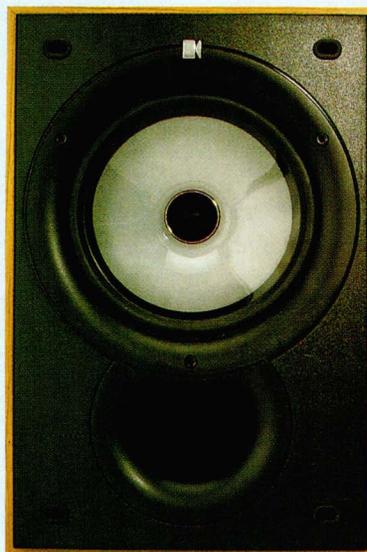
Use it to wire the bass/midrange, keeping your existing cable for the tweeter. Either the 1mm dia or 1.5mm dia 'twin and earth' cable should be fine. Hopefully, it will be an improvement over single wiring. If so, look into replacing it a better quality cable, comparable to the one you're using for the treble. But don't underestimate the virtues of 'twin and earth'; it might be cheap, but it's actually rather good!

**MY FIRST SPEAKERS**

I'm about to purchase my first stereo system, and the dealer I visited recommended I purchase KEF Coda 7 speakers with a Yamaha RXV495 receiver. He also stocks the Mordaunt-Short 200 range, KEF Q Series and Bose Acoustimass stuff. Everyone seems to have conflicting opinions and I'm becoming increasingly confused as to which to buy. Any suggestions?

*Lyn Nichols, via e-mail*

KEF's Coda 7s made a big splash in the low-cost speaker market a while back. Their big, punchy sound won many friends, delivering music in an engaging style, if not an entirely neutral one. They're still a decent



KEF's Q15: good value, great detail.

budget choice, particularly for rock and pop listeners, but if you think you might like a little more refinement and detail you're better off checking out KEF's Q Series. The Q15 is its entry-level model at £200, and it's certainly among the best at the price.

The Yamaha should do a fair job matched with speakers of this kind. But if you can, try and listen to a good budget amp like the Denon PMA-250SE (£140) or Cambridge A500 (£200), coupled with a separate tuner – Denon's TU-260L II (£130) would do a fine job. You'll end up with more boxes, but your ears are likely to thank you. Lastly, don't forget the importance of decent speaker cable like Cable Talk Talk 3.1 (£2.25/m) and stands like Atacama's SE24s (£73).

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**ROMANIAN RACKET**

How can I improve my system? At the moment

I have a Technics SL-PS770A CD player, Technics RS-AZ7 cassette deck, Sony MDS-JB920 MiniDisc recorder, Technics SU-A900 amp and JBL 160 TLX speakers, wired with Cambridge Audio interconnects and Cah Audio speaker cable. I like the sound I get, but after reading *Hi-Fi Choice* I have realised it could be better. I have around DM2,000 to spend (I don't know how much this is in your money).

*Muntean Falvius, Romania*

With DM2,000 to play with – about £700 – you can make significant improvements to your system. Assuming CD is your major source, and given that your MiniDisc recorder and cassette deck are fine examples of their particular breeds, you've got three options – CD player, amp or speakers.

Our advice is to combine two of those options and spread your budget across both amp and speaker departments. Make a shortlist of amps costing around half your budget – the Arcam Alpha 8R (£380), Marantz PM-66 KI-Signature (£400) and Pioneer A-300R Precision (£400) are three excellent options. Then do the same for speakers: if you want something compact and standmounting, check out the EISA

**Marantz PM-66 KI-Signature.**

Award-winning Dynaudio Audience 40 (£400); if you'd prefer a floor-stander, try Tannoy's Revolution R2 (£350) or Mission's 773e (£400). Listen to these amps and speakers in combination and pick the rig that suits you best – the Arcam/Tannoy combination is particularly pleasing.

While you're auditioning, it's worth listening to a couple of more costly speakers like the Neat Petite 2 (£745) and Musical Technology Falcon (£625), preferably in tandem with your existing Technics amp. That way you can weigh up the wisdom of spending your entire budget on a single component instead. And don't forget the importance of dedicated hi-fi supports – if you don't already have any, make room in your budget.

Just one final thing. If you really *are* happy with your present system's sound, and you're not sure if the new gear you audition offers benefits that equate with its price, don't be afraid to stick with what you've got. Everyone has a different level at which they obtain hi-fi satisfaction – sometimes you're better off expanding your CD collection instead.

**OUCH**

My system consists of a Rotel RCD-971 CD player, NAD C340 amp, Acoustic Energy Aegis One speakers, QED Qudos Silver speaker cable and QED Qnect 4 interconnects.

It sounds unusually bright with a hard and unnatural treble, and an upgrade from QED Qudos cable to QED Qudos Silver has only made the problem worse. I normally prefer a warm, smooth sound with detailed instruments and clear vocals.

I know the Aegis One can be bright-sounding – is it the culprit? I could spend about £300 on an upgrade, and I've been considering the B&W DM601S2. I've also considered changing my interconnects, with about £80 to spend. How about Straightwire Level 2 Chorus, van den Hul PB5 or van den Hul D102IIIHB? Lastly, could you recommend a pair of speaker stands? Kudos S50 perhaps?

*Faroq Sabir, Derby*

On paper your system looks pretty well balanced. The Aegis One can be a little bright when placed in the wrong system, but the rest of your gear shouldn't cause it too many problems. Still, there are a few speakers it's worth giving an audition if you're after a richer kind of balance. The B&Ws you mention are nice speakers and certainly not bright, although there are others perhaps more likely to perform the

specific job you require. Top of the list would be the Tannoy Revolution R2, an even and neutral sounding floorstander at £350. If you prefer a standmounter, try the £200 R1.

On the interconnect front, van den Hul's D102IIIHB (£70) is a smooth and natural cable that may improve on the occasional roughness inherent in your existing wire. And if you plump for standmounters, the Kudos S50 stands you suggest are excellent at £100, assuming you can actually find a pair. If not, check out the Atacama SE24 (£73) and Partington A-4 (£119).

**Tannoyingly good.**

**PARTNERING FIDELITY**

I bought a Musical Fidelity X-A1 amp last year, and now I feel I should upgrade my CD player (Technics SL-PG580A) and possibly my speakers (B&W DM601). My first choice would be a John Shearne Phase 7 or a Naim, but both are far too costly for me. How about the Marantz CD-6000 OSE at £300?

On the speaker side of things, I'm generally delighted with

my B&Ws. But should I consider upgrading to B&W 602 S2s or the 603 S2s?

*Julian Bedford, Leeds*

There's a test of the Marantz coming up in the next issue of *HFC*, so you might like to wait for that to find out how good it really is. We can, however, vouch for the following players: the Sony CDP-XB930E (£300) and Arcam Alpha 7SE

(£350), both of which come up trumps in this month's Mega Test. Either would slot well into your system – give them a listen and see which you prefer.

Now for your speakers. Don't do anything just yet; wait until you've upgraded your CD player and heard how much difference that makes. If you do decide to check some new models out, by all means listen to the B&Ws you mention, although the DM602 S2 may be too close to what you've got to warrant the outlay. Why not give a good listen to the Tannoy Revolution R2 (£350) and Mission 773e (£400) floor-standers, and Dynaudio Audience 40 (£400) standmounters.



**Sony CDP-XB930E.**

**HINTS & TIPS**

When you make changes to your system, either by upgrading a component or tweaking something, sometimes a previously successful tweak or upgrade no longer represents an improvement with the new arrangement. For example, you decide you prefer a particular interconnect cable over another because it makes the treble smoother and more natural sounding with your existing CD player.

However, changing CD players to one that sounds smoother and cleaner may mean the cable you once rejected as too bright is now preferable! Most people have neither the time nor the inclination to re-test every decision they made. Just be aware that making changes to a system can radically alter the way it behaves with components. Sometimes your preferences will alter in ways that are wholly unpredictable. Which is all part of the fun!

# MARKS of distinction



display intensity of all components when the display of one is adjusted, full system power switching using a power switch or simply by operating a source component, controlled fades between components and more. All of this is done using software stored on EPROMs, and so shouldn't impact on sound quality, and the instructions can be updated on new series components using a PC or the Internet. There is also an AMX Phast interface for more sophisticated home automation purposes.

The preamp itself is fully remote controllable, and is also extensively programmable. Each input, for example, can be associated with one of up to 20 names which are shown in the LED display, and each input can be offset to ensure volume levels stay constant when switching between them, which is important with balanced inputs, which have 6dB more gain than unbalanced.

In addition, 'favourite' volume levels can be set for each input, and muting level can be adjusted from 0-60dB, and there are two tape monitor loops, which can be assigned to any inputs. Volume is adjusted using a multi-turn optical shaft

encoder which works with a precision resistor network controlled by DSP, this provides 0.1dB steps over much of the volume control range, and comparable channel tracking at all levels. There are four unbalanced and two balanced (XLR) inputs, all at line level, and the power amplifier can be driven in either mode.

Internally, the audio signal path is short and, although exacting, its design is simple but doubled up as all inputs are converted into balanced form and kept that way throughout. Most of the circuitry is power supply-related or concerned with housekeeping, with extensive screening around the power supply and volume control, and with a rational layout. Power, for example, is applied from underneath using a right-angle



## Alvin Gold does puts the latest in a long line of Levinson amp combos through its paces.

The story so far: b. 1971 or 1972 (depending on how you define start dates), and the progeny of Mark Levinson. The first product was the John Curl-designed JC1 preamplifier which like all subsequent products can still be serviced and updated. ML was and remains a high end, minimum compromise brand, principally of amplifiers.

MLAS (Mark Levinson Audio Systems) was incorporated in 1975/6, and eventually filed for Chapter 11 protected insolvency in 1985. The following year the brand was bought by Sandy Berlin, and the company name changed to Madrigal Audio

Labs, which was Sandy's company and the distributor for MLAS.

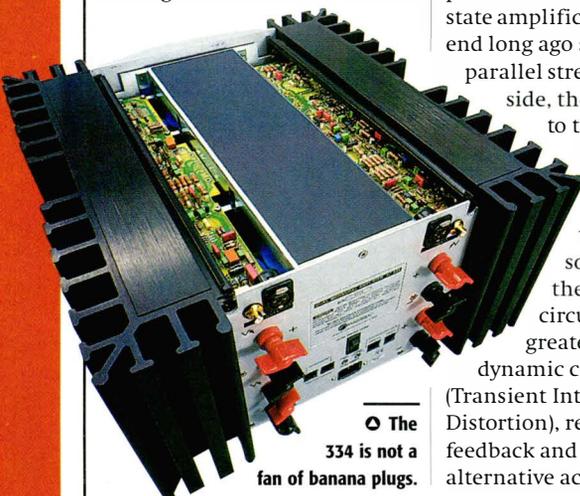
In 1995, the company was acquired by Harman, and it has since become the nexus for its high-end activities, alongside Proceed (essentially entry-level MLAS internally, but built into simpler boxes, and covering a broader range of products), Revel (Sandy Berlin's speaker brand) and Audioaccess (multi-room and home automation).

Having recognised the problems endemic with solid state amplification, the high end long ago split into two parallel streams. On the one side, there was a retreat to the previous era of valve power. The other side remained with transistors, and sought to improve them with better circuit topologies, greater attention to dynamic criteria such as TID (Transient Intermodulation Distortion), reductions in feedback and the use of alternative active devices

such as MOSFETs. Mark Levinson belongs to the second school. Its designs are solid state, and an examination of the components shows a readiness to use sophisticated electronics for monitoring and other housekeeping tasks.

The pre and power amplifier on test here – the No 380 line-level pre-amplifier and the No 334 dual mono 125 Watt/channel power amplifier, which cost £9,490 in combination – can talk to each other in various ways, for example using plain wire links or RJ-45 links for more sophisticated operations. Both methods allow standby/operate switching, allowing linked use of one or more power amplifiers by simply operating the preamplifier.

There are no benefits to the use of RJ-45 datalinks in a system with just the pre and power amps, but a complex system linked this way allows a variety of unusual functions. Including the tracking of



○ The 334 is not a fan of banana plugs.

IEC connector, so the mains appears internally exactly where it is needed.

The 334 dual mono power amplifier is a similar deal, again with a simple audio circuit, complex housekeeping and comprehensive protection through monitoring of the mains input signal, audio input (up to 2V of DC can be accommodated for preamps which are badly out of kilter), speaker terminals and the temperature of the heatsinks.

The amp is designed to be stable into low impedance loads – stable meaning no current or voltage limiting, and no change in sound quality; and low impedance means one tenth of an Ohm, no matter how capacitive or inductive. If it is as good as its word, the 334 should be able to drive several pairs of the original one Ohm Apogee Scintilla ribbon speakers in parallel, and it is also said to be an exceptionally good match to Quad and Martin-Logan electrostatics.

So MLAS is no routine hairshirt minimalist high-end operation. You don't get tone controls, filters or headphone sockets, but there are plenty of high-tech components inside. This extends to the audio circuits themselves, which are executed using high grade components – although not as high grade in the 3380 preamp as in the more costly 380S, for example, and in neither case as uncompromising as with MLAS's Reference series, where a pre/power amp combination will set you back about £75k.

**SETTING UP**

I had a certain amount of hassle getting everything up and running. The power amp is obscenely heavy, despite its modest 125 Watt/channel power rating and, as usual, the side-mounted heatsinks are all sharp edges – ideal for sundering skin from bone. Until I received the instructions, I also had trouble getting the three-mode power-switching sussed, and for some time I was unable to get the power amp running at all, except by accident.

You'll need spade terminals (or suitable adaptors) to make use of the bi-wire speaker terminals clamps – 4mm plugs just won't do, and bare wire connections aren't a good idea. Once you get used to it, the

**“The heatsinks are all sharp edges – ideal for sundering skin from bone.”**

control system for the preamp is straightforward, but it feels idiosyncratic at first. It's quite an experience. And then there's the running in, for which the maker recommends several hundred hours, which may be more than some people will use the amp in a whole year.

**SOUND QUALITY**

The MLAS amplifier followed some exotic alternatives (notably Pass Labs) in my system, which for this test included a Linn Sondek CD12 and a pair of B&W Nautilus

802s. To describe how it sounds, I'd like to dwell briefly on the differences between solid state and valve power, since not only is Mark Levinson a solid state brand, but I quickly sensed that it isn't trying to emulate the sound of valve circuits either.

This isn't to demean little glowing bottles, or the simple, elegant and proven circuit topologies that valves facilitate, but it seems MLAS was striking out for something different, more cool-headed and finely disciplined. I can't recall any valve amp that didn't put some kind of decoupling between the source and the load, but here the effect was incredibly taut and controlled, yet without any sense of constriction.

After using the amplifier for some hours, which is normally more than enough to form some sort of mental picture of what's going on, I realised that I was as far from being able to pin down how the combination sounded as I was when it was first switched on. In one way I'm not that much wiser now – despite distorting the copy deadline to an extent that must have had HFC's long-suffering production staff tearing their hair out – but I was able to form a strong, although I would not claim complete, picture of its musical abilities.

The most obvious audible feature of the test system was the highly consistent and integrated performance of the Nautilus 802 speakers, which have always sounded like two speakers in the past – a fabulously good mid and treble, with a bass section that struggled to keep pace. By any standards, this is a tough speaker to control (although not as difficult as the Nautilus

801, which would need a bigger amp even than the 334). It reflects credit on the 334's ability to get the load to sing from its songsheet rather than do its own thing. With the B&Ws, give 'em an inch and they'll take a mile.

Otherwise, the combination is hard to hear at all. Somehow the impression of fine, filigree detailing that



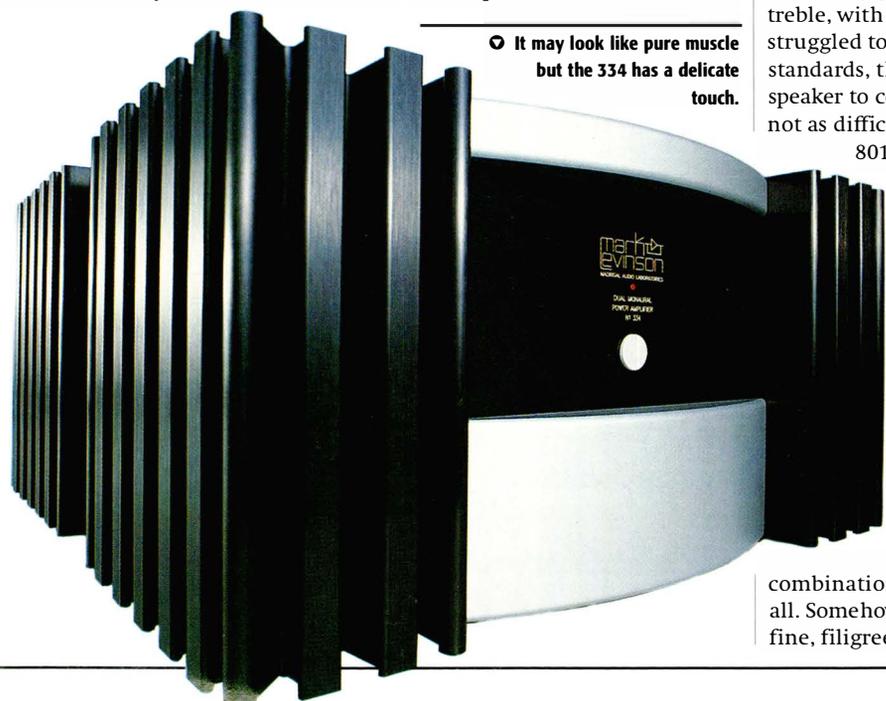
hangs in the air with many high-end amps is not as obvious here as with some combos, but the midband is significantly more subtly three dimensional and tonally colourful than expected.

In many ways, the amplifier sounded like a much smaller, but very high grade amplifier, with a level of subtlety and refinement usually missing from big muscle amps. But make no mistake: this is a big muscle amp, as a playthrough of the Sinopoli/DGG Mahler 10 *Andante and Adagio*, which has an enormous dynamic and tonal range, quickly showed. It wasn't just that the system coped with this recording that was impressive so much as the utterly compelling way in which it did so. It was the music that came through rather than any feature of the system, and it is the system's ability to let music tell its own story without obvious intervention – that defines the qualities of the music-making experience, and by extension that hardware that was used.

**CONCLUSIONS**

As the distributor suggested to me after I completed testing, there's a weight and warmth in the midband that is really quite special. To this I would only add that it is applied with a velvet glove, and not a trowel.

It may look like pure muscle but the 334 has a delicate touch.



**VERDICT**

**SOUND** ★★★★★

**BUILD** ★★★★★

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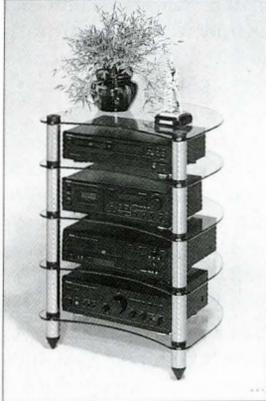
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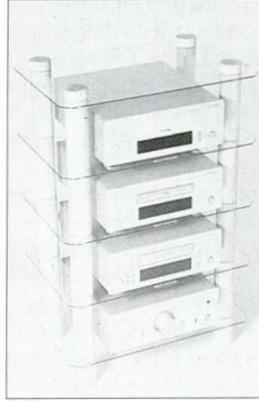


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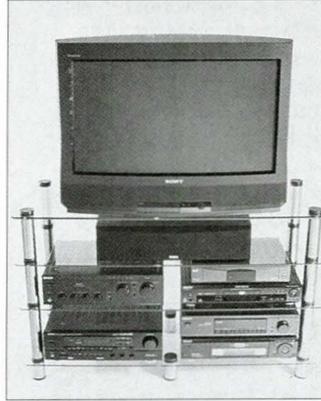


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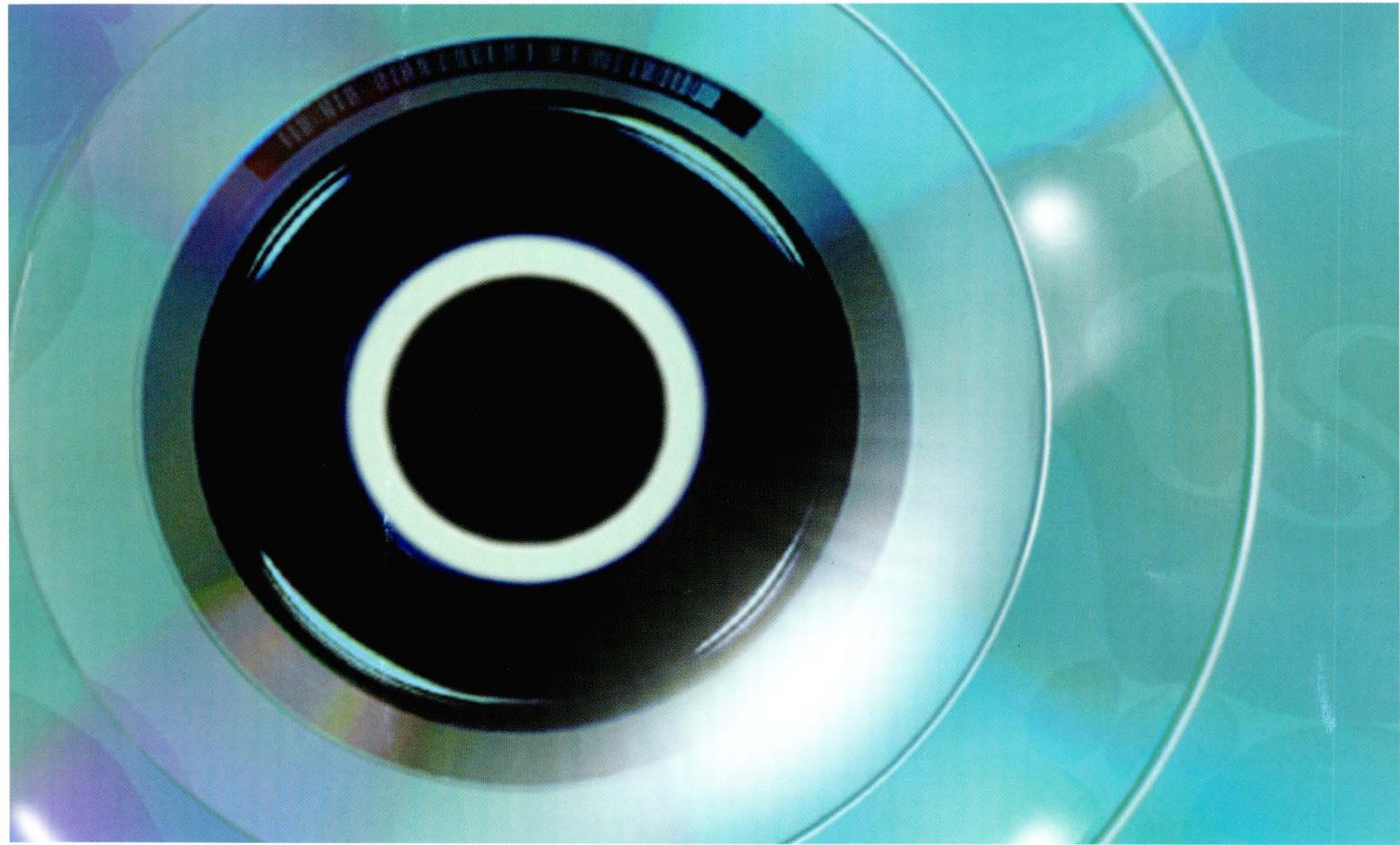
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Katsuaki Tsurushima, head of Sony's Super Audio Business Centre



## New age carrier re-invigorates audio industry



The success of the compact disc (CD) has been staggering, with some 600 million players and over 12 billion CDs manufactured worldwide. Now, Sony and Philips – the same team that gave us the CD – have introduced a new generation, high-definition audio carrier called Super Audio Compact Disc (SACD). A whole new approach to recording and playback, SACD quite simply redefines high-end audio performance.

We spoke with Mr K Tsurushima, worldwide head of the Sony SACD division, about this new format and its value to the audio industry and the audio enthusiast.

### Why replace compact disc?

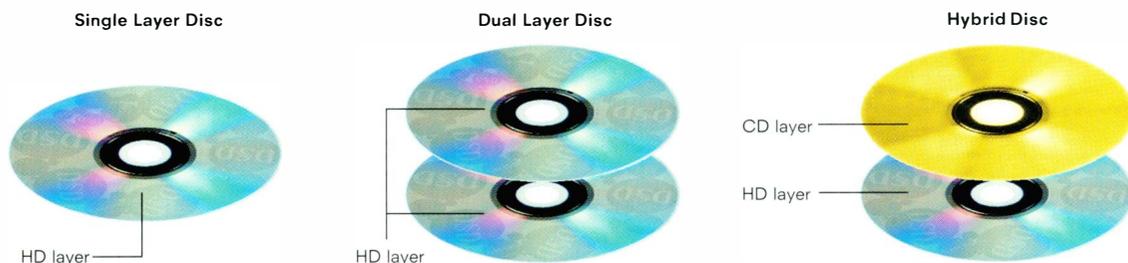
We are not seeking to replace CDs. It is an incredibly successful system and we feel great loyalty to our CD customers. But there is a lingering perception among many audio connoisseurs that analogue audio systems continue to outperform digital systems. And record

companies are constantly striving for higher sound quality. SACD is both an evolutionary and a revolutionary development that meets these demands.

### How can you be certain it meets all the needs of the music industry?

Simple – because we have sought and

received the industry's input throughout the SACD development process. The International Steering Committee (ISC) – set up by the Record Industry Association of America, the Record Industry Association of Japan and the European International Federation of the Phonographic Industry – feels that any new



# PSP

Pit Signal Processing

Using a newly developed technology called Pit Signal Processing (PSP), each SACD has an invisible watermark that protects consumers and artists against illegal copying. In addition, a visible watermark in the form of a text or image can be imprinted on the disc. This ensures that you will always have original versions for the best sound possible.



high-density audio disc should provide the highest sound quality, support both stereo and multi-channel surround sound formats and be compatible with existing CD players and discs. Also, it should offer an extra data area for multimedia content and provide copyright protection and anti-piracy measures. SACD is the only format that meets every ISC stipulation.

#### But what about the people making music?

We've been working very closely with many of the music world's key engineers and producers in the development of Direct Stream Digital (DSD), a revolutionary recording technology that forms the heart of SACD. This informed feedback has played a central role in the development and refinement of DSD and SACD.

#### Is SACD really that sophisticated?

Yes – SACD is a new concept using several new technologies. The core is DSD – a one-bit recording platform that samples the audio signal at a rate some 64 times higher than CD. This creates a fantastically wide dynamic range and unprecedented bandwidth. The superb recording quality faithfully reproduces every nuance of the original performance. SACD also uses the latest develop-

ments in visible and invisible watermarking and data encryption to protect the consumer from piracy. This means that when you buy a disc, you can be certain that it is the real thing.

#### So how can this sophisticated technology be CD compatible?

SACD offers a very simple solution. The format specifications outline three disc options, including a hybrid disc which provides full CD compatibility. Each disc variation has advantages for different recording projects – the choice is made, project by project, by the record company.

Quite simply, your current CD collection will play on the new SACD player, at CD quality, and a hybrid SACD disc will play on your CD players as well as your SACD system.

#### Are there any restrictions on who can work with SACD?

Not at all. SACD is open to all existing "Red Book" CD licensees. Our aim is its acceptance as the music industry standard, in much the same way as compact disc. And we're delighted with the already high level of interest in SACD by equipment manufacturers, artists, studios and record companies.

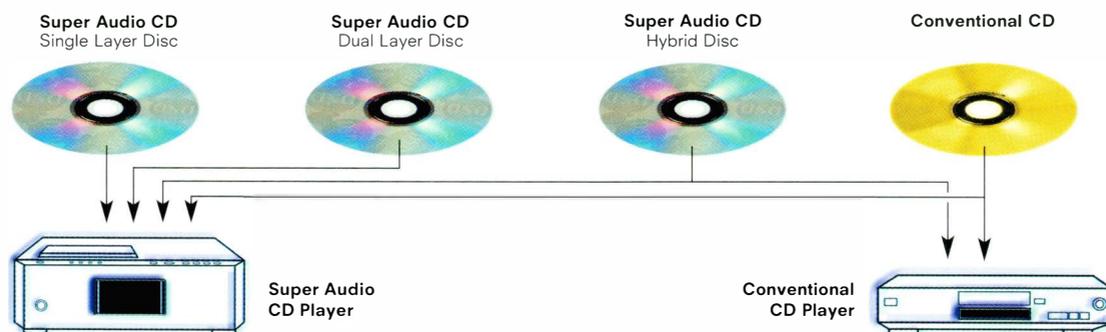
On the equipment side, both high-end and mass market HiFi systems manufac-

turers are working with the format. Companies such as Accuphase, AIWA, Burr-Brown, Denon, Kenwood, Krell Industries Inc., Marantz, Nakamichi, Onkyo, Philips, Sharp, Sony, Teac, Wadia and Yamaha have expressed a serious interest in the SACD format.

Just as important, many software providers are recording, editing and mastering SACDs. Sony Music Entertainment Japan supported the launch in Japan with an extensive catalogue of SACDs. At the same time Nippon Columbia is producing a series of hybrid SACDs from its Denon Classic Series. Many more record labels are also supporting the launch in Europe.

#### How do you see SACD developing in Europe?

SACD is gathering momentum. The sheer quality of the audio is addictive to any audiophile. Market feedback from Japan, where it was launched earlier this year, is very positive. We see the same potential in Europe. Once established as a superior quality, high-definition listening platform, it will become a standard feature of our mainstream HiFi systems in much the same way as CD is now.



## SACD – superior audio technology developed out of experience

### Direct Stream Digital DSD audio technology

2.8224 MHz sampled 1-bit audio for 100 kHz frequency range, more than 120 dB dynamic range within the audible (frequency) range and a pure waveform very closely resembling the analogue original.

**DSD**  
Direct Stream Digital

### SACD provides backwards and forwards compatibility with CD

SACD offers three disc variations, including a hybrid disc which can be played by SACD players and standard "Red Book" CD players.

### Sony's top London studio fits DSD Mastering & Editing

DSD Mastering and Editing at Whitfield Street Studios is hailed for its high standard and ease of use.

### SACD ensures complete copyright protection

Mandatory invisible watermarking; optional visible watermarking; and optional encryption protects copyright holders against unauthorized copying and piracy.

### Many record companies produce SACDs

Since the launch, many leading record companies, including key audiophile labels and multinationals have started producing SACDs.

### Sony launches new state-of-the-art amplifiers and wide-range loudspeakers to optimize SACD playback.

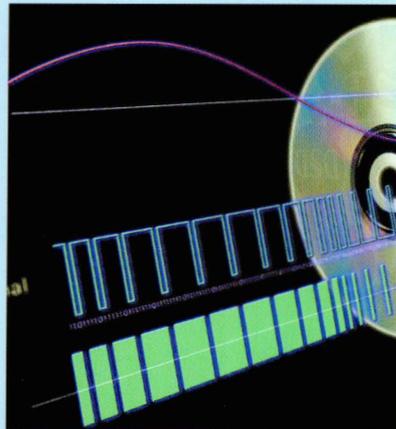
SACD launched in Japan on 21st May, in Europe on 27 August and in North America on 31 August.



SCD-1

Sony SCD-1 is the world's first Super Audio CD player, providing Super Audio CD and conventional CD playback.

## Preview Part 2: SACD Key Technologies



- Interview with David Walstra, head of the Sony SACD business team in Europe
- DSD technology: the details of high end digital recording
- Super Bit Mapping Direct: applying new technology to an old format
- Opening up the possibilities of stereo and multi-channel sound on one disc

## Part 3: SACD Software

## Part 4: SACD Systems

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Weybridge, Surrey, KT13 0XW

# SONY

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<http://www.sony.co.uk>

# KING of Tape

**Richard Black** heads for the hub of the cassette deck action.

**T**he King is dead. Long live the King! Or something like that. After all, Nakamichi was in most people's minds the King of cassette deck manufacturers until the brand's unexpected departure from the hi-fi scene a few years ago. But lo and behold, a bit of repositioning and restructuring later it's back. And although the firm's product line-up is different in most ways from the old one, this deck is in fact no more and no less than a revived DR-2 (see *HFC 127*, if your collection goes back that far).

Now, a model that's been around for that long might sound like a throwback, but Nakamichi has always done things its own way and in terms of features this isn't so much a throwback as a dinosaur. Automatic tape type selection? Ha! Only for wimps. Dolby S? None of your fancy modern tricks here, thank you. Motorised loading door? Actually, I'm perfectly happy to see that absent – it's just another thing to break.

But you'd think it could at least have had an 'Auto' tape type switch position. And ergonomically there must be better places for the tape eject button than next to the power switch. One final beef – the metering is rather coarse and lacks a Dolby level marking, making correlations with other decks impossible. Oh, and the counter isn't real-time.

However, what one really looks for in a Nakamichi is cutting-edge performance, due to the brand's famous (and patented) 'Discrete Head Technology'. Plenty of cassette decks nowadays have separate record and playback heads, but

in all other makes they're 'siamesed', squeezed together in unholy union. Nakamichi invented a way of fitting truly optimised heads into a small space, which for years gave its decks a near unbeatable advantage – coupled, of course, with the brand's consistently fine transport mechanics and good audio electronics.

Good, but not great – a glance inside the DR-10 reveals the sort of rat's nest, complete with very commercial-looking circuit board and components that tends to adorn tuners, amps and the like at the low to medium end of the market.

Nothing remotely tweaky is in evidence, but then, much the same applies inside any of the competition. Bucking the trend of recent years for separate motors for each of the (two) capstans, Nakamichi uses

**“The dynamic range on offer is about as good as it gets from cassette, and energetic music can really bounce and sizzle along.”**

just one with belt drive to a pair of chunky flywheels. There's no devastating argument for either system, but one built this well is likely to give top performance.

## SOUND QUALITY

Listening to a cassette deck in source monitor mode can be revealing. In this case, it revealed that the audio electronics are far from imperceptible. Compared with the original CD or LP source,

there was a little coloration added, a shade of 'quack' in the upper midrange, together with some veiling of details. In that context, the DR-10's performance on and off tape becomes all the more remarkable. At best (and always assuming that one has taken some care to set the bias for most natural treble) it retains a most commendable portion of the source's life and energy.

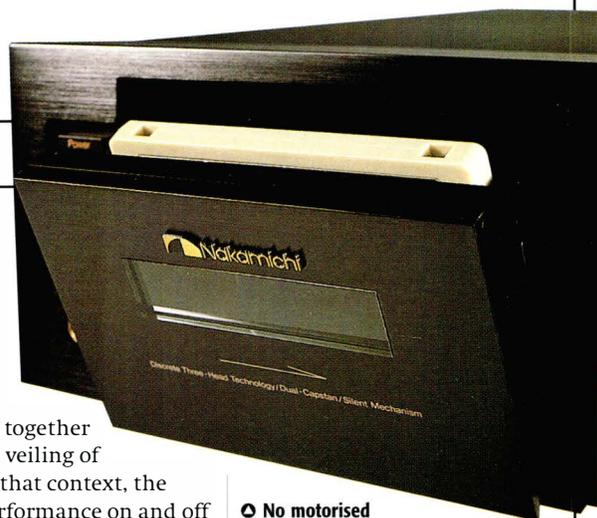
Noise is quite low and headroom very good, so the dynamic range on offer is about as good as it gets from cassette, and energetic music can really bounce and sizzle along without either detail-killing hiss or compression. Pitch is always beautifully stable.

Where this deck fares less well, like all others I've tried (including the all-singing Pioneer CT-95 I own and use as reference), is with classical and other all-acoustic music, where the greater dynamic range and lower levels of treble make hiss more of an issue.

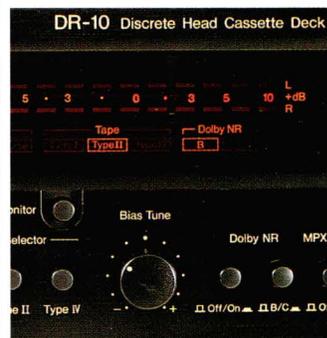
Here, use of Dolby noise reduction becomes much more beneficial than with electronic and/or close-miked material and, although Dolby B is very well set up and reduces hiss markedly (Dolby C, as so often, seems less successful), the sound still suffers a noticeable loss in precision and focus.

## CONCLUSION

It's clear that, whether replaying previously recorded tapes or making new ones, this deck gives performance in the front rank of cassette decks,



- No motorised door: one less thing to break.
- Don't go looking for that newfangled Dolby S thingummy – it isn't there.



with only a tiny handful of competitors – the Pioneer CT-95 just betters it, but at a slightly higher price.

Perhaps the real question, though, is whether to bother, or to opt instead for MiniDisc or CD-R. If you have piles of tapes you've accumulated over the years that's not an issue, but my feeling is that for new recordings MD, although not perfect, has much to offer – especially for classical music. With much pop, on the other hand, MD fares less well and cassette better. Meanwhile, CD-R arguably does better than either, but it's a pain to use. Do check out the DR-10, but it seems likely it will sell best to existing cassette fans.

## VERDICT

<b>SOUND</b>	★★★★☆
<b>BUILD</b>	★★★★☆
<b>VALUE</b>	★★★★☆
<b>PRICE</b>	<b>£799.99</b>

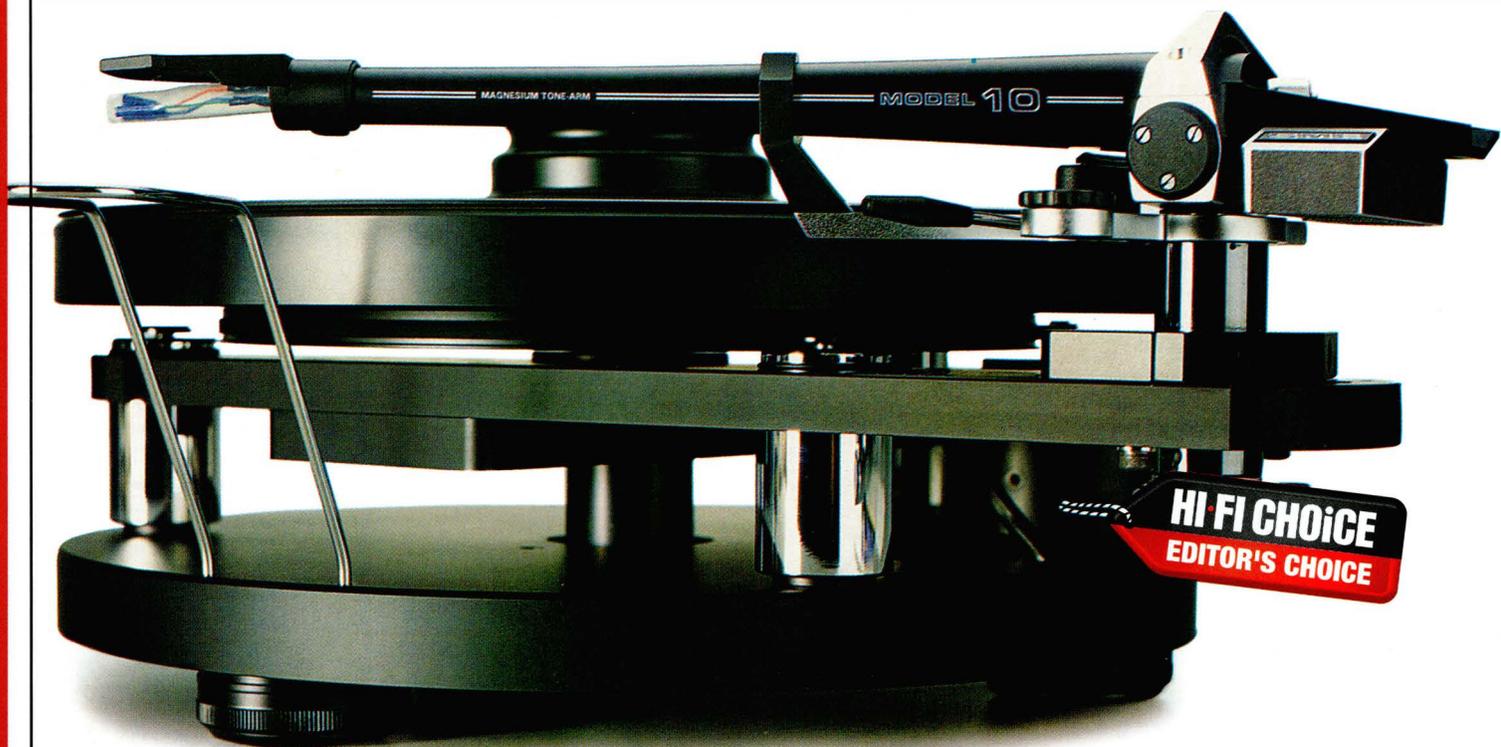
■ An ergonomic oddity, but one of the last of the great cassette decks nonetheless. Worth considering against MD.

### ■ TWO YEAR GUARANTEE

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# YOUR STARTER for Ten



**S**ME isn't a hi-fi manufacturer, it is a precision engineering company that happens to make hi-fi. It made its name as a hi-fi company in the industry's halcyon days by producing the finest tonearms in the business. And it was the process of creating and perfecting tonearms that led SME into the precision engineering business that is its mainstay today.

To have such a company expending time and money producing beautiful turntables and arms is a luxury indeed. The level of precision required

## Jason Kennedy marvels at SME's latest example of engineering excellence.

for the contract work that sustains SME makes the manufacture of turntables and arms look like child's play, but having a Rolls-Royce-plus capability means the standard of engineering is considerably finer than you're likely to find with other brands. A walk around the factory reveals that other hi-fi manufacturers realise as much – components are made there for some of the biggest names in the business.

If it were solely a matter of profit, SME wouldn't be in the hi-fi business any more, but luckily its proprietor, Alastair Robertson-Aikman, is a bit of an enthusiast. So much so that he had a substantial listening room built onto his house that has twice appeared in these pages and which currently houses two pairs of heavily braced Quad ESL63 speakers, Krell, Audio Research and LFD amplifiers and the new Model 10 turntable.

This is only the third model that SME has made in its forty-plus year history. Admittedly it didn't start with turntables until the 80s, and the previous models have been refined in recent times, but it's still a momentous occasion. The Model 10 is SME's 'entry-level' model and has a matching

Model 10 tonearm, the combination retailing for more than £3,000.

Not the sort of price usually associated with entry-level kit, but when you consider that the next model up, the 20, costs nearly £5,000 with arm, and you take into account the quality of the

engineering that has gone into its manufacture, you realise that it represents good value.

The design of the Model 10 is quite unlike its Model 30 and 20 forebears, which were essentially variations on the same theme. The 10 has some aesthetic similarities to Wilson benesch's Circle deck with its circular base and protruding arm board, but its construction is quite different. It uses a T-shaped subchassis supported on low compliance isolators, the latter use a sorbothane-like material of the same variety you find in Deflex damping products and which has impressive isolation and damping properties. The same material is used for the three adjustable feet that support the chassis, so there's no chance of this deck sliding around, even if you want it to. The feet are all there is to adjust when setting up the deck, there are no springs to balance and all you need for the job is a spirit level.

Like other SME designs, this turntable features a threaded centre spindle and matching record clamp, an element which its designer feels confers considerable sonic advantages. Where this model differs is in having a one-piece clamp that simply uses an O ring to avoid damaging the record label.



◉ SME produces arguably the finest tonearms in the business – which is why they'll cost yer.

The platter is driven by belt from a motor unit that will be familiar to users of the Model 20, this being controlled by an eight-bit micro controller in an outboard power supply. The latter is a significant upgrade on previous designs by virtue of having upward-facing switches, thus requiring less familiarity to operate. Speed is crystal referenced and facilitates the usual 45 and 33.3rpms – you have to spend a bit more if you want to play shellac.

Neat features on the Model 10 include a stylus guard rail to keep flailing limbs away from expensive needles, and an arm base that's pre-cut to accept Rega/Kuzma, standard SME and new Model 10-type mountings.

The new arm is a variant on the popular Model 309 theme with the same detachable headshell and counterbalance. In this case augmented by a threaded tube which combines with a supplied screw to allow precise VTA (vertical tracking angle) setting through arm-height adjustment.

Where it differs from the 309 is in the magnesium arm tube as found in the range-topping Series V, but costs have been controlled by the use of a base which is simplified but nonetheless allows traditional SME alignment by fore/aft sled-style movement. Anyone familiar with the dying art of cartridge alignment will testify that the SME system is a superb design. The Model 10 variant isn't quite as glorious, but it's nicer than most alternatives.

This is the first tonearm I've used with a removable and twistable headshell, and thus the first time I've checked the uprightness of the needle on the record with the aid of a mirror – an alarming process that suggested in two instances a headshell which is parallel to the platter is not necessarily

correct. Or, to put

it another way, both cartridges used required a bit of headshell rotation to get the tip to stand upright in the groove – an adjustment few arms allow.

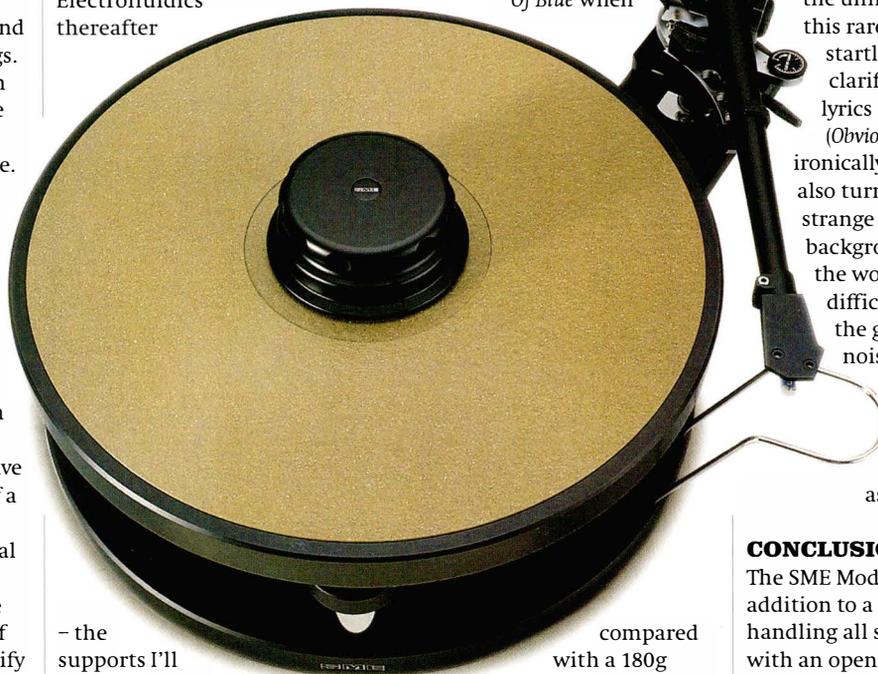
#### SOUND QUALITY

The cartridges employed for this assessment were a Wilson benesch Carbon and a recently rejuvenated van den Hul Grasshopper IIIIGLA (complete with tip once more!) Elsewhere in the replay chain were DNM Start and PA3S amplification, a Michell Iso/Lithos phono stage and Living Voice Avatar speakers. Cables were vdH on the Model 10 with DNM and Electrofluidics thereafter

brought out the age of the recordings as well as the leading edges of notes.

It's clearly a nimble deck and isn't phased by complex material. What's more, bass power is not in short supply. Massive Attack's bass-heavy *Angel*, for instance, had me transfixed with its darkness and presence.

It has a bit of a penchant for reverb and other elements of acoustic space, revelling in the natural echo from Zakir Hussain's tabla on *Making Music* and picking up the lack of stereo focus on a less impressive print of *Kind Of Blue* when



– the supports I'll go into shortly.

I've been using an SME Model 20A for some time now and have become so familiar with it that I no longer hear it – not that there's much to hear. So the Model 10 was up against tough competition when it first took over the record playing mantle, but its limitations are very skilfully disguised and all I really missed of the 20 was its bottom-end power – a factor, no doubt, of the lighter platter and less compliant suspension on the Model 10.

Initially I made a couple of comparisons with CD – an odious pursuit indeed, but one which revealed the deck's light, open and relatively forward character. Using polycarbonate and vinyl from Classic Records' DAD series revealed the 10's impressive detail-scouring skills, which

compared with a 180g Simply Vinyl alternative.

The results of this test were gleaned for the most part with the 10 on a Townshend Seismic Stand, a support that isolates components using pneumatic suspension, and clearly makes life easier for anything that's placed upon it. So to give the deck's suspension a sterner test, I placed it on the carbon fibre top shelf of a Wilson benesch Asside support.

Here the close proximity of medium-sized loudspeakers standing on wooden floorboards rather undermined the 10's performance, particularly in the bass, which lost its precision, and in the midrange which hardened up.

This is a fairly common result when making such a transition, but served to reveal the limited scope of the Model 10's suspension. Clearly with more solid floors or greater distance between deck and

**"It's a nimble deck and isn't phased by complex material. What's more, bass power is not in short supply."**

speakers this limitation would not be an issue, but it's something to bear in mind if circumstances are restricted.

Switching cartridges over to the heavy, open-bodied Grasshopper was an extremely rewarding exercise, the

resulting coherence and clarity easily supporting the unhealthy price of this rare needle. One

startling result was the clarification of rap lyrics on one track (*Obvious* by DJ Vadim, ironically enough) which also turned out to have a strange gong in the background – previously the words were too difficult to discern and the gong just a strange noise. Proving that

the 10 is more than a match for cartridges costing as much as the deck itself.

#### CONCLUSION

The SME Model 10 is a welcome addition to a very fine range, handling all sorts of material with an open and persuasive balance that encourages you to keep on listening and hunting for more vinyl (it is out there by the way). As well as being stylish it's ridiculously well made – so forget your BMWs and your Lexii. This is Rolls-Royce Aerospace grade hi-fi and it's a bargain at the price.

#### VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

**VALUE** ★★★★★

**PRICE** DECK £2,643.75

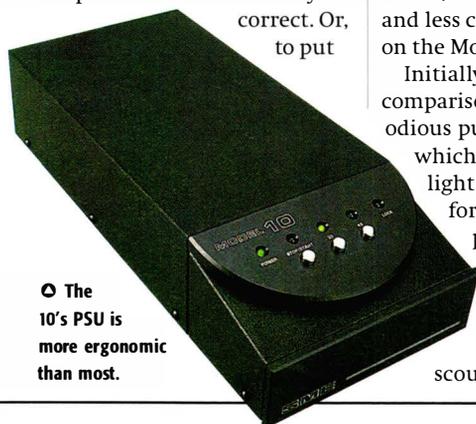
● TONEARM £689.33

■ A beautifully made deck that warrants the asking price in engineering terms alone, needs good quality support and fully warrants the finest ancillaries to give of its best.

■ ONE YEAR GUARANTEE

✉ SME Ltd, Steyning, Sussex BN44 3GY

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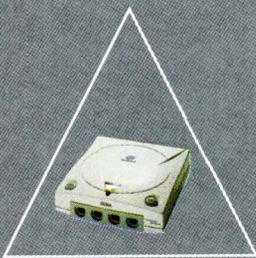
○ The 10's PSU is more ergonomic than most.

# Global

## Cross-cultural

# Psychotic

## fight sc



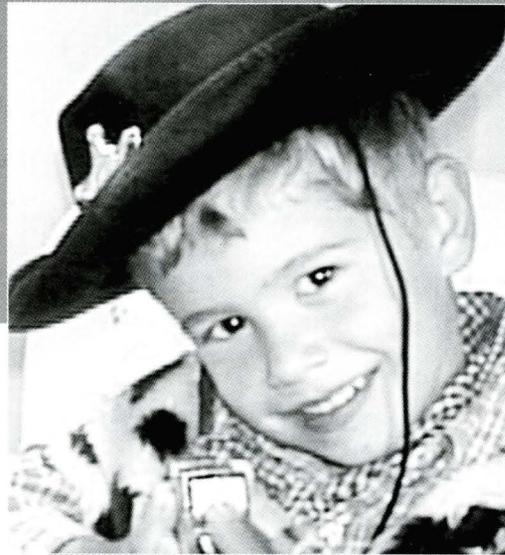
Interacting with the big world out there is all part of the fun with the new Dreamcast console.

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the most powerful console ever, with a whopping great 128-bit processor that can graphically render fights and car chases in crunchingly realistic detail. Dreamcast, the new force in gaming.

Schizophrenic? Hell, yes.

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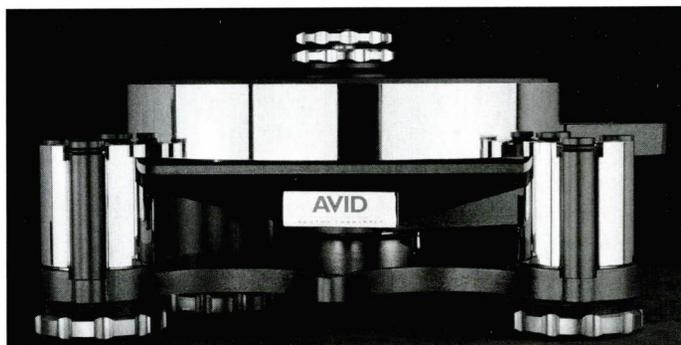
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Naim 72 pre-amp	£ 300	(£ 745)
Naim CD2	£1000	(£2000)
Naim CDS	£1700	(£3940)
Notts.Analogue Mentor Tonearms	£ 400	(£800)
Notts.Analogue Mentor Turntable	£ 1900	(£2600)
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Musical Fidelity A2 Int. amp ex-dem	£ 380	(£500)
Musical Fidelity A2 Int. amp NEW	£ 400	(£500)
Mana Soundstage - base	£ 100	
Linn Isobarik Stands - per pair	£ 40	
Living Voice Auditorium - Cherry	£ 950	(£1500)
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Impulse H2 loudspeakers- Mahogany	£1000	(£2500)
Impulse Taus - Maple	£1250	(£2700)
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Carver Platinum loudspeakers	£ 600	(£2700)
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<i>just fully serviced</i>		
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AudioNote ANV i/connect 2m	£ 250	(£ 500)
Voyd Turntable - Ash	£ 850	(£2000)
Voyd Turntable - Mahogany	£ 850	(£2000)
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Michelle Synco Turntable RB 250	£ 170	

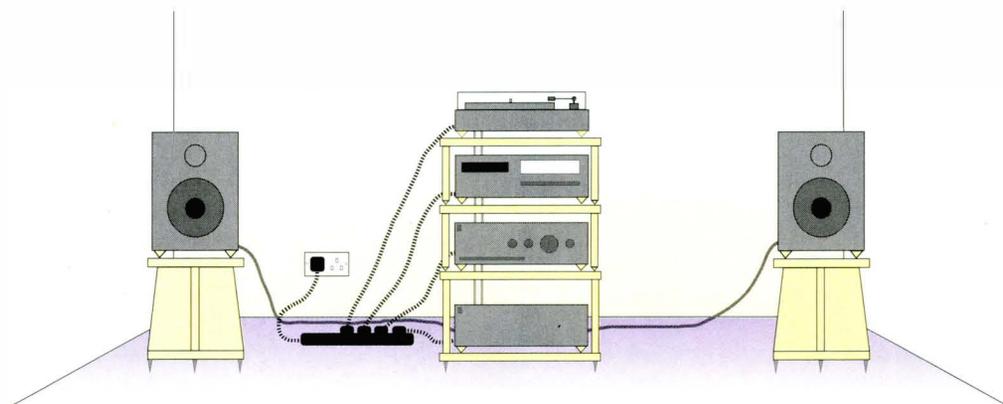
plus - Too many second hand interconnects and speaker cables (inc Audio Note Acoustic Precision) to list. Various

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# SUPER TEST

# SPEAKERS

Paul Messenger prepares to experience the delights of six saucy loudspeakers.

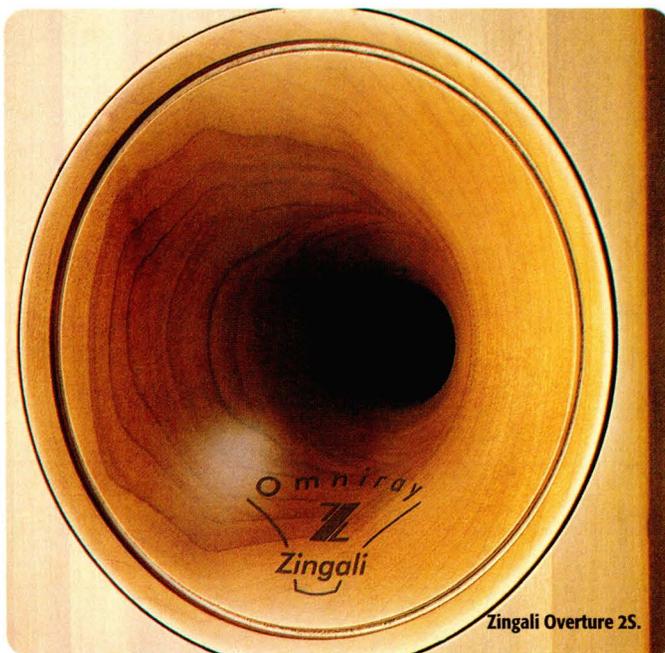
## THE CAST LIST

Carlsson OA52.2	£1,585.00
Castle Inversion 100	£1,975.00
Neat Elite	£1,195.00
Orelle The Swing	£1,200.00
JM Lab Electra 915	£1,795.00
Zingali Overture 25	£1,895.00

There's a school of thought which believes that the loudspeaker is the least important component in the hi-fi chain, because it only does what the source components and amplification tell it to do. There's some truth in this, and I'd agree that there's precious little point in spending a great deal on a pair of loudspeakers if you're not devoting similar amounts of money to your electronics.

However, loudspeakers do show much more obvious sonic differences between models than electronics, and invariably impose their character strongly on the final listening experience – which is partly down to the inherent qualities of the speakers themselves, but also the way that they interact with the acoustic properties of the listening room.

Loudspeakers are also nearly always the most visible part of the system, so aesthetic factors are bound to play a significant role in



Zingali Overture 25.

any evaluation, especially as one moves up the price ladder.

In my opinion, speakers start to get really interesting when you cross the £1,000 threshold, by which stage there's enough cash in the cost budget to give the designer real freedom to explore different options. I therefore approached this group of six £1,000-£2,000 contenders with considerable anticipation, all

the more so because of the wide variety of approaches shown by the assembled models.

At the bottom of the price ladder, the Neat Elite and Orelle Swing are both priced close to £1,200 and show a great deal of similarity to each other, and dissimilarity from the rest of the group. Both are compact floor-standing two-ways, well suited to British tastes and rooms, and with

more than a touch of class about their outward presentation as well as their under-skin engineering.

One could equally truthfully describe the £1,500 Carlsson OA52.2 as a compact floorstanding two-way, but one look at the speaker in question will show that this Swedish design is utterly unique and therefore unusually interesting.

More conventional in some respects, the £1,895 Zingali Overture 25 waves the flag for large standmounts to very good effect, and has its own unique feature in the most extraordinary – and beautiful – horn-loaded tweeter you've ever seen.

JM Lab's £1,795 Electra 915 is a full size, three-way floorstander which shares the same basic driver technology as the company's excellent but extremely expensive Mezzo Utopia (HFC 186). Does it offer similarly dazzling quality at only a quarter of the price?

Then there's the Castle Inversion 100, the largest of three models featuring striking Art Deco inspired styling. The driver line-up and bass loading is unusual too, closely based on previous successful Castle models. In outline, it's a three-driver, two-way semi-omni design with quarter-wave loading – so now you know!

## HINTS & TIPS



The rules for getting the best out of a pair of speakers are much the same whatever the speakers involved. Standmounters require proper stands to ensure stable, predictable support and get the drive units the same distance off the floor as your ears (choice of stand can have a big influence on the sound, if you feel like experimenting).

Floorstanders should have spikes fitted carefully – this is a potential weak spot in cheaper models. Finding the right place to put the loudspeakers acoustically with respect to the room walls is just as important. Our reviews include suggestions, but every room is different, so do take time and trouble experimenting. And don't forget to use decent speaker cable if you want your system to perform at its best.

## HOW THE TESTS WERE DONE

The tests were spread over four weeks, combining a simple 'bare bones' measurement programme with a detailed engineering examination and extended hands-on listening, with ample opportunity to compare and contrast between the various models.

The analogue measurements use a far field, in-room averaged technique to define the frequency balance, bass extension and sensitivity under 'real world' conditions. The impedance is also measured to put the sensitivity into proper context and examine the amplifier loading conditions.

The main reference system for auditioning comprised the usual collection of Mana-supported Naim and Linn components: Linn LP12 turntable, Naim ARO tonearm, Linn Arkiv 2 cartridge, Naim CDS CD player, NAT01 tuner, NAC52 pre-amp and NAP135 power amps. Speaker cables were NACA5 and Nordost SPM, and speaker stands were primarily Kudos S100s.

The music included excerpts from the following albums on vinyl, CD or both! Massive Attack – *Mezzanine*; Chemical Brothers – *Brother's Gonna Work It Out* and *Surrender*; Mari Boine – *Eallin*; Tom Waits – *Mule Variations*; Captain Beefheart and his Magic Band – *Strictly Personal* and Grateful Dead – *Reckoning*. BBC Radios 3 and 4 were also used extensively, especially the live Promenade concert broadcasts.

## GLOSSARY

**SENSITIVITY** – The relative loudness of a loudspeaker for a specific input signal voltage. This can only be approximate due to the substantial variations in frequency balance shown by all loudspeakers.

**IMPEDANCE** – The load the speaker presents to the amplifier varies dramatically according to the frequency, the minimum values being most likely to stress out the amplifier.

**BALANCE** – The frequency or tonal balance of a loudspeaker is never truly flat and neutral, the variations (due as much to the room as the loudspeaker) doing much to define the character of the sound.



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# CARLSSON OA-52.2

Unique might be an overworked word in our hype-filled era, but a glance at this photograph suggests it's entirely applicable to this highly unconventional loudspeaker. It's a brainchild of the late Stig Carlsson, a true *enfant terrible* among speaker designers who was responsible for the omnidirectional Sonab speakers among others. Back in the 1970s these were better appreciated by customers than reviewers, but today's climate is perhaps more tolerant towards designs which acknowledge that speakers have to work in real living rooms.

To quote the brochure: "[Our] new generation of speakers are ortho-acoustic – they create a careful balance of direct and reflected sound and are the only ones in the world designed to optimise the sound properties of the average listening room."

I can think of several other brands which would dispute that last claim, but nonetheless, it explains concisely where the Carlsson design is coming from – although the term "ortho-acoustic" remains undefined.

In outline, this is a 20-litre, port-loaded, two-way speaker, using a fairly small main driver with a 120mm cone, which makes the £1,585 asking price pretty high. But the OA-52.2 is genuinely unique in presentation and room interaction, and in one respect at least it's among the most discreet speakers made. You can make up your own mind whether the design is smart Bauhaus contemporary or a failed attempt at origami. What's important is that it sits flush against a wall, and stands only 54cm off the deck. Now *that's* discreet.

The angled baffle points the drivers upwards and inwards, and physically ensures that they're close-coupled to the wall, as well as the side panel. Surfaces such as walls act as mirrors to sound waves, and placing the drivers *really* close to the surfaces like this helps make the reflections as coherent as possible with the direct sound from the drivers. Purists will argue that free space siting is preferable, because any reflections are delayed and lower



**"You can make up your own mind whether the Carlsson's design is smart Bauhaus contemporary or a failed attempt at origami."**

in level, but this Carlsson arrangement still makes a lot of sense in terms of integrating the speakers into a room.

One other curiosity about the OA-52.2 is the collection of four foam pads which fit into the corners of the box and couple to the floor – each 'foot' is different, presumably, because the weight is asymmetric. No doubt kind to polished hardwood floors, this will be much less predictable with carpet, and an area of concern to one brought up on spike coupling.

At least part of the proof of the room-matching will be found in room-averaged measurements, and here the OA-52.2 is partly, but not wholly, successful. The bass below 80Hz is very impressive – smoother than most and with fine extension. Things look pretty good above 350Hz too, but the two octaves in between, covering the upper bass and lower midband, are about 5dB shy, which will have

clear subjective consequences. That, in turn, makes 'real world sensitivity' hard to pin down. If pressed, I'd give it 90dB, which is a good figure in view of the easy amplifier load and fine bass extension.

## SOUND QUALITY

A wall/floor-coupled model such as this is bound to sound very distinct from the norm, so it's important to avoid making snap judgements. The fact that the drivers are relatively close to the floor will make the stereo image seem initially odd, but after a short spell of acclimatisation I got to rather like the way these speakers project sound into the room. The speakers themselves seem to disappear, leaving just the room to influence the sound, in a way which reminds of wall-mounted speakers (and without the need to make holes in the wall!)

That said, the measured balance anomaly remains all too audible in practice, and while the OA-52.2 has welcome deep down weight, the sound is determinedly thin and forward, with a distinct lack of warmth and richness. Voices, in particular, sound a little pinched and rather over-projected. And perhaps because of its isolation, the bass is qualitatively a bit thick and resonant.

Such criticisms aside, these speakers are wonderfully free from boxiness, and once one adjusts to the rather lean balance, prove very easy to live with, because of the way they avoid attracting attention to themselves, acoustically and aesthetically.

## CONCLUSIONS

A bit of a mixed bag with a rather lean and forward balance, the OA-52.2s nonetheless have an unusual – possibly unique – ability to 'disappear'. This quality alone singles them out as worth taking seriously.

PMc

## VERDICT

SOUND	★★★★☆
BUILD	★★★★☆
VALUE	★★★★☆
PRICE	£1,585.00

Striking but ultra-discreet design which integrates cleverly with the listening room. Impressively unboxy, but balance is a little thin and lacks warmth.

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## CASTLE Inversion 100

Castle's new Inversion range of speakers must be among the most striking designs ever to go into serious production. Inspired by the hard-edged angularity of the Art Deco movement, and looking stunning in a highly appropriate maple veneer, this 1930s style statement didn't exactly blend into my (c.1908) loungescape, but they'd look great in a more sympathetic setting, and visitors were invariably very impressed.

The biggest and most expensive of three models, this Inversion costs a not inconsiderable £1,975, which places it at the top of our test group pricewise. However, there's no need for additional stands (unlike the Inversion 15 reviewed in *HFC* 193). It makes for an imposing sight in the lounge too, although it needn't loom too large as close-to-wall siting is more or less feasible.

The top-heavy appearance is nicely balanced by the stylish plinth, ensuring good stability and rationalising the inverted front driver line-up. Sadly, the 6mm spikes are rather feeble for a total weight of 28kg, and the sockets are not well secured.

This three-driver system operates as a two-way, with two main drivers operating in parallel, one firing upward from the top surface, the other forward from the front. Both are loaded by quarter-wave pipes which vent through a gap between base and plinth. Quarter-wave loading, with internal tapered columns, actually has something in common with horn loading. It's not the most volume-efficient approach, but does provide useful dynamic control over driver excursion.

Previous Castle models such as the Winchester, Howard and

Two main drivers operate in parallel, one firing upward from the top surface.



Harlech have used this unusual driver arrangement over many years. The 'semi-omnidirectional' main driver arrangement may lack the full stereo precision of a single front-mounted driver, but some – myself included – tend to find it sounds more relaxed and natural in the listening room.

However, those older models carried price tags of between £880 and £1,250 (at the time of review), which makes the 100's £1,975 seem a trifle expensive – presumably, the unusual tapered shape is costly to implement.

Although the individual grilles covering the main drivers are nearly 200mm in diameter, the

**“The Inversion 100's price tag has more to do with providing radically beautiful styling and superb finish than the nth degree of neutrality.”**

drivers themselves are quite small, with diaphragms roughly 110mm in diameter. Twin terminals are fitted to the rear, spaced far enough apart to discourage using a conventional single pair of cables from amp to speaker.

The in-room traces show a generous sensitivity of about 91dB, and a quite flat and smooth frequency balance above 200Hz. But the sub-200Hz bass region is very uneven, with a pronounced suckout through the mid/upper bass (70-150Hz), and too much output at 30-60Hz. Moving the speakers to different positions does have an effect, but doesn't seem to cure the basic bass misalignment. The impedance is an easy-to-drive load which stays above 8 Ohms throughout.



### SOUND QUALITY

The mid and treble part of the spectrum is handled very competently here, with seamless integration and an attractively open balance. While the treble doesn't have the sweetest sound around, the bi-directional main driver array seems to give the image some welcome extra 'out-of-the-box' spaciousness and an extra height dimension without significantly harming the precision of the stereo image.

The problem is, the bass end is much less convincing. Notes start and stop properly with a pleasing freedom from boom and overhang, but bass balance anomalies skew their harmonic content, robbing the sound of warmth and richness, and making the (ample) deep bass sound rather detached and disconnected from the rest.

At the same time, the lack of richness tends to make the open top end sound a little cold and over-exposed, and the result can become a little relentless when played at highish levels.

### CONCLUSIONS

Castle's Chester and Harlech designs are long-term favourites that have occupied pride of place in my second listening room for the past eight years. The larger Winchester and Howard designs also did pretty well, but showed evidence of the bottom-end

unevenness which is the Inversion 100's weakness. It remains a decent speaker with plenty of points in its favour, but in my view a speaker costing nearly £2,000 has a greater obligation to provide a neutral balance than one at half the price.

That said, the Inversion 100's price tag has more to do with providing radically beautiful styling and superb finish than the nth degree of neutrality, so if the looks appeal, check it out, and see if you can arrange a home demo before making a final commitment.

PMe

### VERDICT

SOUND	★★★★☆
BUILD	★★★★☆
VALUE	★★★★☆
PRICE	£1,975.00

This large, semi-omni design has gorgeous Art Deco styling cues and delivers a sound which is open and unboxy, but the bass alignment is ill-tuned, giving plenty of weight but not enough warmth.

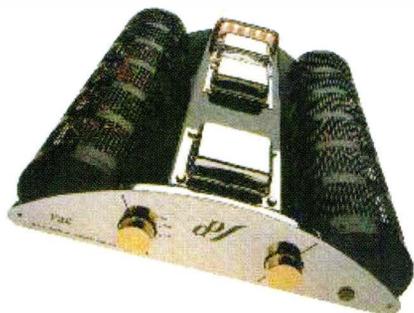
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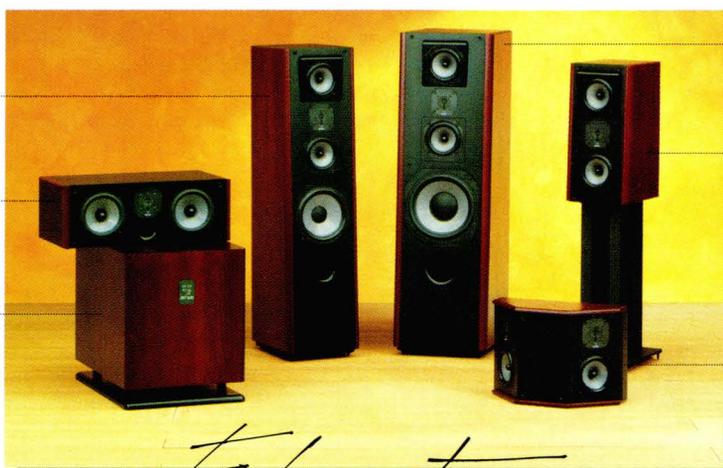
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# JMLAB Electra 915

I had great hopes for this speaker when I attended its world launch in France some 18 months ago. At the time and shortly thereafter I developed a great affection for the company's Mezzo Utopia (HFC 186), tempered by the realisation that few can afford speakers that cost £7,250 per pair. My expectation for the 915 was that it looked like it might offer much of the quality of the Mezzo in a package with a much more affordable price tag.

That's still a hefty sum to spend on a pair of loudspeakers, agreed. But in this instance you do get a seriously large, heavy and complex pair of speakers for your money, which goes some way towards sugaring the pill. The 915 tips the bathroom scales at a monumental 37kg, and uses four very high-class drive units in a full three-way configuration.

And while the box construction is simpler than the three-section Mezzo, the

cone drivers use the same Focal 'W-sandwich' cones, with a layer of structural foam between woven glassfibre skins, and the tweeter the same inverted, oxide-coated titanium dome.

I'd therefore been waiting with some anticipation to get my hands on a pair of 915s, which made their eventual arrival all the more disappointing. First, one of them did its best to remove one of my fingers – the amoeba responsible for packing and despatching them had left the spikes fitted. After a strong cup of tea with plenty of sugar, I wheeled them into the listening room and gave them a quick listen, running the room measurements to check for optimum placement. They sounded and measured like dogs – all woof and tweet but not enough in the middle. *Quel dommage* and disappointment, especially after the Mezzos.

I casually mentioned this to the importer, who

commented that there had been such a problem with the very earliest 915s, and asked for the serial numbers. You've guessed it, my pair – all 74kg of them – were from that early batch and hadn't been properly fixed. A more representative current pair would be despatched post haste...

**“The Electra 915 looks rather monolithic, but that's quite difficult to avoid when you're building a four-driver array.”**

Happily, the new ones were an obvious improvement, both sonically and in measured balance, and also showed a quite different impedance characteristic to those originals.

The 915 looks rather monolithic, but that's quite difficult to avoid when you're building a four-driver array. The side panels are chunky hardwood slabs, with some post-forming to soften the edges, while the other four sides are plain black finished, whether or not you use the full-height grille.

In fact, the sides taper slightly – the top of the front panel is 2.5cm wider than the base, so as to improve the time alignment between the lower, flush-mounted midrange driver and the tweeter.

The upper midrange driver is then mounted on a small sub-baffle which protrudes a couple of centimetres and tilts it downwards a few degrees to preserve the symmetry and time coherence above and below the tweeter.

Both midrange drivers have 90mm cones, while the bass driver has a 150mm cone, plus a port for low-end reinforcement. Rather feeble (in view of the substantial weight) 6mm spikes are fitted, and connections are made via two pairs of terminals, whereas a three-way should surely provide a triple access option.

The 915 (second sample) has a generous sensitivity of about 92dB, with good low bass extension, but it also has one of the more evil impedance traces I've encountered recently – a not uncommon problem with three-way designs.

The impedance stays below six Ohms through the most power-hungry part of the spectrum,

75-500Hz, hitting a three Ohm minimum at 400Hz.

The room responses of the second sample showed a much improved bass-to-mid transition and, indeed, a bass which is impressively deep, extended and quite smooth. The midband is a little more uneven, but well enough balanced, while the most obvious characteristic is a shallow but broad presence depression of 1-3dB from 1-3kHz.

## SOUND QUALITY

Maybe the 915 lost it for me with those duff early samples. Certainly the replacements were significantly better, but while it's a design I have come to respect, especially for its ample headroom and deep, powerful, driving bass, the totality and coherence never quite managed to seduce me in the way the Mezzo had.

The laid back presence region seemed to suck some of the dynamic life out of the midband, so I found myself turning up the volume louder than I would have liked, and also worrying that the treble proper tended to sound a little too exposed – applause just wasn't particularly convincing.

I suspect this design suffered from its relative complexity compared with the others in this group, and that complexity compromised overall coherence and subtle timing cues.

## CONCLUSIONS

Impressive headroom and sensitivity with fine bass and power handling are all plus points in this design, which offers ample high class engineering to justify its price. Its ability to deliver high sound levels, however, may well be compromised by the awkward amp loading, and the overall sonic coherence seemed a little bit suspect. **PMe**

## VERDICT

**SOUND** ★★★★★

**BUILD** ★★★★★

**VALUE** ★★★★★

**PRICE** **£1,795.00**

**Fine headroom and bass delivery, and lots of class engineering for your money, but also a tricky amp load which lacks the delicacy of simpler designs.**

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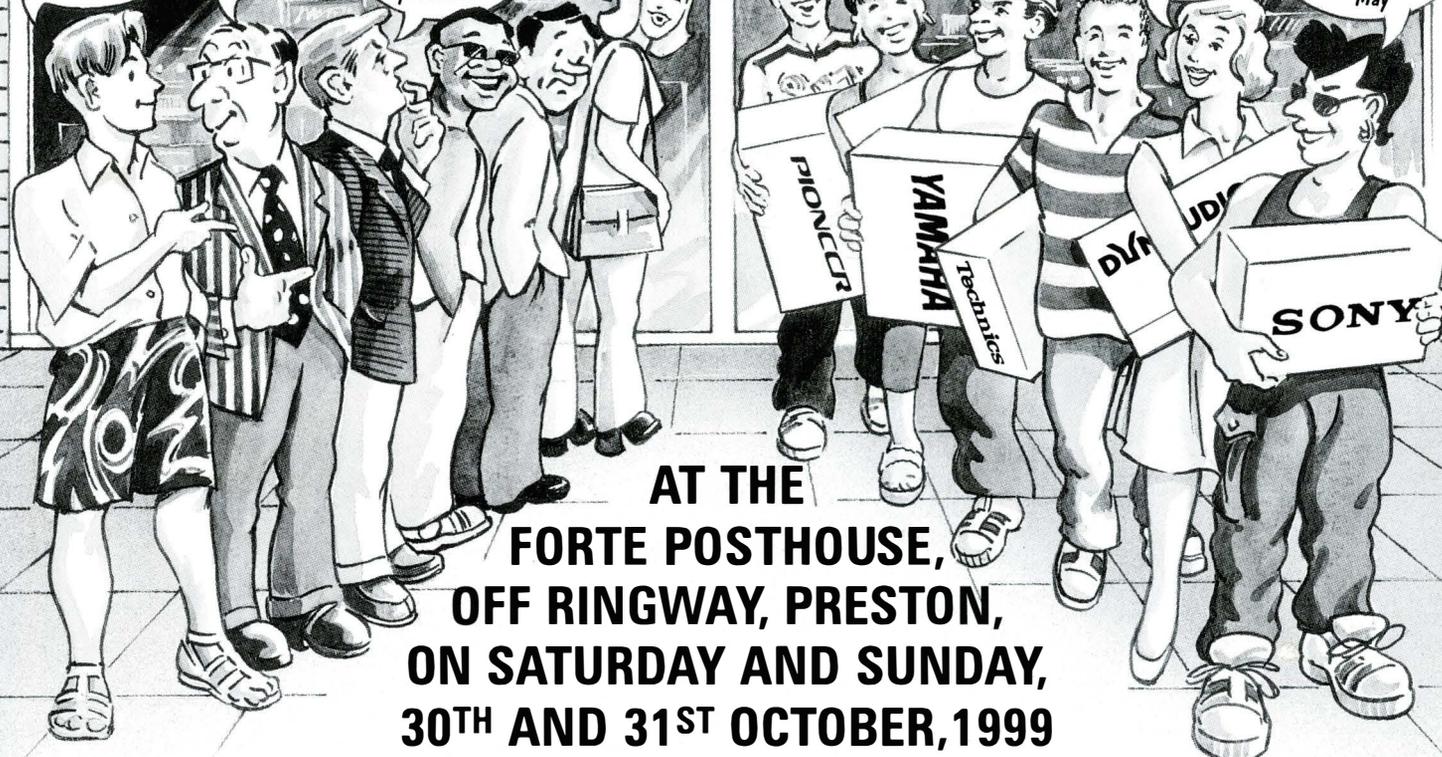
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## NEAT Elite

**N**eat Acoustics in many ways epitomises the small British hi-fi specialist. It's been around for a good number of years, pursuing single-minded and consistent policies towards the acoustics, aesthetics and mechanics of loudspeaker design.

The portfolio of models is small enough to be counted on the fingers of one hand, and several have been around for years with little modification and even less marketing hype. Prices may seem higher than some of the competition, but the devil's in the detail here, from the classy woodwork with its discreetly chamfered edges through to the great care evident in the build.

**"The balance is beautifully smooth and controlled for the most part, following a trend very close to the ideal for neutrality."**

The Elite sits second from the top of the Neat hierarchy, and takes the compact floorstanding enclosure of the Mystique, beefs it up in terms of reinforcement and the provision of a slate plinth, and fits the superior driver line-up and crossover componentry of the redoubtable Petite standmounter.

The net result might not have quite the weight and drive of the Petite/Gravitas satellite/subwoofer combination, but it does offer greater bass weight than the Petite alone, and does so from a cabinet of exceptional elegance, especially finished in the lovely maple wood veneer used for our samples.

It's a relatively simple two-way design, a touch wider than it is

◉ **The Elite offers great bass weight from a cabinet of exceptional elegance.**



deep in order to accommodate a decent-sized main driver. The inside of the enclosure is used to excite two quite separate ports, differentially tuned to widen the operating band. The larger one fires down towards the plinth, with spacers to let the air in, while a much smaller port is up high on the rear panel. Bi-wire terminals are fitted on a substantial inset block fairly high up the back panel.

One thing you don't get with Neat speakers is any form of grille. This might be problematic if you're overrun by inquisitive and unruly children, but it does keep the front panel clean and free from those nasty plastic mounting lugs most manufacturers use, showing off the veneer work and flush mounted drivers to advantage.

The main driver has a cast frame and 120mm doped paper cone, while the tweeter is an unusual 'area drive' device not unlike a ribbon, the 25mm circular diaphragm consisting of a thin plastic film printed with a spiral voice coil. The slate plinth provides a rigid and massive foundation, aiding stability and fitted with chunky 8mm thread spikes.

The in-room, far-field averaged traces point towards free-space siting as likely to give the best balance, not only because of the bass alignment but also because the midband is smoother when kept clear of reflective surfaces, though some wall reinforcement should be permissible.

The balance is beautifully smooth and controlled for the most part, following a trend very close to the ideal for neutrality. A slight peak centred on 5kHz is all the more obvious because of the smoothness elsewhere. Sensitivity is a respectable 88-89dB, especially in view of a relatively easy-to-drive impedance characteristic which stays around eight Ohms through most of the range, falling to around four Ohms at the highest frequencies.



### SOUND QUALITY

The Elite sounds delightful, with a beautifully neutral and even-handed delivery, fine dynamic range and a surprisingly deep and articulate bottom end considering its compact size and discreet appearance.

In the final analysis, it might not have quite the drive and authority of bigger, higher sensitivity speakers, but it gives very little away in those departments, yet has a delicacy, subtlety and coherence that is rarely matched by larger and more complex designs.

So what sort of effect does the fancy planar tweeter have? The top end does sound smooth, clean, more transparent than most and generally unobtrusive, but there's also a slight fizz that draws attention to itself, and is probably related to that small 5kHz peak.

The Elite remains fully articulate and informative at low listening levels, yet handles power with poise and aplomb, and no sign of strain or compression. In fact, I found it all too easy to get carried away and turn the amp up to and beyond clipping. This speaker doesn't go exceptionally loud, relatively speaking, but it holds itself together very well throughout its wide dynamic range.

### CONCLUSIONS

The Elite is an excellent speaker, and quite my favourite of Neat's impressive range. It's an object lesson in what can be achieved by taking an essentially simple formula and applying painstaking development alongside the best quality ingredients.

While I wouldn't regard it as a natural choice for large rooms or those who like to play their music really loud, it seems to be exceptionally well suited to the British scene, both aesthetically and acoustically. **PMe**

### VERDICT

<b>SOUND</b>	★★★★☆
<b>BUILD</b>	★★★★★
<b>VALUE</b>	★★★★★
<b>PRICE</b>	<b>£1,195.00</b>

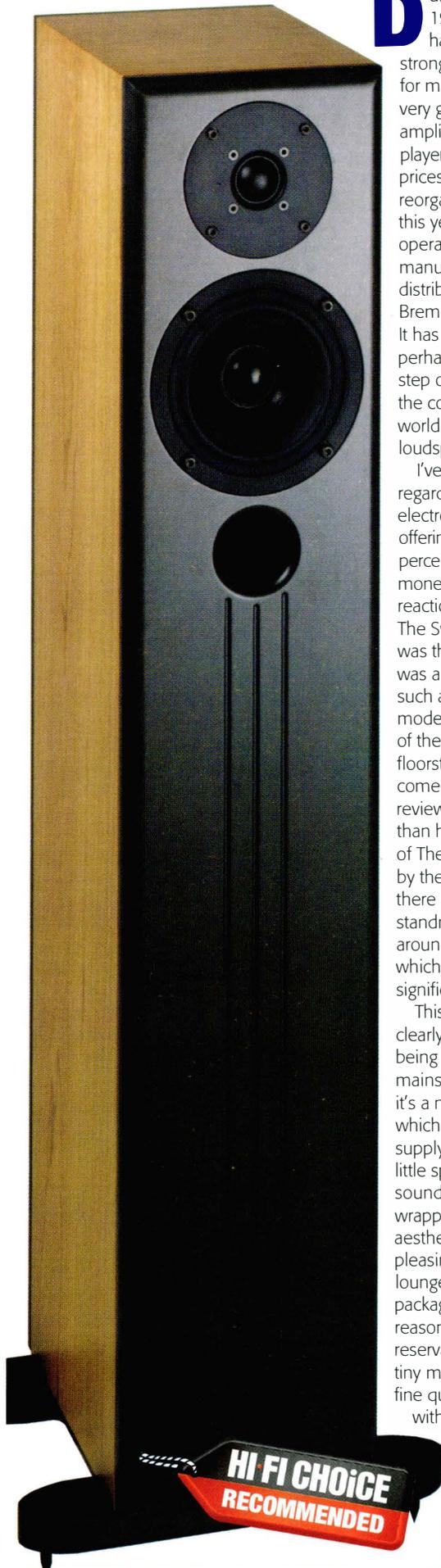
■ **A highly entertaining and good looking all-rounder, well suited to British rooms, with a planar tweeter that sounds sweet, if not particularly smooth.**

#### ■ FIVE YEAR GUARANTEE

✉ Neat Acoustics, Unit 1a, Stainton Grove  
Ind Est, Barnard Castle, County Durham  
DL12 8UJ  
☎ (01833) 631021

# ORELLE The Swing

ORELLE THE SWING  
Visit Our Website: www.hifichoice.co.uk



**D**uring the 1990s, Orelle has built up a strong reputation for making some very good sounding amplifiers and CD players at realistic prices. The firm, reorganised earlier this year, now operates some manufacturing and distribution out of Bremen, Germany. It has also taken the perhaps surprising step of moving into the competitive world of hi-fi loudspeakers.

I've always regarded Orelle's electronics as offering rather good perceived value for money, but my first reaction on seeing The Swing speaker was that £1,200 was a high price for such a superficially modest affair. Most of the two-way floorstanders that come my way for review cost less than half the price of The Swing – but by the same token, there are a standmounters around (see Zingali) which cost significantly more.

This is, therefore, clearly not a speaker being pitched at the mainstream. Rather, it's a niche model which purports to supply something a little special in sound quality terms, wrapped in an aesthetically pleasing and lounge-friendly package. One reason for my initial reservations was the tiny main driver. A fine quality device without question,

it relies on a single 90mm diameter diaphragm to do all the

work, albeit with some bass assistance from a reflex port. It's an approach which promises superior midband performance, but usually at the expense of bass and dynamics. The tweeter has a conventional 27mm fabric dome, and both drivers are fed from twin terminal pairs via high power handling crossover components.

One bonus accompanying the small main driver is that the cabinet can be made fashionably slim. It's quite a tall speaker (the better to keep the drivers well off the deck), but the narrow front ensures a discreet presence in the lounge. Build is exceedingly solid, as the 18kg total weight confirms,

**“One might anticipate limited power handling and loudness capability here, but again, The Swing manages to surprise and largely confound prejudices.”**

a cutaway diagram showing that several internal braces are used to improve stiffness.

Styling is 'decidedly demure'. The charcoal-grey front and back are fashioned from MDF, with a resin-coated surface for extra stiffening, and real wood veneered panels are used for the wrap (base, sides and top). A couple of outriggers widen (or, rather, foreshorten) the stability footprint, and chunky 8mm spikes provide solid and reliable floor coupling.

The in-room, far-field responses show that deep bass isn't really on the agenda here, although the port contribution is well integrated and sufficient to allow the speakers to be used well clear of walls, to the benefit of the midband. The balance from 50Hz up is extremely well ordered, and smoother than most through the bass region too, although there is some unevenness across the broad midband.

Sensitivity is a respectable 87dB, especially since the impedance is very easy, staying above eight Ohms throughout.

#### SOUND QUALITY

The Swing arrived some time ahead of the rest of the other models in this group, and while I'm not normally too impressed by

speakers with such small main drivers in a room that's somewhat larger than average, I brought them in for a quick listen.

A week or so later I was still thoroughly enjoying their fine combination of great coherence, ruthless timing, superb focus, fine balance, and general freedom from boxiness. More than any other design I can readily recall, this model did much to dispel at least some of my prejudices against small speakers.

It's no deep-bass excavator, of course, and is probably better suited to smaller rooms, but those prepared to sacrifice that last octave of weight and scale will be rewarded by a high quality bottom end with an unusually smooth and even delivery.

One might anticipate limited power handling and loudness capability here, but again, The Swing manages to surprise and largely confound prejudices, and certainly delivers rather more bass punch than one has any right to expect.

Ultimately, it does lack some of the dynamic punch and tension (but not the dynamic range) of larger, higher sensitivity designs, and there were occasions when I started to feel the treble could be just a touch relentless. But the open, clear balance and invigorating performance remain the strongest memories of a most pleasant couple of weeks spent enjoying this engaging speaker.

#### CONCLUSIONS

Don't think of The Swing as a muscle-bound floorstander. Rather, it's one of the best sounding 'miniatures' you've ever heard, and one which conveniently comes with its own built-in stand. Sonically we're definitely in joy division here, with a vim, vigour and expert timing that many larger loudspeakers would envy.

PMe

#### VERDICT

<b>SOUND</b>	★★★★☆
<b>BUILD</b>	★★★★★
<b>VALUE</b>	★★★★★
<b>PRICE</b>	<b>£1,200.00</b>

■ A superb example of what an essentially small loudspeaker can do, with bags of brio and enthusiasm.

#### ■ TWO YEAR GUARANTEE

✉ Orelle Ltd, IMEX House, 6 Wadsworth Road, Perivale, Middlesex UB6 7JJ  
☎ (0181) 991 5591

# ZINGALI Overture 2S

The Italians do seem to have a habit of coming up with some extraordinary looking – and extraordinarily beautifully made – speakers, and this very substantial standmounter from Zingali follows firmly in that tradition. A new name to this reviewer, it's also a new brand to the UK, the catalogue detailing two ranges of loudspeakers – four Overture-series models aimed at the domestic user, plus a clutch intended for studio monitoring.

One feature which distinguishes Zingali from the rest of the market is an extraordinary looking tweeter arrangement – the so-called Omniray Horn, with its deep, large

**“They’re bound to assert a powerful presence in any room. They get away with it simply because the looks are so gorgeous and interesting.”**

diameter flare beautifully crafted from poplar wood. This core feature is found throughout the range, and is fundamental to the whole company philosophy.

While the catalogue goes on at length about how wonderfully well it works, there's little in the way of hard details to support those assertions – but there's no denying it's a good conversation starter. Visitors with little or no interest in hi-fi were intrigued, and couldn't resist admiring – and, indeed, stroking – the evidently skillfully crafted woodwork.

The larger of two Overture standmounts, the 2S costs a considerable £1,895 and weighs in at 24kg, which certainly makes it one of the biggest and most expensive of the breed. Attractive matching stands are also available, highlighting the hidden cost of opting for a standmount rather than a floorstander and taking the combination comfortably above this test group's £2,000 ceiling. But the standmounter has its own advantages, minimising the cabinet radiating area for a given box volume, optimising the internal dimensions, and keeping the drive units clear of the ground.

The box has clearly been built to survive an apocalypse or two, and while the use of real wood has been restricted to the front and back panels, these are fashioned

from a solid hardwood more than 30mm deep. Put a pair of 2Ss on their stands, position them well clear of walls and they're bound to assert a powerful presence in any room. They get away with it simply because the looks are so gorgeous and interesting.

Why use a horn-loaded tweeter? Given Zingali's reticence on the subject, I'm forced to speculate. Horns work on sound waves a little like lenses do on light. The horn therefore not only magnifies the sound, but also precisely controls its directivity. Furthermore (perhaps most important), the air mass within the horn directly damps the transducer's diaphragm.

The potential disadvantage (encountered with the wondrous German Avantgarde horns in issue 178) lies in trying to integrate a horn-loaded top end (above 1.2kHz here) with a conventional monopole bass/midrange. The chunky box shape has the width for a decent size main driver, this one using a 155mm plastic cone, further assisted at the bottom end by a slot-shaped port set into the front panel. Twin terminal pairs allow bi-wire/bi-amp options.

The main driver constrains the sensitivity to around 90dB, so the horn's inherent high efficiency is reflected instead in making life easy for the driving amplifier. The impedance stays above eight Ohms throughout, and most of the treble is above 16 Ohms.

The in-room, far-field balance is exceptionally well ordered and for the most part pretty smooth. The bass alignment suits free space mounting, and gives good in-room extension down to below 30Hz. Elsewhere a slight suckout through the crossover region will influence the voicing.

◉ The Overture has been skillfully crafted to survive an apocalypse or two.



## SOUND QUALITY

The 2S delivers a balance and sensitivity that's typical enough of a high-class conventional loudspeaker. The intriguing question is whether the 'differentness' of the horn-loaded tweeter translates into a worthwhile subjective advantage, to justify the considerable expense of its implementation.

Happily, it does. The top end of this loudspeaker has a creamy smoothness that not only seems unusually free from unwanted nasties, but also proves to be exceptionally informative. The net result is wonderfully inviting and involving, and despite the slight presence region dip, voice reproduction is absolutely superb, clarifying difficult diction to a remarkable degree and conveying subtleties like regional accents with a confidence that few rivals can match.

Focus and coherence through the voice band region is absolutely outstanding, but the bass is just a little thickened, heavy and ponderous by comparison, and a touch slow too. It's maybe not the

first choice for delivering those block rockin' beats, but the slightly warm and cuddly overall effect is always exceptionally inviting, and a positive encouragement to switch on the system and explore the music.

## CONCLUSIONS

Idiosyncratic and expensive it may be, but it's difficult to argue with this Zingali model's sonic accomplishments. There's no doubt in my mind that the

## VERDICT

SOUND	★★★★☆
BUILD	★★★★★
VALUE	★★★★☆
PRICE	£1,895.00

📖 **Gorgeous if pricey and imposing standmounter has a wondrous horn tweeter of great delicacy, and an impressively weighty overall balance.**

### ■ THREE YEAR GUARANTEE

✉ Zentek Music, Lizanne House, Mount Sion, Tunbridge Wells TN1 1YQ  
☎ (01892) 539595



# CONCLUSIONS SPEAKERS

Picking trends here is made difficult by the sheer diversity of the six models. Perhaps the fact that two (Castle and Elite) came in a lovely blonde maple veneer is significant to followers of home decor fashion, but it may be mere chance.

Five models are two-ways, demonstrating conclusively that this simple configuration is not just the preserve of the budget end of the market, and showing just how far it can be developed – and in how many directions.

The individual reviews carry star ratings for sound, build and value, but the five-point scale makes

**“Don’t discount models in this group test which didn’t receive a Recommended tag if their appearance particularly suits your taste.”**

these a very crude technique for distinguishing between the sounds of such essentially different components.

For best bass or loudness capability, the three-way JMLab stands out, but the simpler two-ways deliver a more coherent midband at normal listening levels. The choice is down to the customer, but a single star rating for sound quality doesn’t permit such fine discrimination.

Style is often the most important ingredient in upmarket

speakers – and there couldn’t be much greater contrast than that shown by the Carlsson, the Castle and the Zingali designs. Such personal preference is probably the single most important factor in many purchasing decisions, so take heart from the fact that all the speakers here performed very well in most respects.

Don’t discount models which didn’t receive a Recommended tag if their appearance particularly suits your taste.

## RECOMMENDED



**NEAT ELITE**  
The bottom end should make a fine match for typical British rooms, while this very attractive and lounge-friendly design has a lovely open neutrality and fine coherence.



**ORELLE THE SWING**  
Lacks deep bass, but the sound is infectiously lively with great communication skills and an unusually wide dynamic range.



**ZINGALI OVERTURE 2S**  
Extraordinary horn tweeter arrangement gives this warm-sounding standmounter a creamy smoothness with excellent clarity.

### S P E A K E R C O M P A R I S O N T A B L E

MAKE MODEL	CARLSSON OA52.2	CASTLE INVERSION 100	JMLAB ELECTRA 915	NEAT ELITE	ORELLE SWING	ZINGALI OVERTURE 2S
PRICE	£1,585.00	£1,975.00	£1,795.00	£1,195.00	£1,200	£1,895
SOUND	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BUILD	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
GUARANTEE	1yr	5yrs	3yrs	5yrs	2yrs	3yrs
SIZE (WxHxD)	41x54x37cms	26.5x111x45cms	26.5x106x36cms	20x88x18cms	18x101x28cms	30x57x38cms
WEIGHT	18kg	28kg	37kg	14kg	18kg	24kg
SENSITIVITY	90dB/W	91dB/W	92dB/W	88.5dB/W	87dB/W	90dB/W
LOAD	8 Ohms	8 Ohms	4 Ohms	6 Ohms	8 Ohms	8+ Ohms
BASS FROM	20Hz	20Hz	20Hz	25Hz	45Hz	25Hz



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| Amplifier –      | Tag McLaren Audio 60iRV | Home Theatre Amp – | Pioneer DV-717     |
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# MP3 And The Internet Revolution

**A**ll hail the 20th Century, a blessed time that brought recorded music to our ears. We've been moved by the quality of vinyl, amazed by the fidelity of stereo, swept into a new digital era and now here we are: perched on the cusp of the next millennium, surfing towards Y2K on a wave of dazzling new technology.

Top of the "what next?" agenda for most audiophiles

**Is the almighty Internet about to take over the musical world, aided and abetted by its co-conspirator MP3? If you believe the hype, you might well think so. Tim Bown explains what all the fuss is all about, then listens to five personal MP3 players to hear how they fare.**

**"If labels could sell grilled Brillo pads with a slice of cheese they would. This gets music to the people."**

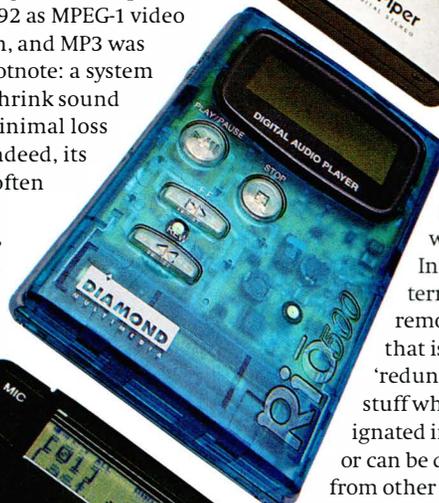
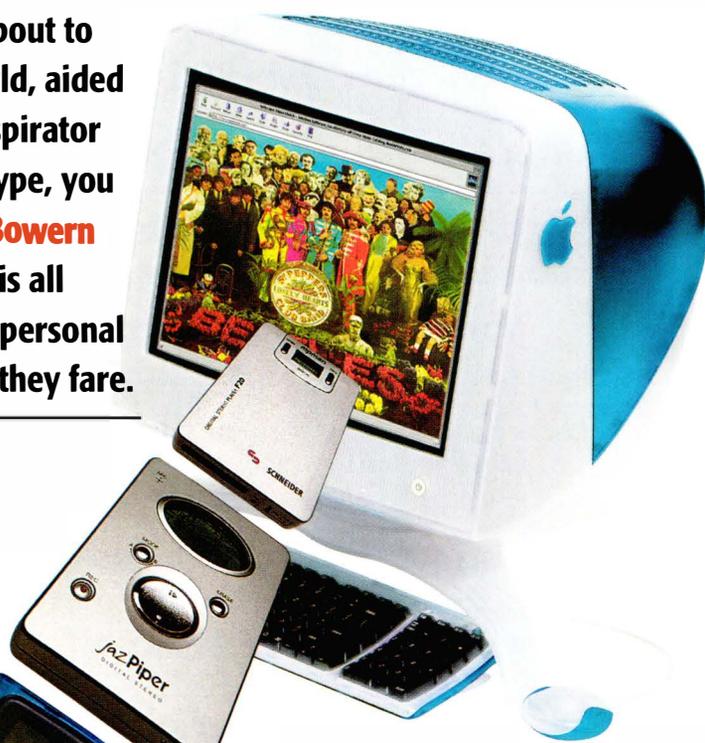
**Public Enemy's Chuck D**

are DVD-Audio and SACD, two rival disc-based formats promising sound that'll knock CD for six. But there's another new format causing an even greater stir among the music industry's heavyweights, one that's seen to offer threat and opportunity in equal measure. Its name is MP3, but acronyms gush from the lips of hi-fi marketers like water over the Niagara falls, so...

**...WHAT DOES IT ALL MEAN?**

MP3 stands for MPEG-1 Audio Layer 3. It's a 'codec': a powerful compression/decompression algorithm that shrinks digital information so it takes up less space. It's similar to Sony's ATRAC technology developed for MiniDisc, but while ATRAC reduces the amount of data to about a fifth of the original's size, MP3 compresses by a factor of 12.

The origins of MP3 can be traced back to 1987, when Germany's Fraunhofer Institut set about devising a method for broadcasting audio and video in a compressed digital form. The technology was formalised by the Moving Picture Experts Group in 1992 as MPEG-1 video compression, and MP3 was born as a footnote: a system that could shrink sound files with minimal loss of quality. Indeed, its supporters often refer to it as 'CD quality', though that is a highly dubious



claim. So, how does it work? In basic terms, it removes data that is deemed 'redundant' - stuff which is designated inaudible, or can be derived from other data. This allows files to be transmitted more quickly, then a decoder reassembles it into something coherent at the receiving end.

**WEBBED WONDER**

As the Internet exploded in the public consciousness, so MP3 hit the headlines. It was the ideal codec for posting music files on the Web, files which could be downloaded and played back via a computer. Suddenly, the Internet's huge potential to change the face of business became more tangible: the digital distribution of

**"We support all technological advancements, including MP3, which are revolutionising the distribution of music. However, one priority is to ensure that copyright is protected... we will take action against unlicensed MP3 sites where necessary." British Phonographic Industry**

music, direct from the source, could do away with software and high street stores for good; the 'revolution' had begun. Here's the current state of play: an estimated 17 million MP3 files are downloaded every day, and MP3 is officially the most searched-for subject on the Web after sex. It's not the

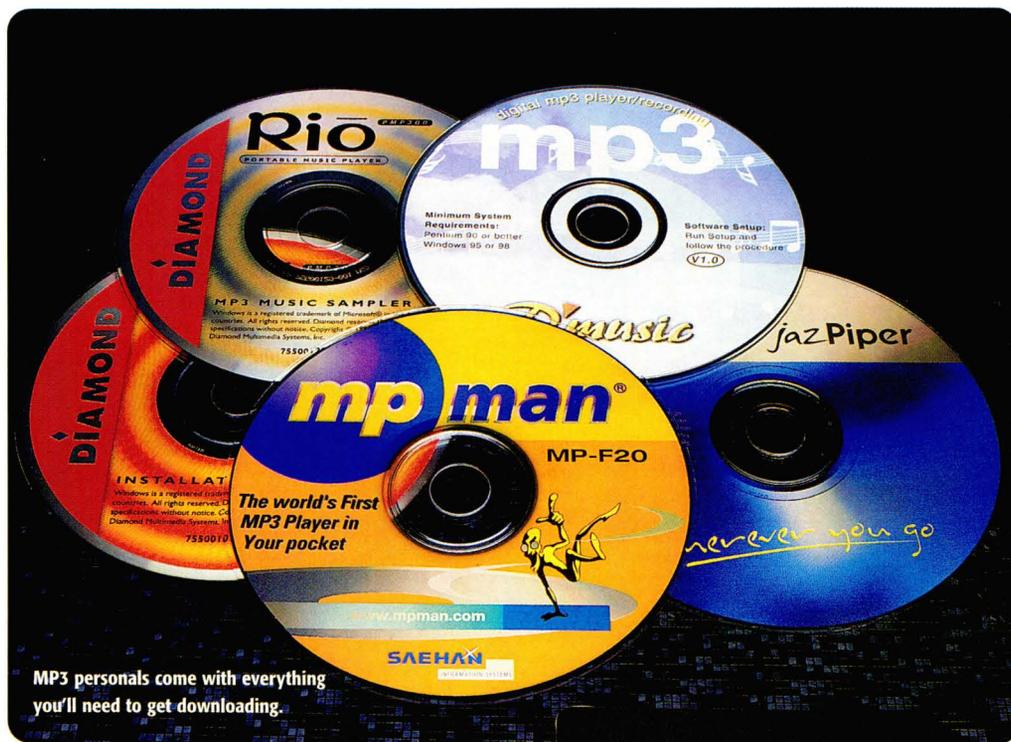
Q. September 1999

only codec used to post files on the Net - others have been developed by the likes of Microsoft and AT&T - but it's by far the most popular, with about 98 per cent of currently available music using MP3.

**WHAT YOU NEED**

If you want to access MP3 music files, you need a computer - a PC or Macintosh with Internet access. Your hardware doesn't need to be super-fast, but if it's too slow you'll find download times tiresome - MP3 really became viable when 100 MHz-plus Pentium PCs and 56Kbps modems appeared in force. With a fairly modern PC set-up, you're looking at about four minutes of downloading per minute of music play time.

You also need an MP3 player, the simplest type of which comes in software form and can be easily installed on your



MP3 personals come with everything you'll need to get downloading.

**“For hi-fi use it's over-hyped... it lets you store more on a hard disc, but that's all. It's terribly exciting when you can get lots of copyright-breaking music for free, but when the 'free' element goes away it'll be less attractive.”**

**Arcam's John Dawson**

computer. The Windows 98 operating system has one built in, but some users prefer more flexible players like Winamp and RealJukebox, easily available on the Net. Most of these support MP3, as well as some newer codecs, and enable you to download tracks and playback via you computer's sound card. Some also include a 'CD ripper', which lets you encode CD tracks into MP3 form and store them on your hard drive - a sizeable CD collection would fit inside a single PC, or you could make a CD-R containing about a dozen separate albums!

You can also buy MP3 players, most of which are currently

tiny portable units, like personal

stereos (five are reviewed on the following pages). It's on these that most of the current hype is focused - smaller and lighter than a personal cassette player, they have great 'gadget' appeal and should do well on the high street.

These personal players come with all the software you need to download MP3 files or 'rip' your own CDs, and store data on internal RAM chips. How

much music they carry depends on two factors: first, memory size - most of the current models come with 32 megabytes

(MB) built in, expandable via SmartMedia cards (available separately but rather expensive). Second, the encoding rate of the MP3 files themselves - tracks encoded at 128 kilobits per second (Kbps) will sound better than those encoded at, say, 64Kbps, but you'll only squeeze about 35 minutes of music onto a 32MB unit as opposed to an hour's-worth.

There are no moving parts, so they won't jog or skip when you're moving about, but they're hardly suitable if you want to carry a selection of music around; the information you store is re-writable, but you're limited to whatever's held in memory at any given time. Still, they're huge fun to play with, and judging by the flood of MP3 personals now on the market, a raft of hardware makers are desperate for a slice of the action. The

second generation of personals, with more memory and improved facilities, are already well on the way.



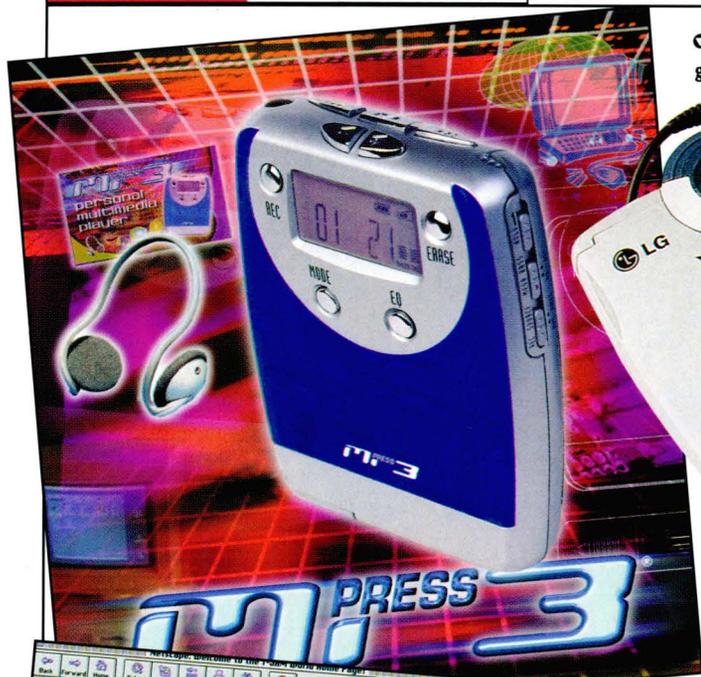
- SmartMedia card: this could be the cassette of the future if MP3 takes off.
- Memory Corporation's MP3-Go.

So, once you're up and running, where do you go to get the music? There's a mass of files available on the Net, some legal and some not. They're incredibly easy to find: just tap 'MP3' into your search engine and you're off. Sites like MP3.com, Musicmatch and EMusic.com are a great general starting point, or you can visit sites posted by individual artists and labels. There are lots to choose from, and their numbers increase every day.

**A BRAVE NEW WORLD?**

US college students were the first to bring MP3 to the attention of the powers that be, ripping songs from CDs, compressing them and posting them on the Net. They brought





Big name manufacturers are getting in on the MP3 act.



to soothe the nerves, actively campaigning against MP3's potential for piracy.

In 1998 it sought an injunction to stop production of the Diamond Rio PMP300, the first personal MP3 player to make a real splash. It accused Diamond of violating the 1992

Audio Home Recording Act, the key issue being the lack of a mechanism to prevent serial copying of the Rio's content. Rio countered by claiming that the Rio could not be used to distribute its content as it can't output to other devices, and the injunction was refused in court. Legal action continued, however, and full settlement was finally obtained in August.

Crucial to this settlement and the future of MP3 is a working group called the Secure Digital Music Initiative (SDMI), formed last December to develop legally secure standards for digital music distribution. Its members form a powerful collective: the RIAA, the Recording Industry of Japan, the International Federation of the Phonographic Industry, the big five music companies and leading players

potential, exploring ways to protect against piracy and maintain control over distribution. Of the Big Five, Universal, Sony and EMI appear to be leading the way.

From the perspective of the major labels, the Recording Industry Association of America (RIAA) has done much

**“It’s just another music format, and the industry will come together to work with it just as it did with CD. We expect it to form 10 per cent of our business in three to five years.”** **HMV**



A raft of specialist Web sites have sprung up offering a service to artists and linking them directly with the consumers.

Timmol.com is one such site, giving artists a self-contained area where biographies, MP3 sound files and so on can give bands a wealth of exposure. “Record companies argue that bands still need them to organise promotion,” says Steve Doyle, the firm’s managing director.

“However, many musicians insist that their labels sub-contract

promotional services to specialist consultancies, proving that record companies could soon be redundant.”

Not surprisingly, those with most to lose are somewhat more cautious about MP3. The big five music companies – Universal, BMG, Sony, EMI and Warner – have long dragged their feet on the subject, and still offer no downloadable files on their Web sites.

The technology has opened up a Pandora’s box of piracy and copyright issues, which initially sent the major labels into a defensive huddle of inactivity. But now they’ve realised digital distribution won’t simply fade from the scene like a technological bad dream; they’re beginning to embrace its promotional

**MP3 personals are both smaller and lighter than personal cassette players.**

into a focus a new way to buy, sell and distribute music – one that could threaten the very existence of the industry’s most powerful organisations. Some of underground music’s more subversive artists were quick to catch on: here was a technology that could make the money men redundant, shifting the balance of power in favour of the artist, no cuts, no deals, going direct to the audience.

Public Enemy were one of the first acts to embrace it, bands like the Beastie Boys followed suit, and indie moguls like Creation records boss Alan McGee have labelled the phenomenon the greatest musical shake-up since punk.

**A QUESTION OF QUALITY**

**D**on’t believe any claims you hear about MP3 files being ‘CD quality’. In hi-fi terms, their compressed state means the standard is way below that of compact disc, and notably behind the latest MiniDisc technology. Most people will find it fine for personal use, and a good MP3 personal will better many personal cassette players and match your average MiniDisc personal – in fact, the high portability of MP3 personals, and the ability to copy CDs into an MP3 format, mean MD is the format most likely to be threatened. However, in no way should MP3 be considered high-fidelity.

Beyond its compressed nature, there are several factors that govern the quality the listener hears. The first is the encoding rate – this is user-definable if you’re copying your own CDs into MP3 format, but if you’re downloading from the Internet you’re stuck with what you get. A rate of 128Kbps is considered so-called ‘CD quality’ – it can be considerably lower – but some files at 256Kbps are beginning to appear.

Much also depends on the quality of the encoding/decoding software, and the restrictions inherent in squeezing this information down a standard telephone line. And then there’s the hardware it’s played back on: a PC with a sound card and a pair of multimedia speakers, or a personal player with in-ear headphones, will hardly show the technology in its best light. If you really want to hear what MP3 is capable of, hook your PC up to a DAC, an amp and a pair of hi-fi speakers.

Beyond MP3 there will be new and improved codecs, which will lead eventually to the use of lossless compression technologies such as Meridian Lossless Packing, as found in DVD-Audio. This, coupled with improved networks using, say, fibre optic or DSL cabling, should ultimately lead to the digital distribution of music without sonic compromise, all via the all-conquering Internet.

**“This is the biggest change the music business has had in 30 years. In the '70s it was punk, in the '80s it was acid house, in the '90s it's the technological revolution... if you run a record company and you're in denial of the Net you'll be blown out of the sea.”**

**Creation records boss Alan McGee**

from the IT industry, including the likes of Microsoft.

Chief among SDMI's aims is to convince the hardware manufacturers to configure PCs and portable devices with technology that prevents uploading to or downloading from pirate sites, and allows users to 'rip' tracks from CDs for personal use only.

This will include digital watermarking – a signal added to a music file so its origin can be traced – developed from the same technology used for the DVD-Audio standard.

These standards have not been finalised and no SDMI-compliant hardware is yet available, although Diamond's new Rio PMP500 personal MP3 player claims to be 'SDMI-ready' – there's space within its spec for the technology to be added when available.

#### **TO INFINITY... AND BEYOND!**

The buzz surrounding MP3 is rapidly approaching a din. A plethora of personal players now gush from production lines as manufacturers

scramble to get a foothold in a market with huge predicted growth. Technology is moving apace: second generation personals like Diamond's Rio PMP500 are already with us, offering more memory and better facilities, and prices are beginning to plummet.

New codecs are also emerging, some of which promise better quality of sound than MP3, and new platforms are being launched to make it easier for copyright owners to post files on the Net – Diamond has just created one called RioPort. On the hardware side, a device called Empeg Car is set to introduce MP3 to the in-car scene, while the Lydstrom Song Bank M23 is a home unit with hard disc storage that'll store up to 3,500 songs.

And while you currently need a computer to enjoy MP3, that may soon change: Memory Corporation has two 'MP3-Go' devices on the way, one of which lets you copy CDs and store them in MP3. The other is a personal player to which you can transfer a selection of tracks to take out and about.

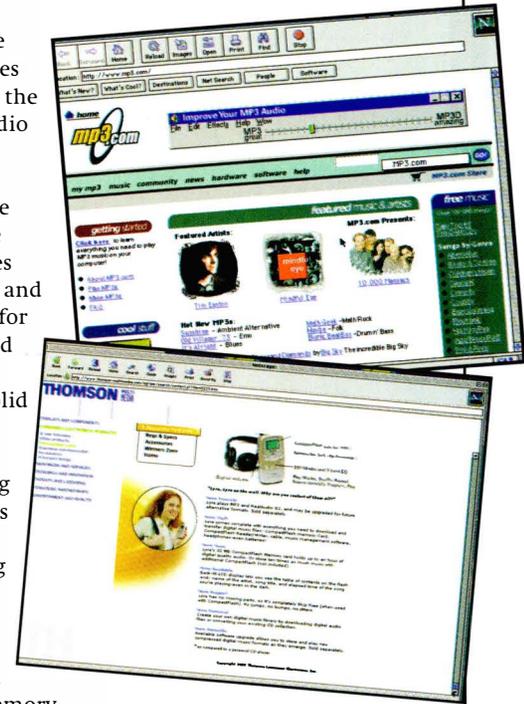
It's not just obscure multimedia companies that are getting in on the act – mass-market audio manufacturers are making plans too, although they all have their own take on the subject. Sharp believes MiniDisc is a cheaper and more flexible option for storing MP3 than solid state technology – although it admits solid state has its uses in terms of portability – while Sony is looking at the newer codecs as alternatives to MP3. Sony is also preparing its own technology, despite the threat solid state storage might pose to its own MiniDisc format – Memory Stick can store music and images on solid state cards the size of a stick of chewing gum, and is being touted as the future of the Walkman. Don't expect the specialist hi-fi manufacturers to get in on the act though, at least not until the quality improves (see the *A question of quality* panel).

As for the Net, predictions vary as to the impact it may have on music distribution.

**“It's hard to see how on-line sales of music can survive if it has to compete with pirate music available for free, with no payments to the creators. Systems which give record companies some control over the destiny of their product will give them at least some comfort.”**

**International Federation of Phonographic Industries**

Jupiter Communications expects on-line music sales of physical artefacts – CDs and so on – to make a real splash, accounting for eight per cent of industry revenue within three years, but predicts digital distribution of music files will have less impact in the short term, hampered by competing



#### **Hardware manufacturers and music sites are easy to locate on the Internet.**

standards and bandwidth limitations. But Underground Music Archive expects digital distribution to have a more immediate impact, predicting it will account for \$600m (£385m) in revenue in three years' time, and an enormous \$3.7bn five years later.

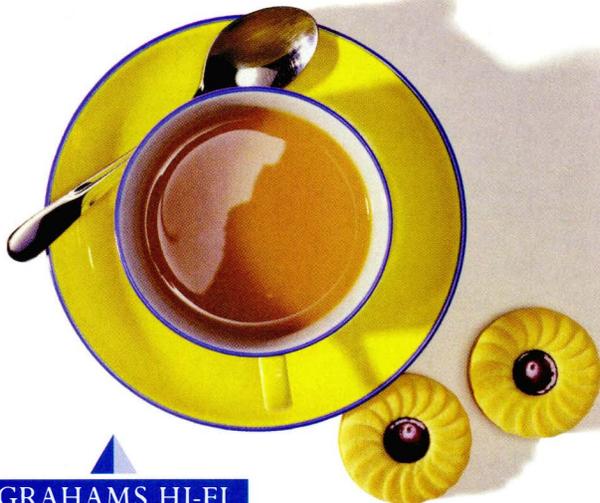
Right now, there's a lot of free music on the Internet, and it's a great way to discover new bands or pick up rare tracks. In the future, assuming the SDMI initiative is successful, such digital distribution may well become commonplace. Improving technology will make it more attractive in terms of sound quality, download times and storage capacity; music companies will create payment schemes, letting you choose songs from a spectrum of artists to build your own custom compilations.

If MP3 is going to make real inroads into mainstream audio, beyond the realms of the 'Net-head', it will do so in the portable market. Here, solid state storage is the logical way to go – its lack of moving parts make it more practical, and recent advances in solid state memory, coupled to codecs like MP3, have made it viable. Its absorption into the home is less likely, but somewhere down the line, far beyond the days of lossy MP3 compression, digital distribution of music will probably be the norm. MP3's just the beginning...



**Sony's Memory Stick: the solid state Walkman of the future.**

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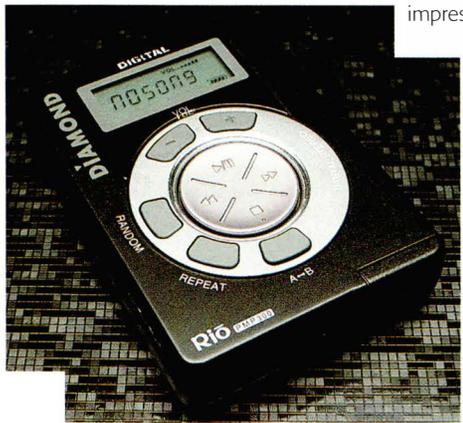
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## DIAMOND RIO PMP300



impressing little more than a £30 cassette model. However, it's still reasonably compact at 6.5x9x2cm, and its controls are neatly arranged.

The MP3 personal scene is rapidly moving on: look at the features the PMP300 offers and it clearly shows its age. It's not alone here in supplying just 32

megabytes of RAM as standard (expandable via Smart-Media cards) but, unlike the others, it offers no additional features like voice recording to tempt the buyer.

This is the personal MP3 player that kick-started the hullabaloo last year. It already looks and feels rather dated, its black plastic casing

But you do get four equalisation presets to tailor the sound, as well as random and repeat modes.

### SOUND QUALITY

The PMP300 was never celebrated for its outright sound quality – it was simply the ability to download and carry MP3 files around with you and play music without risk of skipping that caused such a stir. Its performance is actually rather hard-edged and lifeless, with tinny treble or overblown bass depending on the EQ setting you use. It certainly sounds cleaner than an average cassette personal, and its EQ settings are actually better balanced than those of the JazPiper, but MP3 can now do better than this.

### VERDICT

**SOUND** ★★☆☆☆

**FEATURES** ★★☆☆☆

**VALUE** ★★☆☆☆

**PRICE** £149.00

The player that started the portable MP3 craze, but the scene is moving rapidly and it's now a bit long in the tooth.

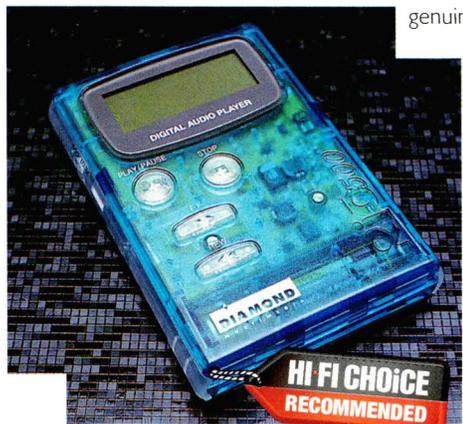
#### ONE YEAR GUARANTEE

☐ Diamond Multimedia (UK), 610 Wharfedale Rd, Winnersh Triangle, Wokingham, Berks RG41 5TY  
☎ (01189) 444400

### SPECIFICATIONS

Capacity	32MB
Expandable Memory	Yes
Voice Recording	No

## DIAMOND RIO PMP500



genuine second-generation MP3 personal, and sports a number of improvements to support its price.

Its standard capacity is 64 MB, which means it's the first MP3 personal to let you store a whole album length CD at a 'CD quality' rate of 128Kbps without expansion. It has a USB connection for computers, which

means faster downloads than through the parallel port other MP3 personals use. What's more, it comes bundled with the best

Diamond's original PMP300 paved the way for others to follow; now the PMP500 has set a new standard. This is the first

software package we've yet used – its search and sort facilities are excellent, and 'ripping' is superb.

Four EQ presets are supplied, together with individual adjustment of bass and treble, and the blue backlit display is the most informative in the group. It's also small (6x9x2cm), and it's one of the first to be Macintosh-compatible.

### SOUND QUALITY

This isn't just the most expensive unit here – it's also the best performer by some margin. It sounds clean, and conveys music with more life and depth than the others, though it's still a little cold and lacking in ambience compared to the best CD/MD personals at the price.

### VERDICT

**SOUND** ★★★★★

**FEATURES** ★★★★★

**VALUE** ★★★★★

**PRICE** £220.00

It's pricey, but its sound and facilities are worth it. If you want the best, this is it.

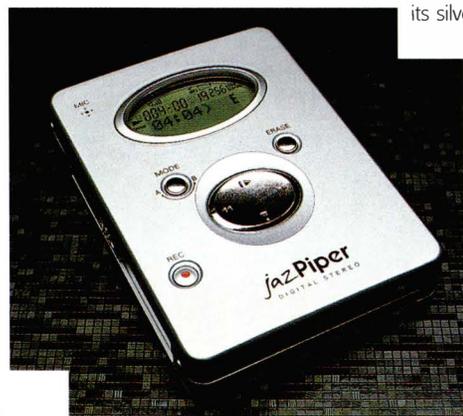
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☎ (01189) 444400

### SPECIFICATIONS

Capacity	64MB
Expandable Memory	Yes
Voice Recording	No

## ELEX JazPiper



its silver body (6.5x9x2cm) and elliptical display oozing suitably hi-tech appeal. Get closer and it's disappointing to discover a rather 'plasticky' build quality, although tactile controls and scrolling text help re-establish an impression of some quality.

Like the Pine unit elsewhere in this group, the JazPiper adds voice recording

to its roster of facilities – you can record 2 hours of memo-quality speech via a built-in microphone. And in a further attempt to lure

Here's one with real shop window appeal: the sleek little 32 MB JazPiper is the one most likely to stop 'em dead in the street,

buyers, a telephone directory function lets you store up to 250 numbers, just like an electronic organiser. Also supplied are random and repeat modes for music playback, and four EQ presets.

### SOUND QUALITY

Use the JazPiper on three of its four EQ modes and it sounds pretty dreadful. With the EQ set 'flat' it's the least appealing in this group; set to 'pop' it's even worse, full of trashy treble and no bass; 'rock' has the opposite effect, delivering wallowy bass and a complete lack of treble. It's partly saved by its 'classic' setting, which gives a more reasonable balance between bass and treble, but it's still rather fatiguing over time.

### VERDICT

**SOUND** ★★☆☆☆

**FEATURES** ★★☆☆☆

**VALUE** ★★☆☆☆

**PRICE** £140.00

A smart package with a high quota of gizmos, sound doesn't cut it at the price.

#### ONE YEAR GUARANTEE

☐ Elex Business Systems, Unit 19, Belvue Business Centre, Belvue Road, Northolt, Middlesex UB8 5QQ  
☎ (0181) 842 3777

### SPECIFICATIONS

Capacity	32MB
Expandable Memory	Yes
Voice Recording	Yes

# PINE D'music



damn good thing we did, because in the world of MP3 portables it's a bit of a bargain. It feels like something you'd want to own from the moment you first grab it: a solid unit with a distinctly tactile appeal. It's the smallest here at 6x8.5x2cm, and sports good control layout and

**T**his little 32 MB beauty came late to our test – we only discovered it after Samsung's Yepp dropped from the running. And it's a

an informative display. A voice recording feature gives added value, letting you store over two hours of memo-quality speech

through a built-in microphone, with repeat, random and five EQ presets in a fine roster of facilities. And the supplied software is excellent too.

### SOUND QUALITY

This is the only MP3 player in this group which can really compete with the best CD/MD personals at its price point. It sounds clean and consistent, with a little more punch and verve than most. It's still a little cold and 'squeezed'-sounding, which is probably more a fault of the format than the player, and frequency extremes could be a little better controlled.

But only the Diamond Rio PMP500 beats it here, and the Pine is the cheapest to boot.

### VERDICT

**SOUND** ★★★★★

**FEATURES** ★★★★★

**VALUE** ★★★★★

**PRICE** **£129.90**

**If you want an MP3 personal and you can't afford the Diamond Rio PMP500, this is the one to go for.**

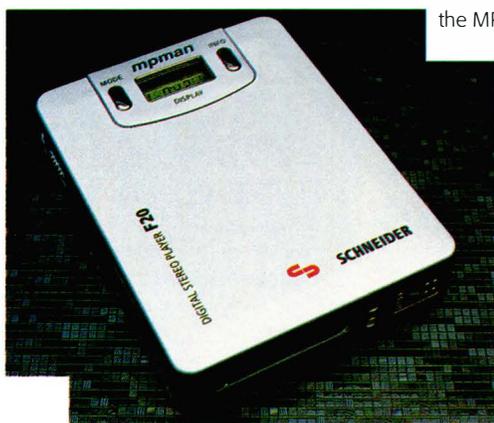
#### ONE YEAR GUARANTEE

✉ Pine Technology UK, Unit 28, Maryland Road, Tongwell, Milton Keynes MK15 8HF  
☎ (01908) 218812

### SPECIFICATIONS

Capacity	32MB
Expandable Memory	Yes
Voice Recording	Yes

## SCHNEIDER MPMAN F20



the MPMAN F10, launched in the US by Saehan, but the Rio was promoted more heavily and so made the greater splash. Now Schneider has brought the MPMAN to the UK in the shape of the F20, and while this 32MB unit can't compete with newer models like

**C**ontrary to popular opinion, Diamond's Rio PMP300 was not the first MP3 personal to emerge. That honour belonged to

Diamond's PMP500, it still holds its own – just.

It looks pretty smart, but get to grips with its 7x9x2cm body and its

aesthetics disappoint: build quality is a little flimsy, the controls are fiddly and its tiny display lacks information. You do get a smattering of facilities like random and repeat play, and a three-step bass boost, but there's not much else to shout about.

### SOUND QUALITY

Performance is reasonably even, though clearly exhibits that rather cold and lifeless quality that's typical of MP3. Bass boost adds some warmth, and is quite effective with dance music to get those bass lines moving, but it's rather overpowering with other musical styles. It's also a bit brittle up top, but generally clean and listenable with 128Kbps recordings. All in all, not bad.

### VERDICT

**SOUND** ★★★★★

**FEATURES** ★★★★★

**VALUE** ★★★★★

**PRICE** **£149.99**

**An early MP3 personal blueprint that now shows its age, but its sound can still match much of its growing competition.**

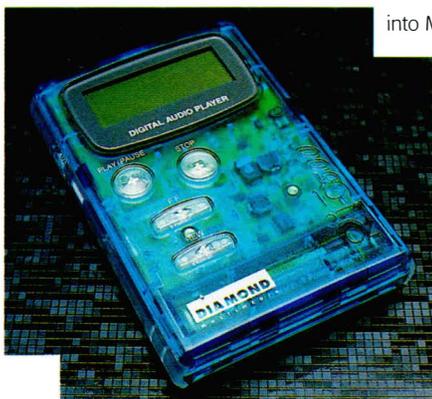
#### ONE YEAR GUARANTEE

✉ Schneider UK, Aura House, 77 Dane Rd, Sale, Cheshire M33 7BP  
☎ (0161) 374 0101

### SPECIFICATIONS

Capacity	32MB
Expandable Memory	Yes
Voice Recording	No

## CONCLUSIONS MP3 Players



into MP3 at an encoding rate of 128Kbps. Listening was conducted with the supplied in-ear headphones and a pair of Sennheiser HD455s.

So, should you chuck your tape, CD or MD personal and buy into MP3? Well, if you've got a suitable PC (or Mac), then there's plenty of fun to be had discovering sites and building compilations, and the complete

**T**esting for this group was conducted by downloading various tracks from the Internet for A/B comparisons, and by 'ripping' tracks from my own CDs to convert

lack of skipping when you're moving about is a bonus, particularly for those used to a CD personal. On the downside, you've got to put up with the download times and limited

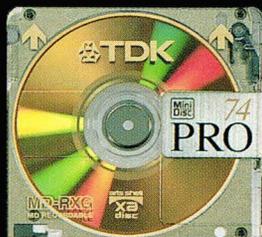
capacity, although both these factors are improved by new models.

On sound quality alone, buying a CD or MD personal at an equivalent price will buy you better performance. Yet, for most personal users their sound probably seems impressive, particularly with files at 128Kbps – clean and stable, it's miles better than an average cassette personal. Generally speaking, they're better with pop than classical music, and the nature of

MP3 compression backs their sound into a rather two-dimensional corner. But on the train or down the gym they're likely to do just fine.



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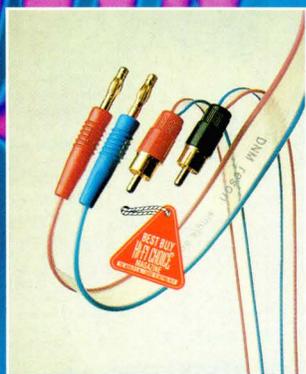
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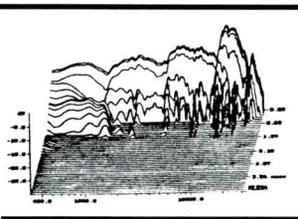


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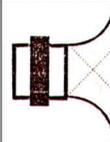
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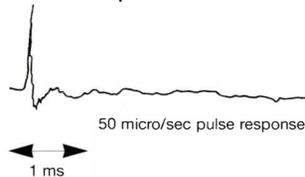
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# PAUL MILLER'S OASIS OF SANITY

Paul Miller takes a last, lingering look at the TACT Millennium digital amp reviewed last issue.



However, we mustn't confuse its immunity from *voltage* clipping with perfect tolerance of difficult loudspeaker loads. I squeezed some 160 Watts into 8 Ohm loads from the TACT, a figure that holds true under both continuous and dynamic conditions.

Just as the Millennium can't be over-driven by a bigger-than-16-bit number, neither will it offer any dynamic headroom, because whether the signal is continuous or momentary (like a musical transient) it is still described by a fixed digital number.

Unless an analogue amp has an infinitely stiff power supply, it will always offer slightly more power under dynamic

Having followed its development over several years, it was very satisfying to finally review a production sample of TACT's Millennium digital amp last month. This product embodies enough innovation to keep the *Oasis* occupied for a year! But to keep the production editor from having a blue fit, I'm going to discuss two key 'features' of the amp that are often misunderstood. For one month only.

One of the primary features of a true digital amp is that it can't, ordinarily, be over-driven into clipping. This is a difficult concept to grasp, particularly as we're used to conventional analogue amplifiers collapsing into a heap of distortion if the input level or volume control is advanced too far. In *HFC 149* and *HFC 178*, I described why digital amps operate under different 'rules', but the message is worth reiterating, this time with pictures.

### FIRST: RULE ONE

Imagine an ordinary analogue power amplifier with a fixed gain of, say, x18 or 25dB. This means an input voltage (from a preamp or CD player) of 1.5 Volts is 'magnified' to 27 Volts (blue traces). And 27 Volts supported across an 8 Ohm speaker gives an output power of 90 Watts or so. In our example, this 27 Volts is the maximum available from the

**"As it's impossible to input a 'bigger' 16-bit number, it's similarly impossible to force a higher voltage from the amplifier. Consequently, it can't 'clip' in the conventional sense."**

amplifier's power supply, so if a (red) input of 2.0 Volts is applied it can't 'magnify' this to 36 Volts (or 160W/8 Ohm). Instead, as we see from Figure 1, the output is visibly clipped (red trace), resulting in a huge rise in distortion. Incidentally, it's this distortion rather than an excess of power that often results in damage to speakers.

A digital amplifier is a different proposition because its final output voltage is always referenced to the level described by the incoming digital code. Let's assume we have a 16-bit digital input. This means we have  $2^{16}$  steps in level available to describe the signal at each and every sample point.

The highest level is given the biggest 16-bit number (that's 16 1s in a row, in blue) and this is synchronised to the maximum voltage available from the digital amplifier's PWM output stage (blue trace).

As it's impossible to input a 'bigger' 16-bit number, it's similarly impossible to force a higher voltage from the amp. Consequently, it can't 'clip' in the conventional sense.

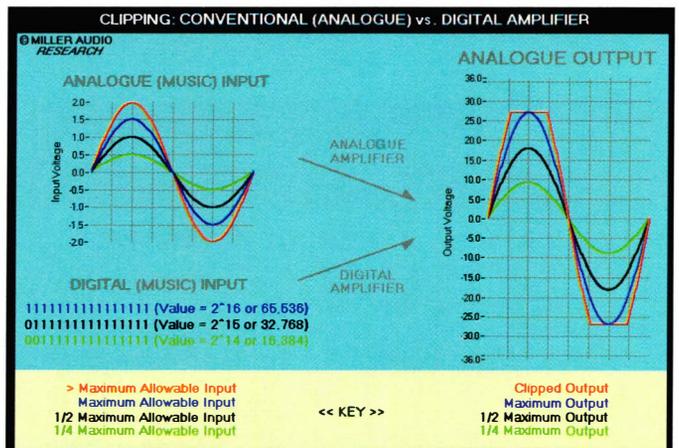


Figure 1: Why a digital amplifier can't clip.

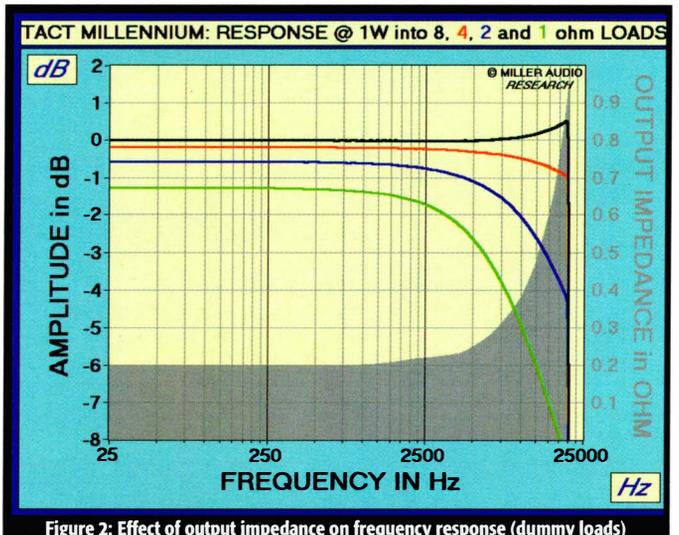


Figure 2: Effect of output impedance on frequency response (dummy loads)

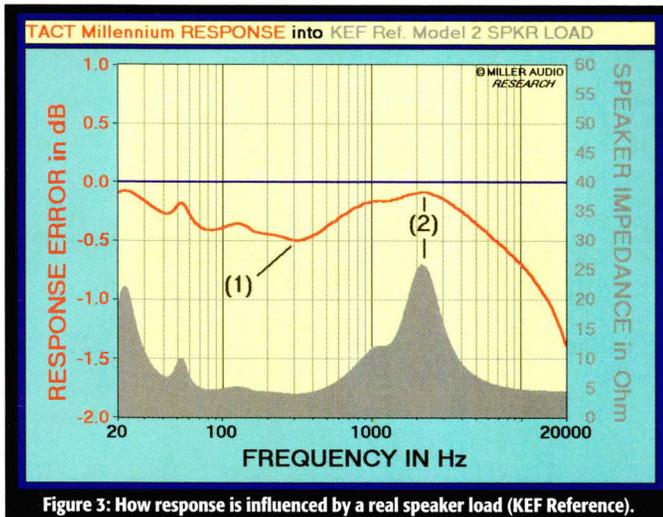


Figure 3: How response is influenced by a real speaker load (KEF Reference).

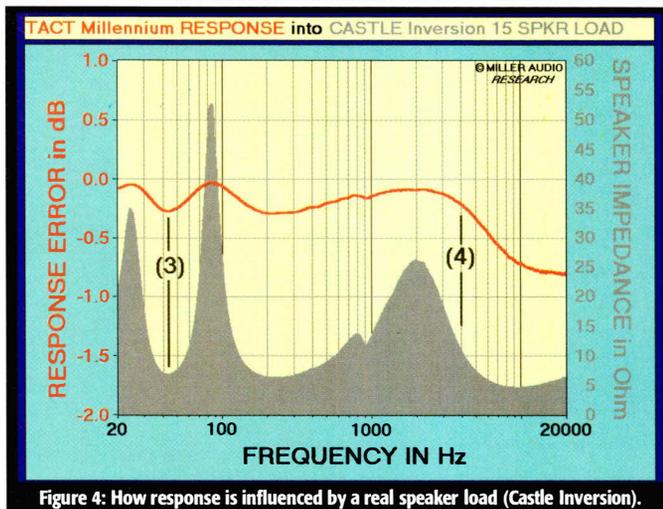


Figure 4: How response is influenced by a real speaker load (Castle Inversion).

**“Because of current rather than voltage clipping, the practical power output into 4 Ohms remains a very impressive 312W but falls to 181W into 2 Ohms.”**

conditions. Here's just another example of where analogue and digital amps diverge and, perhaps, provides some more clues about the distinctive sound quality of the TACT.

Of course, the TACT does not have an infinitely stiff power supply either. In practice, its power output never quite doubles as the speaker load is halved. If it did, we'd expect some 320 Watts into 4 Ohms and 640 Watts into 2 Ohms.

Instead, its switch-mode supply can't deliver more than 9.5 Amps of current to support its maximum 36.3 Volts across all speaker loads. So, because of current rather than voltage clipping, the practical power

output into 4 Ohms remains a very impressive 312 Watts but falls to 181 Watts into 2 Ohms – more than enough to grapple with most likely speakers.

#### ACTING RESPONSIVELY

Grappling's one thing, but maintaining uniform response is quite another. We discussed the high-speed PWM output stage used by the Millennium before, and the need for it to use a substantial LC filter to remove any high frequency switching noise. Additional networks have been used to provide isolation from, and immunity to, spurious RF noise. But these filters also add a reactive component to the amp's output impedance which, in turn, modifies its response into different speaker loads (see *Oasis*, HFC 177).

The upshot is that the amp isn't connected as 'directly' to the speaker as we might like. This output impedance is shown as the grey-shaded area on Figure 2, with its scale on the far right of the graph. Note how the increase in output impedance to nearly 1 Ohm at

20kHz is mirrored by changes in the treble response of the amp into progressively lower speaker loads, along with a net loss in dB (Volts).

The +0.5dB peak at 20kHz (black trace) has been engineered into the TACT's DSP to minimise what would otherwise be a greater treble droop into lower 4, 2 and 1 Ohm loads (red, blue, green traces respectively).

I have previously suggested this variation in response with load impedance may, indeed, cause the TACT to 'magnify' the anomalies of different speakers. To explore the idea, I created a computer program that uses the data stored from previous *Choice* speaker group tests together with the output impedance of the Millennium to 'predict' the overall system response. The DSP correction used by TACT is also factored in for greater accuracy, although the program can't take into account the variations caused by phase and speaker cables.

#### A NEW PERSPECTIVE

Back in HFC 167, we reviewed the KEF Reference 2, a speaker whose tough load (shaded grey trace, Figure 3) may have put it at a disadvantage. With dips below 4 Ohms and an average of just 7.1 Ohms, the Reference 2 is a tough cookie to drive.

A notionally perfect amp would be immune to its effects and provide a flat response with no losses (blue line on Figure 3). But my computer prediction shows the TACT/KEF Ref. 2 response (red trace) to be more 'wobbly', with a full 0.5dB loss at the speaker's 300Hz impedance minimum (1).

There's also a progressive loss in upper mid/treble (2) as the falling impedance of the speaker coincides with the steadily increasing output impedance of the amp. The overall effect amounts to nearly -1.5dB at 20kHz which, even with the *acoustic* variations in speaker/room response, may have some subjective impact.

#### VARIATION ON A THEME

It's an unlikely partnership, but Castle's Inversion 15 speaker (HFC 193) proves a point. Here we see that despite the substantial swings in impedance from 6-52 Ohms (shaded grey area, Figure 4), the

effect on the overall system response (red trace) is less dramatic than that of the KEF Reference 2. In practice, the *dips* in impedance magnify errors in its response. The speaker's 43Hz port resonance, for example, prompts an equivalent 'wobble' in the response (3) as its falling treble impedance (4) is reflected in a loss of HF from the amp.

Most analogue amps are less susceptible to these variations, although they offer different compromises in other areas. Furthermore, TACT would argue, these wobbles could be ironed out by its companion Room Correction System, which assesses then counters the peaks and dips of a speaker's in-room response by recourse to sophisticated DSP.

Nevertheless, without this add-on product, it's easy to see how the overall sound of this fascinating amp is influenced by your choice of speaker and, indeed, speaker cable. So, even with the most advanced of audio technology, careful system-matching remains the key to ultimate performance.

**Do you have a subject for the *Oasis*? Please contact Paul Miller via e-mail on MILLER\_AUDIO\_RESEARCH @compuserve.com**

#### GLOSSARY

**BINARY OR DIGITAL WORD:** A number composed solely of 0s and 1s. A 16-bit binary word is 16-digits long. As each digit can be a 0 or a 1, there are  $2^{16}$  (65,536) possible permutations from 0000000000000000 to 1111111111111111.

**CLIPPING:** The point at which an amplifier reaches its maximum output into a given loudspeaker load. Distortion typically increases dramatically at this point.

**DAC OR DIGITAL-TO-ANALOGUE CONVERSION:** The process by which a music signal is reconstructed from binary data.

**DSP OR DIGITAL SIGNAL PROCESSING:** (In this case) the mathematical manipulation of music signals as data in the digital domain.

**NOISE-SHAPING:** A type of 'digital feedback' used to move digital errors that occur as noise out to higher, inaudible frequencies.

**PWM OR PULSE WIDTH MODULATION:** A series of pulses, synchronised to a clock, whose relative duration defines the amplitude of the coded (music) signal. Filtering a PWM signal of its high frequency components reveals this underlying signal.

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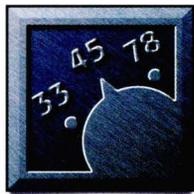
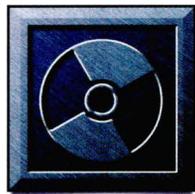
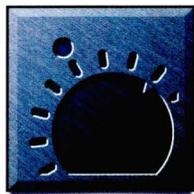
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● Naim CD3.5, Flatcap, Nait 3 amp, NAT03 tuner (all mint, boxed) with Harbeth LS5/12A speakers, stands, interconnects, cables, £1,600. Call (01293) 881210.

● Naim NaCD3.5, (£1,080) £795 ono. Naim FLATCAP power supply, (£360) £260 ono. Naim Nait 2 amplifier, £225. Linn Troika cartridge £145 ono. Linn Axis/Basik/K9 £265 ono. Call (0118) 946 1132 (eve)/(0118) 958 5463 (day).

● Nakamichi CR2E, £120; ZX7, £450; BX300E, £275. Rogers Studio 7,

rosewood, £350. Quad 34/306, grey, £295. Naim NAB300, £500. Call (01304) 203298.

● Pierre Lurne Turntable c/w arm Ortofon Quassar cartridge (£2,000) £850. Ruark Prologue One speakers, cherry, (£1,000) £650. All mint and boxed. Call (01889) 881984.

● Pioneer A300R Precision plus new Tom Evans modification, £279. Audio Note ANV interconnect, 2 x 1m, 1 x 0.5m. Call (01432) 266240.

● Quad 33 preamplifier, very good condition, £65. Call Mick (01322) 409742.

● Revox A76 tuner FM. Teak and brushed aluminium, 16x9x6in (WxDxH), superb. C/W instructions, signal and centre indicators, £295. Call (01202) 481386.

● Rogers Studio 7 speakers, 3 weeks' use, (£900) £375. Philips CD104, £100. AR tuner R/C, £55. Call (0121) 246 0486.

● Sony CD player XA2ES, mint, boxed, instructions. (Recommended by HFC at £350) £125. Call (01255) 675115.

● Thorens TDA2000 DAC, £300. McIntosh C22 preamplifier with original wooden case, £1,500. Call (0117) 956 5361.

● Tom Evans modified Pioneer A300 Precision amplifier. Remote, boxed, mint condition. Genuine reason for sale. £300 ovno. Call (01253) 720038.

## WANTED

● Audiolab 8000P power amplifier. Will pay up to £250, must be in good order. Call (0161) 626 8070.



## BUYING TIPS

Buying secondhand can be a great way to pick up a bargain. A formerly-expensive second-hand component might well prove a better long-term bet than a brand-new product engineered down to a price. Do some research on which brands and products have a good service back-up, so if something does go wrong, you can get it fixed. Unless you purchase from a secondhand hi-fi dealer, you're unlikely to get any warranty. So it's up to you to ensure the fitness of any gear that you buy. Products such as speakers should be less prone to breakdown than amplifiers, and amps should be more reliable than CD players. But any abused component could be troublesome – have a proper dem, and judge the seller as well as the goods!



Ruark Talisman II  
A snip at £325

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We carry the finest range of Hi-Fi in London and you can be sure that any of the products you see advertised here are on display and available for audition. Our helpful experienced staff are always on hand to help explore new possibilities open to you. This month - New goodies from Arcam, Linn, Naim, Rega, Yamaha, and - some great DVD & dem bargains, call now!

## THE PRODUCTS

AVI - ARCAM\*



ARCAM - Full range available

B & W - CREEK

CHORD COMPANY

DENON - EPOS

LINN - MARANTZ\*

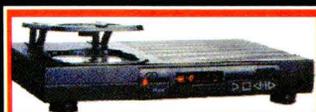
MISSION - NAIM



NAIM - Full range available

ProAc - PIONEER

REGA - ROTEL



REGA - Full range available

SENNHEISER

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TAG McLAREN

TLC -TANNOY

YAMAHA

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 email: [sales@billyvee.demon.co.uk](mailto:sales@billyvee.demon.co.uk)

## SPECIAL OFFER £329



Pioneer 515 DVD Player (was £399)  
 limited quantity at this special price. Call now!

## SYSTEM SAMPLER!

ROTEL RCD 951 CD

Creek 4330 Amplifier

Tannoy R1 Speakers

**£679**

Save over £100 on this system. Available 0% APR

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**0% APR**

MIN LOAN £450 - MIN DEP 10% PLEASE CALL FOR DETAILS  
 (0% APR AVAILABLE ON NEW & SELECTED EX-DEM UNITS)

## NEW ARRIVALS

& FIRM FAVOURITES

source - COMPONENTS

Arcam Alpha 7se CD ..... £329.00  
 Arcam Alpha 8 CD ..... £449.00  
 Linn Ikemi Player (NEW!) ..... £1995.00  
 Marantz CD 670se ..... £279.00  
 Marantz CD63Ki Signature ..... £399.00  
 Naim CD 3.5 Player ..... £1080.00  
 Pioneer DVD 717 Player ..... £449.00  
 Rega Planet CD Player ..... £449.00  
 Rega Jupiter CD & lo DAC ..... £949.00  
 Rega Planar 3 T/T inc arm ..... £274.00  
 Rega Planar 25 inc arm(NEW!) £600.00  
 Tag McLaren CDR20 (NEW!) . £1499.00  
 Yamaha DVD S700 plus AC3 .. £599.00  
 Linn LP12/Arm - combs from. £1725.00

selected - AMPLIFIERS

Arcam Alpha 1 (NEW!) ..... £229.00  
 Linn Majik (line level) ..... £650.00  
 Marantz PM66Ki amplifier ..... £399.00  
 Naim Nait 3 Amplifier ..... £608.00  
 Creek 4330 Amplifier ..... £279.00  
 Rotel RA 931ax Amplifier ..... £179.00  
 Rega Brio Amplifier (NEW!) ..... £298.00  
 Tag McLaren 60i amp(NEW!) .. £799.00

am/fm - TUNERS

Arcam Alpha 7 Tuner ..... £229.00  
 Naim NAT 03 FM Tuner ..... £633.00  
 Rega Radio Tuner (NEW!) ..... £298.00  
 Tag McLaren T20 Tuner(NEW) £1099.00

selected - RECORDERS

Pioneer CT-830S Cassette ..... £499.00  
 Pioneer PDR-05 CD-R (NOW) .. £599.00  
 Pioneer PDR-04 CD-R (NOW) .. £349.00  
 Pioneer PDRW 555 (NEW!) ..... £379.00  
 Yamaha KX393 Cassette ..... £129.00  
 Yamaha KX580se Cassette .... £249.00

loud - SPEAKERS

AVI Neutron (NEW!) ..... £499.00  
 B&W DM 302 ..... £149.00  
 B&W DM 601 ..... £199.00  
 B&W CDM 2se ..... £400.00  
 Linn Tukan Mini Monitor ..... £550.00  
 Linn Keilidh Speakers ..... £750.00  
 Mission 701 ..... £129.00  
 Mission 702 ..... £159.00  
 Naim INTRO ..... £700.00  
 Naim CREDO ..... £1250.00  
 ProAc Response 2.5 ..... £2700.00  
 Rega Jura speakers ..... £449.00  
 Tannoy R1 (NEW!) ..... £199.00

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AVI S2000 Pre amp/phono stage (WOW!) ... (1199.00)	£779.00	Linn AV5140 Speakers (Cherry) (WOW!) .... (2150.00)	£1295.00
AVI S2000 Reference CD Player (WOW!) .... (1399.00)	£899.00	Linn Keilidh inc Stands (Rosentut) .....	(985.00) £789.00
AVI S2000 FM Tuner (WOW!) .....	(599.00) £399.00	Marantz CD63 Ki Signature CD Player .....	(399.00) £319.00
Acam Alpha 9 Amplifier .....	(499.00) £375.00	Mission 773 Spkrs (WOW!) .....	(349.00) £229.00
Arcam Alpha 8 Power Amp .....	(249.00) £189.00	Mission 774 Speakers .....	(449.00) £319.00
Arcam Alpha 9 Power Amp .....	(399.00) £299.00	Naim CDS Player S/H (1Yr warranty) .....	(3900.00) £2595.00
B&O Avant 28" inc Video (1YR G/TEE) .....	(3700.00) £2490.00	Pioneer PDR04 CD Recorder As New (WOW!) (449.00)	£359.00
B&O AV5 TV/Hi-Fi/CD (1YR G/TEE) .....	(4650.00) £2995.00	ProAc Response 2.5 Speakers (Walnut) .....	(2700.00) £1990.00
Epos ES12 Speakers (Dark Cherry) .....	(499.00) £379.00	Rotel RCD 951 CD Player .....	(300.00) £239.00
Epos ES15 Speakers (Light Cherry) .....	(890.00) £649.00	Tannoy P10 Speakers (WOW!) .....	(199.00) £129.00
Epos ES22 Speakers (Light Cherry) .....	(1185.00) £899.00	Rotel RCD 971 CD Player .....	(400.00) £299.00
Epos ES30 Speakers (Black) (WOW!) .....	(2550.00) £1750.00		

\* 0% APR on combined Ex/dem purchases of more than £660. Call for details



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The most up-to-date information on all the latest product developments

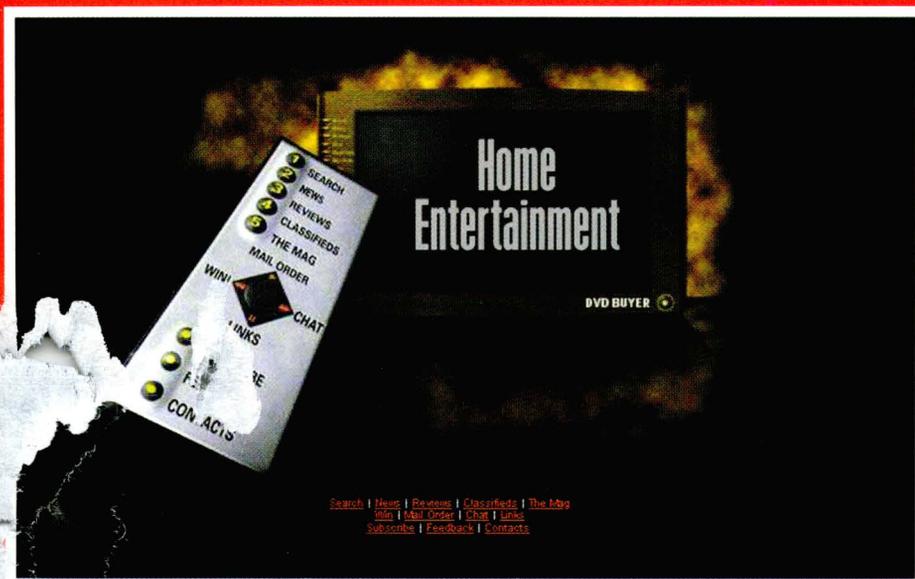


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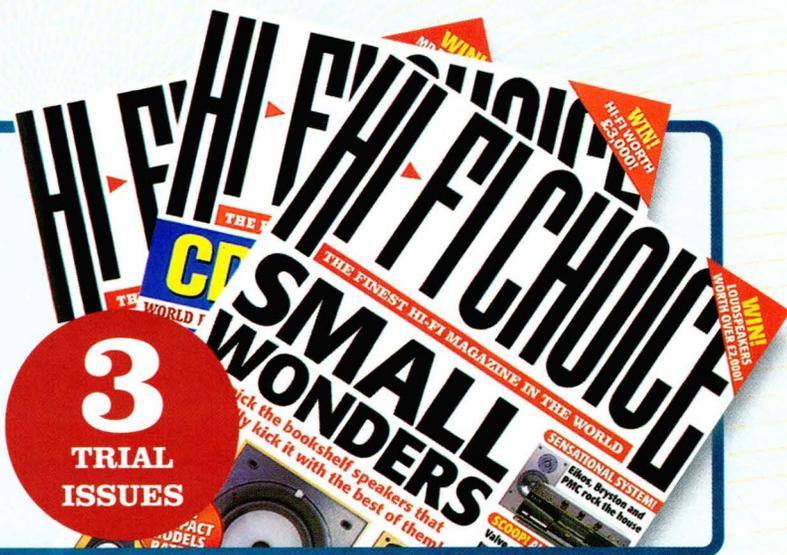
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# HOW TO USE THE BUYERS' GUIDE

## Best Buys, Recommendations & Editor's Choices

- B BEST BUYS:** Awarded to group-tested products which display an unbeatable blend of performance and value for money.
- R RECOMMENDED:** Top performers in group tests: perhaps not the cheapest but possibly more sophisticated than Best Buys.
- E EDITOR'S CHOICE:** More expensive components which exhibit outstanding engineering, industrial design and sound quality.

## Our Three Step Guide to Buying Hi-Fi

The *Hi-Fi Choice Price Guide and Directory* are extremely simple to use, but contain all the information you need to select and buy the perfect hi-fi system. Here's how it works.

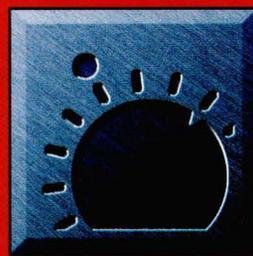
**STEP 1 DISCOVER** which products fall within your budget by using our Price Guide, which starts on this page. The product listing is updated using manufacturers' data every other month, and aims to include every hi-fi component currently available in the UK. (But please fax us on 0171-917 5512 with any omissions!) It is an alphabetical listing divided into different types of hi-fi component, and also into price bands.

**STEP 2 PRODUCTS** whose names are printed in **RED** are those we have reviewed, which you can read about in the Directory (starts after the Price Guide). Here you will learn which items have been singled out for our famous Best Buy, Recommended or Editor's Choice awards, denoting products of exceptional quality and value. The Directory is sorted by product type and listed alphabetically, and the beginning of each section provides essential information about each kind of hi-fi component.

**STEP 3 FIND** your nearest hi-fi store in our Dealer Directory (at the end of the Directory) to book a demonstration of the hi-fi equipment you want to hear. Remember to take your own LPs or CDs!

# DIRECTORY INDEX

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## AMPLIFIERS INTEGRATED

### KEY

- Ⓜ - Number of line-level inputs.
- '20W' - Rated RMS output power per channel into nominal load of 8 Ohms.
- UP TO £250

Akai AM1100	Ⓜ	50W	230
Arcam Alpha One	Ⓜ	35W	230
Ariston AX910	Ⓜ	30W	80
Cambridge A1 Mk III	Ⓜ	30W	100
Cambridge A1 Mk3 SE	Ⓜ	30W	120
Cambridge A3i	Ⓜ	60W	200
Cambridge A500RC	Ⓜ	75W	200
Denon PMA-250SE	Ⓜ	30W	140
Denon PMA-350SE	Ⓜ	50W	180
Denon PMA-535R	Ⓜ	50W	230
Denon PMA-100M	Ⓜ	80W	240
Goodmans Delta 900A	Ⓜ	100W	130
H/K HK630	Ⓜ	40W	200
H/K HK3270	Ⓜ	65W	250
JVC AX-A372BK	Ⓜ	40W	200
JVC AX-R5BK	Ⓜ	45W	200
Kenwood KA-1080	Ⓜ	60W	140
Kenwood KA-3080R	Ⓜ	70W	170
Kenwood KAF-3010R	Ⓜ	70W	180
Marantz PM-48	Ⓜ	50W	150
Marantz PM-57	Ⓜ	50W	200
Marantz SR-47	Ⓜ	40W	200
Marantz PM-66SE	Ⓜ	50W	230
Musical Fidelity E1	Ⓜ	30W	199
NAD 310	Ⓜ	20W	100
NAD C320	Ⓜ	40W	200
NAD 312	Ⓜ	25W	200
Pioneer A-105	Ⓜ	30W	130
Pioneer A-204R	Ⓜ	25W	160
Pioneer A-300R	Ⓜ	50W	200
Pioneer A-305R	Ⓜ	50W	200
Pioneer A-407R	Ⓜ	45W	230
Pioneer A-405R	Ⓜ	45W	250
Rega Brio	Ⓜ	30W	229
Rotel RA921	Ⓜ	20W	100
Rotel RA931	Ⓜ	35W	150
Rotel RA971	Ⓜ	70W	200
Sansui AUX-410R	Ⓜ	50W	150
Sansui AUX-510R	Ⓜ	70W	230
Shenwood AX 4050R	Ⓜ	50W	150
Shenwood AX-7030R	Ⓜ	95W	230
Sony TA-FE210	Ⓜ	40W	130
Sony TA-FE320R	Ⓜ	60W	150
Sony TA-FB730R	Ⓜ	200	
Sony TA-F248E	Ⓜ	50W	200
Teac AE-2000	Ⓜ	50W	180
Teac A-R600	Ⓜ	90W	200
Technics SU-V300	Ⓜ	25W	150
Technics SU-V500	Ⓜ	30W	180
Technics SU-A600 Mk3	Ⓜ	37W	200
Technics SU-V620	Ⓜ	70W	230
Technics SU-A700 Mk3	Ⓜ	45W	250
Yamaha AX-392	Ⓜ	60W	170
Yamaha AX-9	Ⓜ	50W	200
Yamaha AX-492	Ⓜ	85W	220

### £251 TO £500

Arcam Alpha 7R	Ⓜ	40W	280
Arcam Alpha 8R	Ⓜ	50W	380
Arcam Alpha 9	Ⓜ	70W	500
Audio Analogue Puccini	Ⓜ	40W	475
Audiogram MB1	Ⓜ	40W	493
Creek 4330	Ⓜ	40W	279
Creek 4330R	Ⓜ	40W	355
Creek 5250	Ⓜ	50W	450
Cymbol CA1	Ⓜ	40W	499
Cyrus SL	Ⓜ	50W	398
Denon PMA-735R	Ⓜ	65W	300
Denon PMA-1500R	Ⓜ	70W	500
Edmund Audio ES110	Ⓜ	85W	400
EMF Audio Sequel	Ⓜ	50W	450
H/K HK650	Ⓜ	60W	330
Kenwood KA-5090R	Ⓜ	65W	300
Magnum IA120	Ⓜ	65W	265
Magnum IA170	Ⓜ	96W	330
Magnum IA170SE	Ⓜ	90W	430
Marantz PM-68	Ⓜ	90W	300
Marantz PM-66 Kl Sig	Ⓜ	50W	400

Monrio Asty	Ⓜ	55W	400
Musical Fidelity E11	Ⓜ	60W	300
Musical Fidelity X-A1	Ⓜ	50W	480
Musical Fidelity A2	Ⓜ	25W	500
Myryad T-40	Ⓜ	50W	400
NAD 314	Ⓜ	35W	260
NAD C340	Ⓜ	50W	270
NAD 317	Ⓜ	80W	470
Onkyo A9210	Ⓜ	40W	260
Onkyo A921	Ⓜ	50W	350
Onkyo A922	Ⓜ	70W	400
Pioneer A-607R	Ⓜ	60W	300
Pioneer A-400X	Ⓜ	50W	300
Pioneer A-605R	Ⓜ	80W	400
Pioneer A-300R Precision	Ⓜ	35W	400
Rega Luna	Ⓜ	40W	375
Rega Mira	Ⓜ	60W	450
Shearpe 2.5	Ⓜ	35W	499
Sony TA-FB920R	Ⓜ	65W	300
Sony TA-FA30ES	Ⓜ	80W	400
Sony TA-F3000ES	Ⓜ	40W	500
Talk Electronics Storm 1	Ⓜ	50W	500
Teac AH-500	Ⓜ	50W	280
Technics SU-A800D Mk2	Ⓜ	55W	300
Technics SU-A900D Mk2	Ⓜ	70W	400
Thule Audio Spirit IA60	Ⓜ	60W	449
Token K50	Ⓜ	55W	350
Yamaha AX-592	Ⓜ	100W	280

### £501 TO £700

Alchemist Kraken APD6A	Ⓜ	55W	600
Alchemist Nemesis	Ⓜ	80W	700
Audio Analogue Puccini SE	Ⓜ	40W	635
Audio Note Kanji Line SE	Ⓜ	9W	699
Audio Note First integrated	Ⓜ	40W	699
Audiogram MB2	Ⓜ	60W	599
CR Dev CR3245e	Ⓜ	150W	569
CR Dev Kalyppo	Ⓜ	15W	599
CR Dev CR325	Ⓜ	175W	699
Creek S250SE	Ⓜ	60W	665
Cyrus IIII	Ⓜ	50W	598
Densen Beat B-100 MkII	Ⓜ	60W	650
Gamma Gemini	Ⓜ	12W	699
H/K HK690	Ⓜ	100W	530
Hi Q Sound MCI	Ⓜ	30W	565
JoLida 202	Ⓜ	40W	695
LFD Integrated 0	Ⓜ	50W	549
Linn Majik (Line)	Ⓜ	33W	650
Lynwood Opal	Ⓜ	80W	685
Magnum IA200	Ⓜ	100W	599
Magnum Class A	Ⓜ	85W	690
Musical Fidelity A220	Ⓜ	50W	700
Myryad MI 120	Ⓜ	60W	700
Naim Nait 3	Ⓜ	30W	590
Primare A20 Mk II	Ⓜ	40W	600
Quad 77 Integrated	Ⓜ	85W	700
Rose Scion	Ⓜ	65W	615
Shearpe Phase 2	Ⓜ	50W	689
Sugden Audition T	Ⓜ	65W	549
Talk Electronics Storm 2	Ⓜ	50W	650
Teac AB-X7R	Ⓜ	50W	700
Thule Audio Spirit IA100	Ⓜ	100W	600
Thule Audio Spirit IA60B	Ⓜ	60W	699

### £701 TO £1,000

Alchemist Nexus	Ⓜ		799
Alchemist Forseti Integrated	Ⓜ	100W	1,000
Arcam Alpha 10	Ⓜ	100W	800
Aria S2	Ⓜ	12W	1,000
Audio Note Oto Line PP	Ⓜ	12W	950
AVI S2000M1	Ⓜ	100W	999
Copland CSAB	Ⓜ	60W	899
Credo IMP702	Ⓜ	70W	850
Credo IMP703	Ⓜ	70W	1,000
Electrocompaniet ECI-2	Ⓜ	50W	995
Exposure XX Super	Ⓜ	60W	800
Exposure XV Super	Ⓜ	60W	900
Exposure R00VV	Ⓜ	60W	1,000
LFD 0 LE Integrated	Ⓜ	60W	799
Linn Majik (Phono)	Ⓜ	33W	800
Magnum Class A SE	Ⓜ	80W	795
Marantz PM-17	Ⓜ	60W	900
Meridian 551	Ⓜ	55W	795
Musical Fidelity A3	Ⓜ	85W	849
Musical Fidelity X-A100R	Ⓜ	75W	999
Naim Nait 3 R	Ⓜ	30W	780
Opera Aida	Ⓜ	60W	795
Pioneer A-07	Ⓜ	80W	999
Plinius 2100i	Ⓜ		995
Rega Elicit	Ⓜ	70W	730
Roksan Caspian	Ⓜ	70W	795
Shearpe Phase 2 Reference	Ⓜ	50W	799
Sonneteer Alabaster	Ⓜ	50W	900
Sugden A21a Int	Ⓜ	25W	799
Sugden Audition C	Ⓜ	60W	799
TAG McLaren 60i	Ⓜ	60W	800
TAG McLaren 60iRV	Ⓜ	60W	999
Thule Audio Spirit IA150B	Ⓜ	150W	999

### £1,001 TO £2,000

Aria Simply Four P	Ⓜ	24W	1,595
Aria Simply Four T	Ⓜ	11W	1,650
Art Audio Integra	Ⓜ	30W	1,499
ATC SIA2-150	Ⓜ	150W	1,984

Audio Note Soro Line PP	20W	1,200
Audio Note Oto Line SE	12W	1,200
Audio Note Oto Phono SE	12W	1,500
Audio Note Soro Line SE	18W	1,699
BB Audio BB 30-60	30W	1,495
Beam-Echo SA-50	50W	1,950
Bow Technologies Wazoo	50W	1,795
Bryston B-60	60W	1,249
Copland CSA14	60W	1,199
Copland CSA28	60W	1,249
Copland CTA402	35W	1,698
CR Dev Romulus V3	35W	1,198
CR Dev Athena	38W	1,499
CR Dev Remus V3	60W	1,989
Credo LIM 702		1,191
Credo LIM 703		1,249
Densen DM-10	75W	1,375
EAR 859	13W	1,999
EAR 834	40W	1,999
Golden Tube Audio SI-50 MkII	50W	1,100
Graaf Ventiniquie	20W	1,790
Jadis Orchestra		1,345
LFD Integrated 1	65W	1,099
Marantz PM-17K1 Sig	60W	1,300
Meracur Intrare	60W	1,095
NAD 5300	100W	1,900
Papworth MIH-200	200W	1,200
Papworth MVH-200	200W	1,200
Plinius 8150		1,895
Pracisa Sonoro	100W	1,800
Primare A30.1	100W	1,500
Restek Fantasy 2	100W	1,499
Sonic Frontiers Anthem Integrated	25W	1,299
T+A R1200R	90W	1,750
Thule Audio Space IA250B	250W	1,799
Woodside ISA230 Line	30W	1,099
Woodside ISA230 Disc	30W	1,249

### OVER £2,000

Adyton Opera	50W	2,595
AMP Flux System 2	50W	3,000
Ania Simply 845	24W	3,195
Audio Note Meishu Line	9W	2,750
Audio Note Ongaku	26W	5,000
Audio Research CASO		3,399
Belcanto SET140	40W	4,450
Belcanto Orfeo 30SI	35W	5,450
Cary CAD-300SEI	11W	3,995
Conrad-Johnson CAV-50	24W	2,495
EAR V20	24W	2,495
Electrocompanion ECI-1	100W	2,195
Gamma Rhythm	18W	2,499
Gamma Rhythm Ref	20W	3,499
Gamma Moment	40W	19,999
Jadis DA30	30W	2,690
Jadis DA60	60W	4,483
Krell KAV300i	150W	2,495
Krell KAV300r		3,333
Krell KAV500i	250W	5,000
McIntosh MA6400E	100W	3,999
McIntosh MA6800E	150W	5,999
Meracur Onesta	75W	2,595
Musical Fidelity A1001	200W	2,500
Pioneer A-09	45W	4,000
Rowland Concentra	100W	5,500
Sonus Faber Musica		2,295
T+A R1500R	135W	2,015
Tube Tech Unisis Sig. Int.	30W	2,300
Tube Tech Synergy PPS	150W	6,900

### AMPLIFIERS PREAMPS

**KEY**  
 (etc) - Number of line-level inputs.  
**Ph** - Phono input fitted as standard  
 (may be an option on some other models).

#### UP TO £500

Arcam Alpha 9C		400
Aria Simply Phono	Ph	500
Art Audio Minuet		499
Audio Analogue Bellini	Ph	495
Audio Note M Zero		299
Beam-Echo PP-21	Ph	499
Bryston BP1	Ph	438
CR Dev Themis	Ph	349
Creek OBH-9		160
Creek P43/R		350
Creek P52		499
Crimson CS610C	Ph	450
Cyrus aEQ7	Ph	498
Densen DP-Drive/DP-02		350
DPA Enlment phono	Ph	275
EAR 834P	Ph	349
EAR 834L		449
EAR 834P/MC	Ph	499
Electrocompanion ECP-1	Ph	495
Henley HMC50		150
Henley HMC100		350
Hi Q Sound LCP2		149
LFD Mistral Linestage		449
LFD LSO Linestage		499
Lumley PP70		345

Lumley PP1		345
Magnum MP120		330
Magnum MP660		500
Magnum MP330		500
Monrio ADN-N	Ph	295
Monrio Asty L		500
Moth 30 Passive		149
Moth 30 Phono	Ph	249
Moth 30 Line stage		349
Musical Fidelity X10-D		120
Musical Fidelity X-LP	Ph	200
Musical Fidelity X-PRE		200
Musical Fidelity E20	Ph	400
NAD PP-1	Ph	40
NAD 114	Ph	270
NAD 116	Ph	430
Naim Prefix		360
Naim NAC92		485
NVA P50		350
Parasound P/HP-100	Ph	130
Parasound P/HP-850	Ph	400
Plinius Jarrah	Ph	35
QED Discsaver DS-1	Ph	45
Rega EOS	Ph	398
Rega Cursa	Ph	450
Roksan Artaxerxes 10	Ph	395
Rose RV-25	Ph	130
Rotel RQ970BX	Ph	450
Rotel RC971		150
Rotel RC972		225
Sunfire Phono	Ph	430
Talk Electronics Hurricane 1		500
Technics SU-C1000 Mk2	Ph	300
Thule Audio Spirit PR100		400
Trilogy 905		375
Trilogy 904	Ph	375
Trilogy 900	Ph	499

### £501 TO £2,000

Adyton Chorus		1,995
Alchemist Kraken Pre		549
Alchemist Forseti Pre		999
Alchemist Signature Pre		1,499
Aria Feather One		795
Aria Mystery Two		1,750
Aria Mystery One		1,750
Art Audio Headline		700
Art Audio VPL		741
Art Audio Conductor Phono		750
Art Audio VP1		952
Art Audio Conductor		1,250
Art Audio Conductor Export		2,000
Audio Note M1 Line		550
Audio Note M1 RIAA	Ph	550
Audio Note M2 Line		999
Audio Note Discovery		999
Audio Note M2RIAA	Ph	1,099
Audio Prism Mantissa		1,995
Audio Research LS8		1,449
Audio Research PH3	Ph	1,490
Audio Research LS9		1,949
Audio Synthesis Pro Passion		595
Audio Synthesis Passion		695
Audio Synthesis Passion 8S		1,295
Audio Synthesis Passion 8M		1,695
AVI S2000MP		949
AVI S2000MP+P	Ph	1,199
Beam-Echo SP-21	Ph	1,116
Bryston 4		642
Bryston BP5	Ph	889
Bryston BP20		1,126
Bryston BP-25		1,326
Canary Audio CA-606		1,295
Canary Audio CA-601		1,595
Cary SLP-50		995
Cary SLP-74		1,795
Cary PH-301	Ph	1,795
Chord Phono	Ph	1,898
Chord CPA 1800		1,905
Concordant Exhilarant		900
Concordant Exquisite		1,950
Conrad-Johnson PV-10AL		995
Conrad-Johnson PV-10A	Ph	1,295
Conrad-Johnson PV-12AL		1,990
Conrad-Johnson EF-1	Ph	1,990
Conrad-Johnson PF-2	Ph	1,990
Copland CSA303	Ph	1,099
Copland CTA301 MkII	Ph	1,249
CR Dev Carmenta		659
CR Dev Argento	Ph	699
Credo CMP004		1,246
Credo CMP005		1,876
Cyrus aCA7		798
Cyrus aEQ7/PSX-R	Ph	826
Densen Beat B-200	Ph	1,000
Densen DM-20	Ph	1,200
DNM 3 Start	Ph	1,000
DNM 3A Start	Ph	1,650
DPA Enlightenment pre		795
Dynavector L200		995
Dynavector P100	Ph	1,495
Dynavector L100		1,995
Earmax Pre		1,895
ECA Vista S		760
ECA Vista HD		880
ECA Prisma		880
Electrocompanion EC-4.5	Ph	1,195

Electrocompanion EC-4.6		1,750
Exposure XII		800
Exposure XIX		800
Exposure XVII	Ph	850
Exposure RC XXI		1,000
Gate PR101P		1,195
Golden Tube Audio SEP-2		990
Golden Tube Audio SEP-3		1,995
Graaf WFB Two	Ph	1,350
Graaf WFB One	Ph	1,750
Henley HMC200		600
Hi Q Sound MCB2	Ph	545
Hi Q Sound MCL2		645
Jadis DPL2		1,590
Krell KAV250p		1,999
LFD MC1 PhonoStage	Ph	949
LFD LS1 Linestage		999
LFD MC2 PhonoStage	Ph	1,499
LFD LS2 Linestage		1,599
LFD LSB Linestage		1,999
Linn Wakonda		750
Linn Linto		850
Linn Kairn		1,400
Lumley LV1.5		895
Lumley LV1		1,150
Lumley PV1.5	Ph	1,700
Lumley PV1	Ph	1,700
Matisse Atom		1,000
McIntosh C712	Ph	1,999
Meracur Ingredi		925
Meridian 501		695
Meridian 562		765
Meridian 562V		995
Meridian 502		1,295
Michell Iso/Lithos		599
Michell Orca		1,650
Muse Model 3		1,990
Musical Fidelity F25	Ph	1,500
Myryad MP100		600
NAD 118		1,000
Naim NAC92R		650
Naim NAC72		745
Naim NAC102		1,080
Quad 77 Pre	Ph	850
Quad 99 Pre	Ph	1,300
Rega Hal	Ph	998
Roksan Artaxerxes X/DS1.5	Ph	1,150
Roksan ROK-L2.5		1,250
Rose RV-235	Ph	525
Rotel RC995		525
Shearpe Phase 6 Pre		999
Shearpe Phase 1 Pre Ref		1,499
Siemmel MC20	Ph	650
Siemmel MM20	Ph	650
Siemmel TU10		1,599
Siemmel TR20		1,599
Sonic Frontiers Anthem Pre 1P	Ph	899
Sonic Frontiers Phono 1	Ph	1,999
Sonographe SC26		995
Sugden Audition Pre		549
Sugden Masterclass Pre		1,995
Sumo Athena II Line		767
Sumo Athena IIB/II LS		987
Sumo Athena III		987
Sumo Artemis up		1,595
Sunfire The Classic		1,630
T+A P1200R		965
TAG McLaren PA10	Ph	849
TAG McLaren PPA20	Ph	1,499
TAG McLaren PA20R		1,499
Talk Electronics Hurricane 2		650
Talk Electronics Hurricane 3		900
Talk Electronics Hurricane 4		1,550
Talk Electronics Hurricane 5		1,900
Technics SU-C2000	Ph	700
Thorens TTP-2000F	Ph	699
Thule Audio Spirit PR150B		699
Trilogy 901		750
Trilogy 902	Ph	750
Trilogy 902		1,595
Tube Tech Seer Line		935
Tube Tech Mac Phono	Ph	1,150
Tube Tech Prophet		1,970
van den Hul Pre-amp		1,800
Wilson Benesh Stage One	Ph	995
Woodside SC27 Line		949
Woodside SC26 Line		1,557
XTC PRE-1		1,350
Yamaha CX-2	Ph	650

### OVER £2,000

Adyton Temper		2,495
Adyton Modus		2,695
ATC SCA2		2,599
Audio Note M3Line		2,650
Audio Prism Avanti		7,995
Audio Research LS15		3,399
Audio Research LS25		4,999
Audio Research REF 1		8,495
Balanced VK-50		3,995
Boulder L3AE		2,100
Boulder L5AE		3,400
Boulder L5M		3,800
Boulder 2010		22,000
Canary Audio CA-801		3,750
Cary SLP-98L		2,595
Chord CPA 2200		2,530

Chord CPA 3200		3,785
Chord CPA 4000		6,675
Conrad-Johnson PF-R		2,490
Conrad-Johnson PV-12A	Ph	2,590
Conrad-Johnson Premier 15	Ph	3,995
Conrad-Johnson Premier 14		4,495
Conrad-Johnson Premier 16LS		7,995
Conrad-Johnson Art		14,995
CAT SL1 Ultimate	Ph	5,750
CR Dev Kastor		2,995
Credo LPR 001		2,815
DNM 3C Primus	Ph	2,550
DNM 3C Twin	Ph	3,800
DNM 3C Six	Ph	5,050
EAR 802MC	Ph	2,599
EAR G88	Ph	9,999
EAR P52	Ph	15,999
Gamma Era Ref	Ph	7,999
Graaf CM13.5B		3,750
Jadis DPL		2,900
Jadis DPMC	Ph	2,900
Jadis JPL		4,200
Jadis JPP200		4,290
Jadis JPP30MC	Ph	5,290
Jadis JPS2		6,690
Jadis JP80MC	Ph	10,166
Jadis JP200MC		15,900
Krell KRC3		2,998
Krell KRC-CHR		6,949
LFD Disc Preamp	Ph	4,499
Madrigal 25S	Ph	2,950
Madrigal 380		3,995
Madrigal 380S		6,495
Madrigal 32		14,495
Matisse Fantasy		2,500
Matisse Reference	Ph	3,500
McIntosh C22		2,999
McIntosh C40	Ph	4,999
McIntosh C39	Ph	5,999
Meracur Pretare	Ph	2,195
Naim NAC82		2,225
Naim NAC52		3,450
Plinius M14	Ph	2,595
Plinius M16L		2,995
Roksan ROK-L1.5		2,250
Rowland Synergy		4,999
Rowland Coherence		14,999
Sonic Frontiers Line 1		2,499
Sonic Frontiers Line 2		3,299
Sonic Frontiers Line 3		4,999
T+A Pre DA3000		2,640
Technics SU-C3000	Ph	2,997
Trilogy 918		2,775
Tron Nucleus Phono	Ph	3,100
Tron Nucleus Line		3,100
Tron Retro		4,000
Woodside SC26 Line & Phono	Ph	2,233

### AMPLIFIERS POWER AMPS

**KEY**  
 \*20W - Rated RMS output power per channel into nominal load of 8 Ohms.

#### UP TO £500

Arcam Alpha 8P	50W	260
Arcam Alpha 9P	70W	400
Creek A43	50W	399
Creek A52	70W	499
Crimson CS620C	50W	450
Cyrus XPA	50W	298
Cyrus Power	100W	498
Earmax Headphone	0.1W	375
Earmax Headphone Pro	0.1W	475
LFD Mistral Power	60W	449
LFD PAO Powerstage	50W	499
Magnum MF120	85W	365
Marantz MA-500	125W	250
Marantz MA-700	200W	400
Moth 30 Stereo	30W	249
Moth Phono-01	0.1W	299
Moth 30 Mono/40	40W	469
Musical Fidelity X-CANS	0.1W	130
Musical Fidelity E30	100W	500
Musical F		

Alchemer Signature Power	100W	1,999	Sugden Audition Power	549	Graaf 5050	50W	2,100	Apertura Model A	⊗	469.00	
Arcam Alpha 10P	100W	600	Sugden A21a Power	25W	649	Graaf GM20	60W	2,850	Argento Copper I/C	⊗	120.00
Aria Power 35	35W	1,500	Sumo Polaris III	164W	950	Graaf GM100	100W	4,250	Argento Silver I/C	⊗	255.00
Art Audio Quintet	15W	1,395	Sumo Model Five	60W	1,975	Graaf GM200	200W	7,500	Argento VDM Silver	⊗	865.00
Art Audio Quintet SE MB	-W	1,500	Sumo Andromeda III	240W	1,975	Jadis DA8	80W	2,990	Art Yam Church 5000	⊗	515.00
Art Audio Concerto	50W	1,669	T+A A1210	90W	875	Jadis DA7	100W	4,790	Audio Note AN-A	⊗	18.00
Audio Analogue Donizetti	60W	595	T+A PA1220R	100W	1,445	Jadis JA30	30W	5,180	Audio Note AN-C	⊗	35.00
Audio Note The P	40W	550	T+A A1 500	140W	1,535	Jadis SE300B	10W	7,980	Audio Note AN-S	⊗	99.00
Audio Note P Zero	8W	599	T+A PA1500R	135W	1,665	Jadis IA80	60W	9,580	Audio Note AN-V	⊗	179.00
Audio Note P1	12W	750	TAG McLaren 60P	60W	849	Jadis IA100	100W	10,298	Audio Note AN-Vx	⊗	450.00
Audio Note P1SE	12W	999	TAG McLaren 100P	100W	1,099	Jadis IA200	160W	13,980	Audioquest Jade	⊗	30.00
Audio Note P2	20W	1,000	Talk Electronics Tornado 2	65W	600	Jadis IA500	400W	19,990	Audioquest Turquoise 2	⊗	40.00
Audio Note P2SE	18W	1,499	Talk Electronics Tornado 3	100W	750	Krell KAV250a	250W	3,145	Audioquest Topaz x2	⊗	59.95
Audio Note Conqueror	8W	1,599	Talk Electronics Tornado 4	110W	1,100	Krell KAV500/2	100W	3,195	Audioquest Ruby x3	⊗	80.00
Audio Prism Antares	35W	1,695	Technics SE-A2000	100W	1,100	Krell FPB200	200W	5,998	Audioquest Quartz x3	⊗	125.00
Audio Research D130	130W	1,890	Thorens TTA-2000	30W	599	Krell FPB250m	250W	8,994	Audioquest Opal x3	⊗	200.00
Audio Research VT60	35W	1,999	Thule Audio Spirit PA100	100W	600	Krell FPB300	300W	9,500	Audioquest Emerald x3	⊗	260.00
AVI S2000MM	150W	1,399	Thule Audio Spirit PA150B	150W	699	Krell FPB600	600W	12,900	Audioquest Lapis x3	⊗	399.00
Beauhorn Obligato	7W	1,175	Trilogy 948	50W	1,895	Krell FPB350m	350W	15,994	Cable Talk Improved 2/CD	⊗	26.00
Bryston 2B-LP	75W	750	Trilogy 948T	22W	1,895	Krell FPB650m	650W	23,800	Cable Talk Advanced 2	⊗	34.95
Bryston 3B-ST PRO	150W	1,160	Tube Tech Syntex	45W	1,150	Lexicon 225	250W	2,500	Cable Talk Improved 2/Tape	⊗	47.00
Bryston 3B-ST	150W	1,160	Tube Tech Unisig Sig. Pwr	30W	1,900	Lexicon 501	500W	5,000	Cable Talk Monitor 2.1	⊗	50.00
Bryston THX3B	150W	1,262	Woodside SA240	40W	1,199	Linn Klout	80W	2,400	Cable Talk Studio 2	⊗	65.00
Bryston 7B-ST PRO	500W	1,545	Woodside MA100	100W	1,733	Linn Klimax 500	500W	11,200	Cable Talk Professional 2	⊗	85.00
Bryston 4B-ST PRO	300W	1,756	Woodside STA50	50W	1,880	Lumley M125	120W	3,750	Cable Talk Broadcast 2	⊗	100.00
Bryston 7B-ST	500W	1,815	XTC POW-2	150W	1,600	Lumley M250	250W	7,500	Cable Talk Reference 2	⊗	150.00
Bryston THX4B	300W	1,850	Yamaha MX-2	150W	750	Madrigal 334	125W	5,495	Cable Talk Signature 2 Gold	⊗	300.00
Bryston THX7B	500W	1,886				Madrigal 335	250W	7,495	Cambridge Atlantic	⊗	10.00
Canary Audio CA-706	40W	1,695				Madrigal 336	350W	8,995	Cambridge Arctic	⊗	20.00
Canary Audio CA-708	50W	1,950				Madrigal 33H	150W	19,995	Cambridge Pacific	⊗	30.00
Chord SPM 400	100W	1,425				Magnum Class A mono	180W	2,450	Cambridge Studio Reference	⊗	40.00
Chord SPM 600	130W	1,850				Magnum A200SE	275W	3,750	Cambridge Silver Spirit 40	⊗	70.00
Conrad-Johnson MV-55	50W	1,995				Mana Stealth	300W	4,500	Cambridge Silver Spirit 60	⊗	100.00
Copland CSA515	150W	1,299				Matisse Ref Monoblocks	180W	8,000	Cardas Audio 300B-Microtwin	⊗	115.00
Copland CTA505	67W	1,899				McIntosh MC150	150W	3,499	Cardas Audio Quadlink-Five	⊗	200.00
CR Dev Amphion	12W	1,949				McIntosh MC300	300W	3,999	Cardas Audio Cardas Cross	⊗	360.00
Credo PMP 804	12W	1,876				McIntosh MC500	500W	8,999	Cardas Audio Hexlink-Five C	⊗	530.00
Creek A52SE	100W	599				McIntosh MC1000	999W	14,999	Cardas Audio Hexlink Golden-5 C	⊗	600.00
Crimson CS630C	100W	800				Meracur Tentare	75W	2,245	Cardas Audio Golden Cross	⊗	700.00
Cyrus aPA7	150W	1,896				Meracur Cantare	-W	8,995	ChordCo Chrysalis	⊗	40.00
Densen B-300	100W	800				Muse Model 160 Ser. II	160W	2,290	ChordCo Cobra 2	⊗	55.00
Densen DM-30	100W	1,200				Muse Model 150	125W	2,690	ChordCo Siren	⊗	69.00
DNM PA Start	45W	1,000				Muse Model 175 Ser. II	175W	3,490	ChordCo Chameleon 2	⊗	90.00
DNM PA1 Start	45W	1,650				Muse Model 300 Ser. II	300W	3,990	ChordCo Chorus	⊗	199.00
DPA Enlightenment pwr	100W	995				Musical Fidelity F16	200W	2,500	Clearaudio Trident	⊗	85.00
Dynavector HX75	75W	1,995				Musical Fidelity F19	300W	4,000	Clearaudio Phocus	⊗	215.00
Earmax Power	25W	1,895				Papworth M100	100W	2,645	Clearaudio Silverline	⊗	265.00
ECA Lectern S	50W	880				Papworth M200	3,825	2,825	Clearaudio Quint	⊗	320.00
ECA Lectern HD	50W	1,480				Plinius SA50/3	500W	2,750	Clearaudio Sixstream	⊗	365.00
Electrocompaniet AW60FTT	60W	1,095				Plinius SA100/3	300W	3,450	Connections UK Ultra	⊗	28.00
Exposure XVIII Super	75W	900				Plinius SA250/3	500W	5,850	Connections UK Midas	⊗	39.00
Exposure XVIII Mono	60W	1,800				Roksan ROK-M1.5	160W	2,250	Connections UK HD	⊗	46.00
Golden Tube Audio SE-40	40W	1,100				Rowland Model 2	75W	4,999	DBF Acoustics Black Velvet	⊗	30.00
Golden Tube Audio SE-300B MkII	8W	1,790				Rowland Model 6	150W	10,999	DBF Acoustics Black Velvet SE	⊗	40.00
Graaf Venticinque P	25W	1,425				Rowland Model 8T	250W	12,499	DBF Acoustics Azure SE	⊗	75.00
Hi Q Sound MCM	70W	715				Rowland Model 9T	350W	27,999	DNM-Reson TCC75	⊗	35.00
Jadis DA5	40W	1,749				Shearne Phase 1 Pwr Ref	100W	2,399	DPA Slink	⊗	41.00
Krell KAV150a	150W	1,990				Siemel TA20	50W	2,350	DPA White Slink	⊗	75.00
Lexicon 212	120W	1,850				Sonic Frontiers Power 1	55W	2,499	DPA Black Slink	⊗	220.00
LFD PA1 Powerstage	60W	999				Sonic Frontiers Power 2	110W	4,999	Ecosse Ref CA1	⊗	65.00
LFD PA2 Powerstage	75W	1,599				Sonic Frontiers Power 3	220W	8,599	Ecosse Ref CS1	⊗	75.00
LFD PA2M Powerstage	90W	1,999				Sugden Masterclass Power	75W	2,995	Ecosse Ref MA2	⊗	165.00
Linn LK100	50W	650				Sumo Model Ten/M	240W	4,200	Ecosse Ref MS2	⊗	155.00
Linn LK240	120W	750				Sunfire Load Invariant	300W	2,280	Ecosse Ref US1	⊗	550.00
Linn AV5105	100W	1,200				Sunfire Signature	600W	2,600	Expressive Tech IC-1	⊗	700.00
Lynwood Ruby	120W	985				T+A A3000	190W	2,850	Gamma Wow Balance	⊗	799.00
Magnum MF330	150W	685				TACT Millennium	145W	2,399	Goertz M1 Interconnect	⊗	145.00
Magnum MF660	125W	825				TAG McLaren 125M	200W	2,100	GT Audio Intercon	⊗	145.00
Magnum A500SE	200W	1,485				Talk Electronics Tornado 5	200W	2,100	Harmonix HS-102	⊗	195.00
Magnum A505E	200W	1,595				Trilogy 958T	45W	3,395	Harmonix HS-101	⊗	265.00
McIntosh MC7100	100W	1,999				Trilogy 958	100W	3,395	Henley HSP10	⊗	20.00
Meracur Clere	60W	1,095				Tron Type PX25	5W	5,150	Henley HSP50	⊗	35.00
Mendian 555	60W	750				Tron Type 300B	9W	5,750	Henley HSP100	⊗	65.00
Meridian 556	100W	895				Tube Tech Genesis Sig.	100W	4,700	Henley HSP200	⊗	95.00
Mendian 557	200W	1,400				Tube Tech Synergy DMA	150W	6,400	Henley HSP250	⊗	150.00
Meridian 505	160W	1,590				van den Hul Power amp	65W	2,500	Heybrook Black Flash	⊗	39.00
Michell Alecto Stereo	50W	1,150				XTC POW-1	200W	2,500	Insert Audio Focus 1.2	⊗	21.50
Michell Alecto Mono	100W	1,950						Insert Audio Image 5.1	⊗	46.95	
Monrio Asty P	100W	950						Insert Audio Status 3.4	⊗	160.00	
Moth Stereo 60	60W	599						Ixos 104	⊗	20.00	
Moth 30 Mono/100	100W	879						Ixos 1003	⊗	30.00	
Muse Model 100	100W	1,490						Ixos Gamma 1002	⊗	39.95	
Musical Fidelity X-A200	200W	1,000						Ixos 103	⊗	45.00	
Myriad MA240	120W	1,000						Ixos 102	⊗	60.00	
NAD 218THX	200W	850						Ixos 101	⊗	100.00	
Naim NAP140	45W	770						Ixos 100.XO3	⊗	150.00	
Naim NAP180	60W	1,090						Kimber PBJ/Ultralate	⊗	68.00	
Naim NAP135	75W	1,705						Kimber KC1	⊗	96.00	
Naim NAP250	70W	1,705						Kimber Hero	⊗	110.00	
NVA A60	43W	560						Kimber Silver Streak	⊗	180.00	
Papworth TVA50	50W	1,425						Kimber KCAC	⊗	390.00	
Parasound HCA-1000A	125W	600						Kimber KCTG	⊗	720.00	
Parasound HCA-1500A	205W	1,000						LAT International IC-50	⊗	370.00	
Quad 909	140W	800						LAT International IC-80 MkII	⊗	58.00	
Quad 707	140W	800						LAT International IC-100 MkII	⊗	95.00	
Quad 99 Monoblock	150W	1,200						LAT International IC-200 Mk II	⊗	151.00	
Rega EXS	70W	598						Lieder Chanson	⊗	340.00	
Rega Exon	125W	1,196						Lieder Lek	⊗	420.00	
Roksan Caspian Power	70W	595						Lieder Het Lied	⊗	420.00	
Roksan ROK-S1.5	100W	1,495						Lieder Song	⊗	580.00	
Rose RP-190 (Dual Mode)	75W	550						Lieder Maas	⊗	620.00	
Shearne Phase 3	50W	639						Lieder Rijn	⊗	1,000.00	
Shearne Phase 3 Reference	50W	749						Lieder Waal	⊗	1,100.00	
Shearne Phase 5 Mono	100W	1,598						Lumley Silver 12/2	⊗	145.00	
Sonic Frontiers Anthem Amp 1	40W	1,299						Lumley Silver 14/4	⊗	175.00	
Sonographe SA250	125W										

Monster Interlink 200	23.00
Monster Interlink 300 MkII	40.00
Monster Interlink 400 MkII	50.00
Moth Leyline Black	100.00
Moth Leyline Grey	200.00
Nordost Magic	35.00
Nordost Black Knight	60.00
Nordost Solar Wind	84.95
Nordost Blue Angel	98.00
Nordost Blue Heaven I/C	150.00
Nordost Red Dawn	300.00
Nordost SPM	825.00
Nordost Quattrofil	1,250.00
Ortofon 7N interconnect	250.00
Precious Metals SS50	50.00
Precious Metals SS55	50.00
Precious Metals SS52	70.00
Precious Metals SS53	90.00
Precious Metals SS100	100.00
Precious Metals SS102	130.00
Precious Metals SS103	160.00
Precious Metals SS104	190.00
Precious Metals SS200	220.00
Precious Metals SS202	290.00
Precious Metals SS203	360.00
Precious Metals SS204	430.00
Prowire Silver	60.00
PAD Elementa	145.00
QED Qnect 2	30.00
QED Qnect 4S	70.00
Roksan ROK-Intercon	75.00
Shinpy Red Devil	80.00
Shinpy Red Star 2	120.00
Shinpy Black Star 2	240.00
Shinpy Pulsar 2	495.00
Shinpy Quasar 2	850.00
Siltech MC2-12	308.00
Siltech MC4-24S	400.00
Siltech FTM-3S	730.00
Silver Sounds SS2	99.00
Silver Sounds SS1	199.00
Silver Tone Ex-Static	35.00
Silver Tone Sci-Fi	95.00
SME S2LB-4	46.18
SME S3LB-4	52.06
SME 4900A	76.83
SME 5900A	102.57
SonicLink Red	25.00
SonicLink Silver pink	35.00
SonicLink Black	50.00
SonicLink Lilac	65.00
SonicLink Brown	70.00
SonicLink Violet	85.00
SonicLink Maroon	125.00
SonicLink Blue Nickel	150.00
SonicLink Vermilion	195.00
SonicLink Red earth	300.00
SonicLink Black earth	450.00
SonicLink Blue earth	695.00
SonicLink Black Rhodium	995.00
Straight Wire Chorus	40.00
Straight Wire Sonata	80.00
Supra DAC-X	60.00
Supra EFF-ISL	80.00
Supra EFF-XLR	90.00
Tara Prism 3	1795
Tara Prism 5	21.95
Tara Prism 8	25.95
Tara Prism 11	37.50
Tara Prism 22	63.50
Tara Prism CD	76.25
Tara Prism 33-i	88.25
Tara Prism 55	115.00
Tara RSC-CD	138.00
Tara RSC-Prime	170.00
Tara RSC-Ref Gen. 2	229.00
Tara RSC-Master Gen. 2	464.00
Tara RSC-Decade	935.00
Tara The 2	1,170.00

Tara The One	2,230.00
Transparent Cable Musichord	48.00
Transparent Cable The Link	92.00
Transparent Cable Music Link	119.00
Trichord Pulsewire 75	169.00
Vampire Wire CC	24.00
Vampire Wire CCC/II	58.00
Vampire Wire SC/II	98.00
Vampire Wire SC/IV	144.00
Vampire Wire A/2	259.00
Vampire Wire SL	412.00
van den Hul Storm II	29.99
van den Hul P85 HB	50.00
van den Hul Source HB	65.00
van den Hul D102 III	80.00
van den Hul Thunderline HB	145.00
van den Hul First Classic	240.00
van den Hul Second	275.00
van den Hul First Ultimate	320.00
van den Hul MC Gold	550.00
van den Hul MC Silver IT	1,400.00
van den Hul MC Silver IT Bal	1,750.00
Wireworld Orbit	30.00
Wireworld Solstice II	40.00
XLO Type 150	50.00
XLO Type 0.1	180.00



**CABLES**  
**Digital Interconnects**

**KEY**  
 ☉ - Stranded construction.  
 ● - Solid-core construction.

Prices of interconnects are for a one-metre terminated pair.

Apertura Model B	139.00
Apertura Model A	255.00
Art Yam Church 5000	275.00
Audioquest Digital/video 1	30.00
Audioquest Digital/video 2	60.00
Audioquest Optlink X	90.00
Audioquest Digital PRO	100.00
Audioquest Optlink Pro	150.00
Audioquest Optlink Z	180.00
Cable Talk Digital 2	78.00
Cardas Audio Lightning	190.00
ChordCo Codac	38.00
ChordCo Optichord	40.00
ChordCo Prodac	50.00
DNM-Reson DIG100	26.00
DPA Opti-link	20.00
DPA Digi-link	27.50
Ecosse Ref MD2	71.50
Harmonix HS-101DIG	240.00
Insert Audio Dataline 500	24.95
Insert Audio Dataline 2.1	29.95
Insert Audio Dataline 700	39.95
Insert Audio Image 5.1	44.95
Ixos 105	25.00
Ixos 106	30.00
Kimber Opti-link	50.00

Kimber Illuminati DV-30	70.00
Kimber Illuminati D-60	325.00
Kimber Illuminati DX-50	350.00
Kimber Illuminati Orchid	750.00
LAT International DI-20-D	79.00
Monster Datalink 100	47.00
Monster Lightspeed 100	47.00
Moth Leyline Datalink	140.00
Nordost Moonglo	155.00
Nordost Silver Shadow	335.00
Precious Metals SD35	20.00
Precious Metals SD100	50.00
Precious Metals SD200	110.00
Precious Metals SD202	145.00
QED DigiFlex	20.00
QED Optiflex	25.00
QED Qnect OT	30.00
Roksan ROK-Intercon	45.00
Shinpy Digital	265.00
Siltech HF-6	145.00
SonicLink Green	60.00
Supra ZAC	44.95
Supra EFF-ID	45.00
Supra DAC-XLR	45.00
Theta Digital AT&T	550.00
Transparent Cable PDL	199.00
Trichord Pulsewire 75D	75.00
Vampire Wire DI/1	150.00
van den Hul Source HB	35.00
van den Hul Videolink	70.00
van den Hul AES-EBU 110	75.00
van den Hul First	140.00
van den Hul Second	150.00
van den Hul First Ultimate	180.00



**Speaker Cables**

**KEY**  
 ☉ - Stranded construction.  
 ● - Solid-core construction.

Price per mono metre, unterminated.

Acoustic Energy AESC-C3	11.95
ALR/Jordan QMM	5.00
Apertura Silver	82.50
Argento Copper	35.00
Argento Copper Ref	65.00
Argento Silver	125.00
Argento Silver Ref	380.00
Art Yam Church M2000	470.00
Art Yam Church 5000	795.00
Audio Note AN-D	4.50
Audio Note AN-B	16.50
Audio Note AN-L	29.50
Audio Note AN-SP	150.00
Audio Note AN-SPx	450.00
Audioquest Type 2	3.50
Audioquest F-18	3.60
Audioquest Type 6+	9.00
Audioquest Indigo +	15.00
Audioquest Crystal +	25.00
Audioquest Forest +	75.00
Audioquest Argent +	125.00

Audioquest Clear 3	200.00
Cable Talk Theatre 2	1.50
Cable Talk The Flat One	2.00
Cable Talk Talk 3.1	2.25
Cable Talk Talk 4.1	4.25
Cable Talk Talk 3.1 Biwire	4.50
Cable Talk Concert 2.1	8.00
Cable Talk Talk 4.1 Biwire	8.50
Cable Talk Symphony 3	12.50
Cable Talk Concert 2.1 Biwire	14.00
Cardas Audio 300B-Microtwin SC	35.00
Cardas Audio Quadlink-Five SC	59.00
Cardas Audio Cross SC	99.00
Cardas Audio Hexlink-Five SC	109.00
Cardas Audio Hexlink Golden5 SC	175.00
Cardas Audio Golden Cross SC	789.00
ChordCo Carnival	3.00
ChordCo Myth	6.00
ChordCo Legend	15.00
ChordCo Odyssey	17.00
DNM-Reson LSC	6.95
DNM-Reson LSCB	13.95
Ecosse Ref FS2.16	1.75
Ecosse Ref CS2.2	2.50
Ecosse Ref CS2.3	3.75
Ecosse Ref CS2.15	5.75
Ecosse Ref MS2.2	15.00
Ecosse Ref MS2.3	20.00
Ecosse Ref MS2.15	30.00
Ecosse Ref US2	450.00
Gale XL105	1.00
Gale XL189	1.00
Gale XL315	2.00
Gale XL160-2	2.50
Gale XL315-2	3.99
Gamma Wonder Line	99.00
Goertz M1	16.00
Goertz M2	32.00
Goertz Big Boy	64.00
GT Audio Speaker	50.00
Harmonix Harmonic-Strings	30.00
Harmonix HS-101T-1	56.00
Harmonix HS-101SC	88.00
Ixos 607	2.00
Ixos 6004	3.00
Ixos 6003	3.00
Ixos 6005	3.00
Ixos Gamma 6006	5.00
Kimber 4PR	5.00
Kimber 4VS	9.00
Kimber 4TC	19.60
Kimber 8TC	32.70
Kimber 4AG	394.00
Kimber 8AG	656.00
LAT International SS 800	16.00
LAT International BIWIRE	23.00
LAT International SS 1000	36.00
Lieder Pad	133.00
Lieder Bel Canto	188.00
Lieder Spoor	253.00
Lieder Straat	463.00
Lieder Weg	663.00
Linn K20	4.00
Linn K400	10.00
Linn K600	15.00
Lumley Silver 12/2	35.00
Lumley Silver 14/4	40.00
Mission Duet	1.90
Mission Quartet bi-wire	3.90
Monster XP Clear	2.20
Monster XP Navajo	2.40
Monster Superflat Mini	2.75
Monster XP HP	3.70
Monster Original	4.40
Monster New Monster	5.50
Naim NAC A5	5.70
Nordost Octava	3.00
Nordost 4-Flat	9.95
Nordost Solar Wind Bi-wire	2795



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Nordost Blue Heaven Spkr	⊕	58.95
Nordost Red Dawn	⊕	110.00
Nordost SPM	⊕	325.00
Ortofon SPK100	⊕	3.00
Ortofon SPK200	⊕	5.00
Ortofon SPK300	⊕	8.00
Precious Metals SL32	⊕	7.50
Precious Metals SL102	⊕	10.00
Precious Metals SL34	⊕	15.00
Precious Metals SL104	⊕	20.00
Precious Metals SL106	⊕	30.00
Precious Metals SL108	⊕	40.00
Puresonic OFC 7892	⊕	1.20
Puresonic OFC 7844	⊕	1.65
Puresonic OFC 7845	⊕	1.95
Puresonic OFC 7891	⊕	2.85
Puresonic OFC 7816	⊕	3.75
Puresonic OFC 7832	⊕	3.75
Puresonic OFC 7812	⊕	3.75
Puresonic OFC 7825	⊕	6.95
Puresonic PSOCC 7801	⊕	9.50
Puresonic PSOCC 7802	⊕	18.00
Puresonic PSOCC 7803	⊕	27.00
QED Qudos Micro	⊕	1.25
QED Qudos micro 4 core	⊕	2.00
QED Qudos 4 core	⊕	4.00
QED Qudos Bi-Wire	⊕	4.50
QED Qudos Silver	⊕	5.00
QED Profile 4x4	⊕	9.00
QED Profile Silver 12	⊕	15.00
Rega REGA	⊕	2.00
Roksan ROK-Speaker	⊕	6.00
Shinpy Red Devil	⊕	30.00
Shinpy Red Star 2	⊕	39.00
Shinpy Black Star 2	⊕	62.00
Shinpy Pulsar 2	⊕	104.00
Shinpy Quasar 2	⊕	208.00
Siltech LS2-45	⊕	109.00
Siltech FT-12 MKI	⊕	240.00
Siltech LS4-120	⊕	549.00
Silver Sounds 12 Gauge	⊕	15.00
Silver Sounds 10 Gauge	⊕	35.00
Silver Sounds 8 Gauge	⊕	75.00
Silver Tone Silver-Sonic	⊕	10.00
Silver Tone Silver-Sonic HC	⊕	15.00
Silver Tone Silver-Voice	⊕	55.00
Silver Tone Silver-Voice Ultra	⊕	85.00
SonicLink AST50	⊕	1.95
SonicLink AST60	⊕	2.50
SonicLink AST75	⊕	2.95
SonicLink AST200	⊕	5.95
SonicLink AST200x2	⊕	10.00
SonicLink S300	⊕	18.00
SonicLink S130x2	⊕	20.00
SonicLink S300x2	⊕	40.00
SonicLink S900	⊕	60.00
SonicLink S600x2	⊕	80.00
SonicLink Black Rhodium 4	⊕	1,000.00
Straight Wire Rhythm	⊕	6.00
Straight Wire Quartet	⊕	8.00
Supra Classic 2.5	⊕	2.49
Supra Linc 2.5 Flex	⊕	3.49
Supra Classic 4.0	⊕	3.95
Supra Ply 2.0	⊕	4.95
Supra Linc 4.0 Flex	⊕	4.95
Supra Ply 3.4	⊕	6.95
Supra Quattro 4x4	⊕	8.95
Supra Classic 10	⊕	9.95
Tara Prism Extra	⊕	1.95
Tara Klara	⊕	2.95
Tara Prism Omni	⊕	3.95
Tara Prism 2+2	⊕	8.20
Tech + Link SPC 79	⊕	1.20
Transparent Cable Musichord	⊕	11.00
Transparent Cable The Wave	⊕	25.00
Transparent Cable Music Wave	⊕	25.00
Vampire Wire SC-384	⊕	11.00
Vampire Wire SC-554	⊕	15.00
Vampire Wire ST-I	⊕	30.00
Vampire Wire SC-1108	⊕	30.00
Vampire Wire ST-II	⊕	48.00
Vampire Wire ST-III	⊕	73.00
van den Hul Skyline HB	⊕	3.99
van den Hul Snowline	⊕	5.49
van den Hul Skytrack HB	⊕	5.99
van den Hul Clearwater	⊕	7.99
van den Hul Snowtrack	⊕	10.99
van den Hul Royal Jade	⊕	10.99
van den Hul CS122 HB	⊕	15.49
van den Hul Cleartrack	⊕	14.99
van den Hul D352 HB	⊕	21.00

van den Hul Teatrack HB	⊕	23.99
van den Hul SCS12	⊕	36.00
van den Hul Magnum HB	⊕	40.00
van den Hul The Wind HB	⊕	44.00
van den Hul Revolution HB	⊕	80.00
van den Hul Revelation HB	⊕	120.00
van den Hul The Third	⊕	1,000.00
XLO Pro 625	⊕	4.00
XLO Pro 600	⊕	16.60

**CARTRIDGES**

**KEY**  
**MM** - Moving-magnet type.  
**MC** - Moving-coil type.

**UP TO £100**

Audio Note IO1	MM	99
Audio Technica AT-91	MM	15
Audio Technica AT-95E	MM	20
Audio Technica AT-110E	MM	28
Audio Technica AT450E	MM	70
Audio Technica AT440ML	MM	90
Benz-Micro MC20EI	MC	70
Denon DL110	MC	70
Denon DL160	MC	90
Denon DL 103	MC	100
Goldring Elan	MM	19
Goldring Elektra	MM	29
Goldring 1006	MM	59
Goldring 1012GX	MM	79
Goldring 1022GX	MM	99
Grado ZTE+1	MM	27
Grado ZCE+1	MM	37
Grado ZFE+1	MM	48
Grado Prestige Black	MM	49
Grado Prestige Green	MM	59
Grado Prestige Blue	MM	69
Grado ZF1+	MM	83
Grado Prestige Red	MM	99
N'ham Tracer I	MM	98
Ortofon OM 3E	MM	16
Ortofon OM 5E	MM	20
Ortofon OM 10	MM	30
Ortofon 510	MM	40
Ortofon OM DJ	MM	50
Ortofon OM 20	MM	70
Ortofon 520	MM	70
Ortofon MC1 Turbo	MC	75
Ortofon Concorde DJ	MM	80
Ortofon OM 30	MM	90
Ortofon 530	MM	100
Pickering TE-15	MM	20
Pickering VE-15	MM	25
Pickering T-E	MM	25
Pickering V15-DJ	MM	28
Pickering TL-E	MM	35
Pickering TL-2E	MM	45
Pickering XV15-625E	MM	50
Pickering XV15-150-DJ	MM	50
Pickering TL-2-S	MM	55
Pickering XV15-757S	MM	60
Pickering XV15-625DJ	MM	60
Pickering XV15-1800S	MM	70
Pickering TL3S	MM	80
Pickering XEV-3001E	MM	95
Pickering XLZ-3500	MM	100
Pickering TL-4-S	MM	100
Rega Bias	MM	39
Rega RB78	MM	39
Rega Super Bias	MM	59
Rega Elys	MM	85
Shure M70BX	MM	21
Shure M92E	MM	22
Shure SC35C	MM	29
Shure M447X	MM	35
Shure M44GX	MM	35
Stanton 500AL II	MM	35
Stanton 500EL	MM	35
Stanton 680AL/X	MM	44
Stanton 680EL/X	MM	59
Sumiko Oyster	MM	74
Sumiko Black Pearl	MM	30
Sumiko Pearl	MM	50
Sumiko Blue Point	MM	70
<b>OVER £100</b>		
Audio Note IO2	MM	139
Audio Note Soara	MC	795

Audio Note IO1V	MC	1,095
Audio Note IO1td	MC	4,500
Audio Technica AT-OC9ML	MC	330
Benz-Micro The Glider	MC	600
Benz-Micro Reference	MC	1,100
Benz-Micro Reference Ruby	MC	1,500
Benz-Micro Ruby Open Air	MC	1,600
Clearaudio Alpha Mk 2	MM	135
Clearaudio Beta Mk 2	MM	190
Clearaudio Beta-S Mk 2	MM	250
Clearaudio Virtuoso	MM	295
Clearaudio Sigma	MC	590
Clearaudio Gamma-S	MC	810
Clearaudio Victory	MC	960
Clearaudio Signature	MC	1,540
Clearaudio Accurate	MC	2,515
Clearaudio Insider	MC	5,165
Clearaudio Insider Ref.	MC	6,810
Denon DL304	MC	200
Dynavector 10X4H	MC	189
Dynavector DV20XH	MC	299
Dynavector DV-20XL	MC	299
Dynavector DV20XL	MC	299
Dynavector 17D2	MC	450
Dynavector XX-1L	MC	998
Dynavector XX-1	MC	998
Dynavector Te-Kaitora	MC	1,698
Goldring Eroica LX	MC	110
Goldring Eroica	MC	110
Goldring 1042	MM	120
Goldring Elite	MC	220
Goldring Excel VX	MC	525
Grado Prestige Silver	MM	119
Grado Prestige Gold	MM	149
Grado Signature Junior	MM	150
Grado Signature 8MZ	MM	250
Grado Signature MCZ	MM	375
Grado Signature TLZ	MM	650
Grado Signature XTZ	MM	975
Grado Reference	MM	995
Koetsu Red T	MC	1,359
Koetsu Red K Sig	MC	1,899
Koetsu Urushi	MC	1,999
Koetsu Signature	MC	2,999
Koetsu Gold PR	MC	5,498
Linn K9	MM	125
Linn Klyde	MC	500
Linn Arkiv	MC	1,000
London Decca Maroon	MM	299
London Decca Gold	MM	319
London Decca Maroon Dp	MM	379
London Decca Gold Dp	MM	399
London Decca S Gold	MM	439
London Decca S Gold Dp	MM	519
London Decca Jubilee	MM	999
Lyra Lydian Beta	MC	599
Lyra Clavis Da Capo	MC	995
Lyra Parnassus DCt	MC	1,895
N'ham Tracer I	MM	310
N'ham Tracer III	MM	410
N'ham Tracer IV	MM	660
Ortofon MC15 Super II	MC	140
Ortofon 540	MM	140
Ortofon MC3 Turbo	MC	150
Ortofon MC25E	MC	200
Ortofon MC25FL	MC	250
Ortofon MC10 Supreme	MC	300
Ortofon MC20 Supreme	MC	450
Ortofon MC30 Supreme	MC	550
Ortofon MC2000II	MC	800
Ortofon MC Rohmann	MC	1,000
Ortofon MC3000 II	MC	1,200
Ortofon MC Jubilee	MC	1,250
Ortofon MC7500	MC	2,000
Pickering TL-3003	MM	145
Pickering XLZ-4500	MM	150
Pickering TL-4004	MM	175
Pickering XSV-5000U	MM	200
Pickering XLZ-7500	MM	200
Pickering TLZ-7500-S	MM	200
Reson Mica	MM	185
Reson Reca	MM	250
Reson Aciore	MC	299
Reson Etile	MC	455
Reson Lexe	MC	1,300
Roksan Corus Black	MM	150
Roksan Shiraz	MC	990
Shure V15XMR	MM	295
Stanton 890AL/X	MM	120
Sumiko Blue Point Special	MC	250
Transfiguration Esprit	MC	950
Transfiguration Spirit	MC	950
Transfiguration Temper Supreme	MC	2,250
van den Hul DDT-II	MM	600
van den Hul MC-10	MC	750
van den Hul MC-One	MC	900
van den Hul MC-One Super	MC	1,050
van den Hul MC-Two	MC	1,200
van den Hul The Frog Low o/p	MC	1,500
van den Hul The Frog HO	MC	1,700
van den Hul Grasshopper IIISLN	MC	2,000
van den Hul Grasshopper IIISLA	MC	2,000
van den Hul White Beauty S-X	MC	2,500
van den Hul White Beauty HO	MC	2,500
van den Hul Grasshopper IIIGLN	MC	2,800
van den Hul Grasshopper IIIGLA	MC	2,800
van den Hul Grasshopper IIICMLN	MC	2,800

van den Hul Grasshopper IIICHN	MC	2,900
van den Hul Grasshopper IVGLA	MC	3,000
van den Hul Black Beauty	MC	3,000
Wilson Benesch Matrix	MC	786
Wilson Benesch Analog	MC	1,572
Wilson Benesch Carbon	MC	1,573



**CASSETTE DECKS**

**KEY**  
 ⇌ - Autoreverse - no need to remove and turn around the tape.  
 3-H - 3 heads, i.e. separate record and replay heads.

**UP TO £200**

Akai DXW1100	⇌	200
Akai DX1200	⇌	200
Arison WX-510	⇌	60
Denon DRM-550	⇌	160
Denon DRM-585	⇌	200
Goodmans Delta 801	⇌	130
H/K DC520	⇌	200
JVC TD-X372BK	⇌	170
JVC TD-R472BK	⇌	200
Kenwood KX-W4080	⇌	160
Kenwood KX-3080	⇌	160
Kenwood KX-W6080	⇌	200
Kenwood KX-5080S	⇌	200
Marantz SD-455	⇌	170
Marantz SD-57	⇌	199
Ornkyo K 185	⇌	200
Pioneer CT-S250	⇌	150
Pioneer CT-W205R	⇌	160
Pioneer CT-W505R	⇌	180
Pioneer CT-S450S	⇌	200
Pioneer CT-W606DR	⇌	200
Sony TC-KE200	⇌	120
Sony TC-WE25	⇌	160
Sony TC-KB820S	⇌	180
Sony TC-WE725	⇌	100
Teac W-416	⇌	180
Teac V-615	⇌	130
Teac RH-300	⇌	160
Teac W-790R	⇌	170
Teac V-1050	⇌	180
Teac RH-500	⇌	200
Technics RS-BX501	⇌	170
Technics RS-TR373	⇌	180
Technics RS-TR474	⇌	200
Technics RS-AZ6	⇌	200
Yamaha KX-393	⇌	130
Yamaha KX-W321	⇌	170
Yamaha KX-493	⇌	180

**OVER £200**

Denon DRM-650S	⇌	230
Denon DRM-740	⇌	270
Denon DR5-810	⇌	310
H/K TD420	⇌	230
JVC TD-V662BK	⇌	270
JVC TD-W718BK	⇌	300
NAD 613	⇌	230
NAD 614	⇌	270
NAD 616	⇌	300
Ornkyo TA 6210	⇌	230
Ornkyo TARW 211	⇌	270
Ornkyo TARW 311	⇌	320
Ornkyo TA 6310	⇌	330
Ornkyo KR 609	⇌	350
Ornkyo KW 606	⇌	370
Ornkyo TARW 411	⇌	370
Ornkyo K 611	⇌	460
Pioneer CT-S550S	⇌	300
Pioneer CT-W806DR	⇌	300
Pioneer CT-S550S Precision	⇌	340
Pioneer CT-S830S	⇌	500
Pioneer CT-95	⇌	1,000
Rotel RC960BX	⇌	250
Sony TC-WE825X	⇌	230
Sony TC-KA6ES	⇌	550
T+A CC1200R	⇌	1,180
Teac W-860R	⇌	230
Teac W-6000R	⇌	450
Teac V-6030S	⇌	550
Teac V-8030S	⇌	650
Technics RS-AZ7	⇌	270

**HI-FI HELP**

Let our experts help with your hi-fi problems. Send your query to 'Help' at the usual address.

Technics RS-TS75 280  
 Yamaha KX-580SE 250  
 Yamaha KX-W592 280



## CD PLAYERS

### KEY

➡ - Multiplayer: can be loaded with more than one disc.  
 1010 - Electrical (coaxial) digital output.  
 Many players also include an optical (Toslink) output.  
**UP TO £250**

Akai CD1100	1010	200
Akai CDM1200		230
Ariston CDX700		70
Ariston CDC610		90
Ariston CDX710		100
Cambridge CD4	1010	150
Cambridge CD45E	1010	200
Cambridge CD6	1010	250
Denon DCD-435		130
Denon DCD-635		180
Denon DCD-735		230
H/K HD720	1010	200
H/K FL8350	1010	200
JVC XL-V120BK		110
JVC XL-V130BK		120
JVC XL-V230BK		140
JVC XL-F116BK		180
JVC XL-F216BK		200
JVC XL-Z574BK		250
Kenwood DP-1080		110
Kenwood DP-2080		130
Kenwood DP-R3090		140
Kenwood DP-R4090		160
Kenwood DP-3080		170
Kenwood DPF-3010		180
Kenwood DP-R6090		200
Kenwood DP-4090	1010	250
Marantz CD-38		130
Marantz CC-38		200
Marantz CD-48	1010	200
Marantz CD-57	1010	230
Marantz CD-67II	1010	250
NAD 522		170
NAD 510		200
NAD 524	1010	250
NAD 523		250
NAD 512	1010	250
Philips CD711		120
Philips CD721		130
Philips CD751	1010	150
Philips CD751		180
Pioneer PD-106		130
Pioneer PD-206		150
Pioneer PD-S507		190
Pioneer PD-F606		200
Pioneer PD-M603		200
Pioneer PD-F706		250
Rotel RCD-930AX		180
Sansui CD220		120
Sherwood CD-4030R		180
Sherwood CDC680	1010	180
Sherwood CDC6050R	1010	180
Sony CDP-XE220		110
Sony CDP-M205		110
Sony CDP-M305		130
Sony CDP-XE310		140
Sony CDP-XE520		150
Sony CDP-CE105		150
Sony CDP-XB720E	1010	200
Sony CDP-CE315		200
Sony CDP-C325M		200
Sony CDP-CX57		250
Synergy CDJ1210		120
Teac CDP-1120		100
Teac CD-P1820		130
Teac CD-P1440		200
Teac CD-P3450SE		200
Teac PD-D2400		200
Teac PD-H500i	1010	240
Technics SL-PC390A		90
Technics SL-PC490A		100
Technics SL-PC590A		120
Technics SL-PD688		140
Technics SL-PD888		160
Technics SL-PS670D		200

Technics SL-MC410		250
Technics SL-PS770D	1010	250
Yamaha CDX-393		130
Yamaha CDC-565		170
Yamaha CDX-493		180
Yamaha CDX-9		200
Yamaha CDC-665	1010	220
Yamaha CDX-593	1010	230

### £251 TO £500

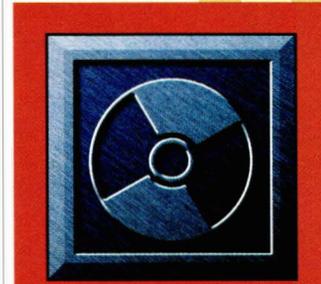
Arcam Alpha 7 SE	1010	350
Arcam Alpha MCD	1010	450
Cyrus dAD1.5	1010	339
Denon DCD-835	1010	280
Denon DCM-260		300
Denon DCD-1550AR	1010	350
H/K HD740	1010	300
H/K FL8550	1010	300
H/K HD760	1010	500
JVC XL-Z674BK	1010	300
Kenwood DP-R7080	1010	300
Kenwood DP-9090	1010	300
Kenwood DP-5090	1010	300
Kenwood DP-7090	1010	400
Marantz CD-67SE MkII	1010	300
Marantz CC-870	1010	400
Marantz CD-63IIK1	1010	400
Musical Fidelity E60	1010	300
Musical Fidelity A2 CD	1010	500
Musical Fidelity E624	1010	400
Myryad T-10		290
NAD 513	1010	290
NAD 515	1010	350
NAD 514	1010	370
NAD 517	1010	400
Nakamichi MB10	1010	399
Onkyo DX 7210	1010	260
Onkyo C721	1010	290
Onkyo DXC-320	1010	380
Onkyo DX 7510	1010	400
Onkyo CM 716	1010	450
Parasound C/DP-1000	1010	499
Pioneer PD-S707	1010	300
Pioneer PD-F805	1010	300
Pioneer PD-S705	1010	300
Pioneer PD-F906	1010	350
Pioneer PD-S904	1010	400
Pioneer PD-S505 Precision	1010	460
Rotel RCD-951	1010	300
Rotel RCD-971	1010	350
Sony CDP-XB920E	1010	300
Sony CDP-XA20ES	1010	450
Sony CDP-X3000ES	1010	500
Sony CDP-CX260	1010	500
Synergy CDJ2010	1010	300
Yamaha CDX-993	1010	400

### £501 TO £1,000

Acurus ACD11	1010	899
Alchemist Nexus	1010	600
Arcam Alpha 8	1010	520
Arcam Alpha 8SE	1010	600
Arcam Alpha 9	1010	800
Audio Analogue Paganini	1010	750
Audio Note CD1	1010	599
Audiomeca Obsession	1010	999
AVI S2000MC 24 Ref	1010	999
Creek CD43	1010	599
Cyrus dAD3	1010	598
Cyrus dAD3Q	1010	898
DPA Renaissance int CD	1010	950
Helios Model 3	1010	700
Helios Model 2	1010	950
Linn Mimik	1010	875
Linn Genki		995
Magnum CD2020	1010	595
Marantz CD-17	1010	800
Monrio Asly PL	1010	675
Monrio Privilege	1010	995
Musical Fidelity X-RAY	1010	799
Myryad T-20	1010	600
Myryad MC100	1010	800
Pioneer PDS-06	1010	550
Primare D20	1010	700
Quad 77 Bus	700	
Quad 77 Mains	900	
Roksan Caspian	1010	895
Rotel RCD991	1010	750
Sony CDP-XA50ES	1010	1,000
Sugden Audition		649
Talk Electronics Thunder 2	1010	700
Talk Electronics Thunder 3		1,000
Teac VRDS-8	1010	600
Teac VRDS-9	1010	700
Teac VRDS-25X	1010	1,000
Technics SL-P2000	1010	1,000
Thule Audio Spirit CD100	1010	600
Thule Audio Spirit CD150B	1010	699
Trichord Genesis	1010	569
Trichord Digital Jukebox 25	1010	619
Trichord Digital Jukebox 50	1010	669
Trichord Digital J'box 100	1010	719
Trichord Revelation	1010	819

### OVER £1,000

Acoustic Precision Eikos	1,850
Advantage CD15	3,995
Alchemist Kraken CD	1,249
Alchemist Forseti Int.	1,249
Alchemist Forseti	1,995
Audio Research CD2	3,399
Audiomeca Keops	1,500
Audiomeca Talisman	2,150
Audiomeca Talisman SE	2,300
Balanced VK-D5	3,995
Cary CD-301	2,495
Classe CDP-3	1,395
Conrad-Johnson DF-2	1,695
Conrad-Johnson DV-2b	2,495
Copland CDA-266	1,199
Copland CDA277	1,649
Copland CDA289	1,898
Copland CDA288	1,999
Cymbal CDP12	1,299
Exposure CD Player	1,050
Helios Model 1	1,250
Helios Stargate	2,250
Jadis Orchestra	1,345
Krell KAV250cd	2,490
Krell KAV300cd	3,599
Krell KPS25s	19,995
Linn Ikemi	1,950
Linn Sondek CD12	12,000
Madrigal 39	4,995
Marantz CD-17KIS	1,100
Marantz CD-7	3,500
McIntosh MCD7009	3,699
Meracrus Tanto	1,395
Meracrus Imago Player	4,495
Meridian 506	1,100
Meridian 508	1,995
Myryad MCD500	1,300
NAD S500	1,100
Naim CD3.5	1,050
Naim CDX	2,200
Naim NACDSII/XPS	5,625
Oracle CD Player	9,499
Pink Triangle Numeral	1,049
Pink Triangle Litaural	2,200
Primare D302	1,500
Proceed CDP	3,395
Quad 99	1,300
Resolution CD50	2,995
Roksan Attezza-DP3P	1,495
Shearne Phase 7	1,499
Sherwood CD1	1,100
Sonic Frontiers Anthem CD1	1,699
Sonic Frontiers SFCD-1	3,799
T+A CD1210R	1,185
T+A CD1220R	1,540
TAG McLaren CD20R	1,250
Theta Digital Miles SE	2,390
Wadia 860	7,450
XTC CDP-1	1,350
YBA CD1a	3,895

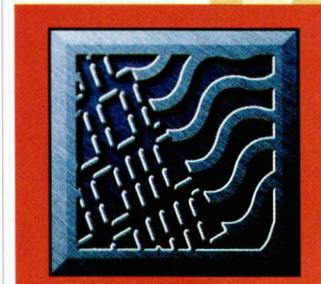


## CD TRANSPORTS

**KEY**  
 1010 - Electrical (coaxial) digital output.  
 Many players also include an optical (Toslink) output.

Alchemist Forseti Drive	1,100
Altis CDT III	4,995
Arcam Delta 250	800
Audio Note CDT Zero	399
Audio Synthesis Transcend Decade	3,295
Audiomeca Damnation	999
Audiomeca Damnation SE	1,100
Audiomeca Talisman	1,850
Audiomeca Talisman SE	1,999
Audiomeca Talisman DOB	2,250
Conrad-Johnson DR-1	1,795
DPA Enlightenment Drv	775
Jadis JD5	1,999
Jadis JDI	9,190
Linn Karik	1,850
Madrigal 37	3,995
Madrigal 31.5	9,295
Meracrus Imago	3,995
Monrio Bitmatch	950
Muse Model 8	1,800
Muse Model 8	3,500

Oracle CD Drive	1010	7,399
Pink Triangle Cardinal II	1010	909
Resolution VT960	1010	3,500
Roksan Attezza-DP3	1010	1,295
Sonic Frontiers Transport 3		5,999
T+A CM1200R	1010	875
TAG McLaren CDT20R	1010	1,499
Teac VRDS-T1	1010	950
Teac P-30	1010	2,500
Theta Digital Pearl	1010	1,349
Theta Digital Jade	1010	2,650
Thorens TCD-2000	1010	999
Trichord Digital Turntable	1010	719
Tube Tech Fulcrum	1010	1,000
Wadia 8	1010	3,195
Wadia 20	1010	4,370

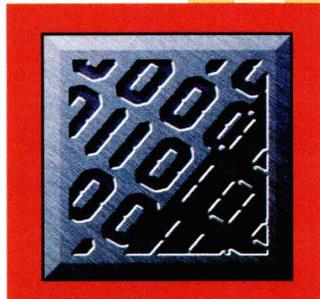


## DIGITAL TO ANALOGUE CONVERTERS (DACs)

**KEY**  
 4 - Number of digital inputs.

Alchemist TS-D-1		300
Alchemist Forseti DAC	3	1,100
Altis Reference	3	4,995
Arcam Black Box 50		350
Arcam Black Box 500	7	500
Audio Note DAC Zero		369
Audio Note DAC1		675
Audio Note DAC2		1,099
Audio Note DAC3		1,750
Audio Research DAC5		2,335
Audio Research DAC3 MkII	3	3,999
Audio Synthesis DAC Decade	5	2,795
Audiomeca Elxir	1	799
Audiomeca Ambrosia		1,850
Boulder 2020	6	21,000
Chord DSC900		1,850
Chord DSC1100		2,765
Chord DSC1500	1	4,800
Conrad-Johnson D/A-3	1	1,195
Conrad-Johnson D/A-2b	1	1,990
dCS Elgar	3	8,500
DPA Little Bit 3	3	325
DPA Renaissance DAC	3	595
DPA Enlightenment DAC		850
DPA SX128		2,000
DPA SX256		4,000
DPA SX512		8,000
Harmonix Reimyo DAP-77		2,790
Jadis JS2		2,499
Jadis JS1	3	6,990
LFD DAC2		1,950
LFD DAC3		3,000
Linn Numerik		1,500
Madrigal 360	6	4,395
Madrigal 360S	6	6,895
Madrigal 30.6		16,495
Meracrus Auriga		1,295
Meracrus Flagrare		2,495
Meridian 566		1,095
Monrio 18B2	3	795
Muse Model 2		2,190
Muse Model 2 Plus	3	2,500
Muse Model 2/96	3	3,000
Musical Fidelity X-ACT		200
Musical Fidelity X-24K		300
Musical Fidelity X-DAC		300
Onkyo DX 7310		330
Resolution D92		1,500
Roksan Attezza-DA2	7	595
Sonic Frontiers Processor 3	6	5,999
Sumo Theorem II		945
Sumo Theorem IIB		1,155
TAG McLaren DAC20	3	1,249
Teac D-T1	4	500
Theta Digital Chroma 396 Std		799
Theta Digital Pro Geny		1,099
Theta Digital Pro Prime IIa		1,699
Theta Digital Pro Basic IIIa		2,990
Theta Digital Casablanca LS		6,158
Thorens TDA-2000	3	700
Trichord Pulsar Ser One		1,395
Tube Tech Fulcrum		1,400
Wadia 12		1,530
Wadia 15		3,790
Wadia 64.4		4,750
Wadia 16		7,395
Wadia 7		9,995

Wadia 9 12,790  
 Woodside DVAC-18 1,499



## DIGITAL RECORDERS

**KEY**  
**MD** - MiniDisc  
**DAT** - Digital Audio Tape  
 - Portable

Denon DMD-1000	MD	300
Kenwood DMF-9020	MD	499
Kenwood DM-7090	MD	500
Kenwood DM-9090	MD	550
Marantz CM635	MD	500
Marantz DR700	MD	600
Onkyo MD-121	MD	450
Onkyo MD 122	MD	700
Philips CDR880	MD	499
Pioneer MJ-D707	MD	199
Pioneer PDR-555RW	MD	480
Pioneer PDR-04	MD	700
Pioneer D-05	DAT	900
Pioneer PDR-05	DAT	1,000
Pioneer D-C88	DAT	2,000
Sharp MD-R1 MkII	MD	180
Sharp MD-R3H	MD	300
Sharp MD-R2	MD	300
Sharp MD-MS200H	MD	350
Sharp MDXV300H	MD	1,000
Sony MZ-R50	MD	1
Sony MDS-539	MD	1
Sony MZ-R35	MD	1
Sony MZ-R5T	MD	1
Sony MDS-JE520	MD	230
Sony MDS-JB920	MD	300
Sony MDS-JB930	MD	300
Sony MDS-JA20ES	MD	500
Sony MDS-JA555ES	MD	650
Sony MDS-JA50ES	MD	1,300
Teac MDH300	MD	300
Teac MD-H500i	MD	350
Teac MD-8	MD	600
Teac MD-5	MD	600
Teac MD-10	MD	900
Traxdata Traxaudio 900	MD	399
Yamaha MDX-793	MD	300
Yamaha MDX-9	MD	300



## HEADPHONES

**KEY**  
**'D'** - Dynamic type, compatible with virtually all normal headphone outputs.  
**'E'** - Electrostatic type; generally includes a separate power supply.  
 - Open-back construction.  
 - Closed-back construction.

**UP TO £40**

AKG Rox	D	30
Aural Envelope DX200	D	20
Aural Envelope DX220	D	30
Beyer DT111	D	15
Beyer DT211	D	31
Beyer DT211TV	D	35
Hama SL273	D	20
Hama SL275	D	25
JVC HA-CD88	D	18
JVC HA-D525	D	20
JVC HA-F65	D	20

JVC HA-D626	D	25
Kenwood KPM-310	D	18
Kenwood KPM-410	D	25
Maxell HP-2000	D	20
Pioneer SE-A40	D	20
Pioneer SE-A20V	D	23
Pioneer SE-M250	D	25
Pioneer SE-M350	D	30
Sennheiser HD56	D	18
Sennheiser HD433	D	20
Sennheiser HD400	D	25
Sennheiser HD470	D	35
Sennheiser HD60TV	D	40
Sony MDR-W20G	D	18
Sony MDR-V50	D	18
Sony MDR-ED238ML	D	20
Sony MDR-A34L	D	20
Sony MDR-E848LP/MP	D	20
Sony MDR-V400	D	40
Sony MDR-D11	D	40
Stanton ST Pro	D	25
Technics RP-F200	D	30
Technics RP-HT300	D	40
Vivanco SR200	D	20
Vivanco SR150	D	20
Vivanco SR250	D	20
Vivanco IR5700	D	30
Vivanco IR5800	D	40

## OVER £41

AKG K301	D	70
AKG K240DF	D	100
AKG K222IR	D	100
AKG K401	D	120
AKG K501	D	150
AKG K333IR	D	150
AKG K444IR	D	180
AKG K290S	D	250
AKG K1000	D	700
Audio Technica ATH910PRO	D	80
Audio Technica ATHD40FS	D	100
Audio Technica ATH-M40	D	120
Audio Technica ATH911	D	120
Beyer DT311	D	50
Beyer DT411	D	63
Beyer DT331	D	65
Beyer DT431	D	81
Beyer DT511	D	106
Beyer DT801	D	125
Beyer DT831	D	140
Beyer DT811	D	145
Beyer DT100	D	160
Beyer DT901	D	160
Beyer DT911	D	170
Denon AH-D210	D	45
Denon AH-D350	D	65
Denon AH-D550	D	80
Denon AH-D650	D	95
Denon AH-D750	D	130
Denon AH-D950	D	150
Grado SR40	D	45
Grado SR60	D	79
Grado SR80	D	100
Grado SR125	D	150
Grado SR225	D	200
Grado SR325	D	300
Grado RS2	D	495
Grado RS1	D	695
Hama SL276	D	50
Hama IR Cordless	D	60
Jecklin Float Model 1	D	79
Jecklin Float Model 2	D	99
Jecklin Float ELS	E	399
JVC HA-D727	D	43
JVC HA-D50	D	45
JVC HA-W60	D	49
JVC HA-D910	D	65
JVC HA-W200RF	D	75
JVC HA-DX1	D	200
JVC HA-DX3	D	250
JVC HA-D1000	D	250
JVC HA-F25	D	699
Koss TD/80	D	50
Koss R/100	D	100
Philips SBC 3396	D	70
Philips SBC HP9000	D	90
Pioneer SE-M550	D	50
Pioneer SE-M750	D	60
Precide Ergo Model 1	D	120
Precide Ergo Model 2	D	140
Sennheiser HD490	D	50
Sennheiser IS 380	D	55
Sennheiser HD495	D	60
Sennheiser HD500	D	70
Sennheiser RS400	D	80
Sennheiser HD25 SP	D	90
Sennheiser HD570 Symphony	D	90
Sennheiser HD545 Ref	D	100
Sennheiser IS450	D	110
Sennheiser HD265 Linear	D	125
Sennheiser HDC 451-1	D	130
Sennheiser HD250II	D	150
Sennheiser HD565 Ova'n	D	150
Sennheiser HD25-13	D	160
Sennheiser Lucas	D	160
Sennheiser HD25	D	160

Sennheiser HD 580 P'cision	D	200
Sennheiser HD600	D	250
Sennheiser Lucas/HD580	D	260
Sennheiser IS850	D	859
Sennheiser HE60/HEV70	E	998
Sennheiser Orpheus	E	9,652
Sony MDR-605LP	D	50
Sony MDR-ED268LP	D	50
Sony MDR-E888LP	D	55
Sony MDR-IF130K	D	60
Sony MDR-V600	D	70
Sony MDR-F1	D	100
Sony MDR-NC5	D	100
Sony MDR-V700DJ	D	100
Sony MDR-IF420RK	D	100
Sony MDR-D77	D	130
Sony MDR-IF520RK	D	150
Sony MDR-CD1700	D	200
Stanton DJ Pro 101/HB	D	65
Stanton DJ Pro 1000	D	95
Stanton DJ Pro 1001	D	150
Stax SR-001	E	280
Stax SR-Lambda Nova C	E	370
Stax Lambda Nova Basic	E	449
Stax SR-Lambda Nova S	E	450
Stax Omega	E	1,896
Technics RP-F800	D	50
Technics RP-HT600	D	60
Technics RP-DJ1200	D	130
Vivanco SR650	D	45
Vivanco FMH 3000	D	50
Vivanco SR750	D	50
Vivanco SR850	D	50
Vivanco FM7980	D	60
Vivanco SR950	D	80
Vivanco FM8180	D	99
Vivanco SR2000FL	D	100



## EQUIPMENT SUPPORTS

### Hi-Fi Tables

**KEY**  
**4** - Number of shelves.

Aavik Furniture A4	4	350
Alphason SM17	1	49
Alphason VSM17	1	85
Alphason GSM17	1	85
Alphason GMV1P	1	110
Alphason R17/17	3	120
Alphason GMH1P	1	150
Alphason VR17/17	3	190
Alphason GR17/17-AS	4	275
Apollo Soprano	4	275
Atacama Europa	4	240
Audiophile Base 01	1	79
Audiophile S4T120	4	280
Audiophile S4T120P	4	560
Audiophile Furniture Base	4	615
Avid Isoshelf	5	1,100
BCD Model 1006/8	1	795
BCD Model 1000	3	1,250
Custom Design Aspect 650	4	240
Custom Design e'lite E4	4	250
Custom Design Aspect 500AV	3	270
Custom Design Aspect 850	5	270
Custom Design e'lite AV	6	350
Deadrock 701	1	60
Deadrock 802	2	90
Deadrock 703	3	130
Deadrock 705	5	230
Deadrock 704	4	250
Elemental Isotube X1	1	169
Elemental Isotube X2	1	199
Elemental Isotube BS	1	209
Elemental Isotube IS	1	209
Elemental Reference B1	1	329
Elemental Isotube X2	2	379
Elemental Isotube X3	3	489
Elemental Reference BS	1	499
Elemental Reference X1	1	499
Elemental Reference TS	1	549
Elemental Reference IS	1	549
Elemental Reference X2	2	799
Elemental Isotube X4	4	849
Elemental Isotube X4/Ref	4	1,199
Elemental Reference X3	3	1,199
Elemental Isotube X4Rse	4	1,349
Elemental Reference X4	4	1,599
Fi-Rax R4	6	399
Finite Elemente A03 pagode	4	479

Finite Elemente E03 pagode	4	649
Finite Elemente HD03	4	1,995
Frameworks H175	1	139
Frameworks FS1	1	150
Frameworks H500	3	265
Frameworks FT2	2	285
Frameworks FT3	2	350
Frameworks H700	3	355
Frameworks H900	3	389
Impulse Iso-plate		190
JPW 3 Tier	3	80
JPW 5 Tier	5	100
Kudos Audio Connthian	5	600
Linn K3000		85
Mana Sound Frame		125
Mana Mini Table		150
Mana Power supply table		150
Mana Reference flat top		150
Mana Sound Shelf		175
Mana Sound Stage		200
Mana Sound Table		235
Mana Ref Shelf		325
Mana Reference Table		350
Mana 2 Tier Stand		375
Mana 3 Tier Stand		450
Mana 4 Tier Stand		500
Mana 5 Tier Stand		600
Mana 6 Tier Stand		700
Mana 7 Tier Stand		800
Mana 8 Tier Stand		900
Mission Stage		99
Optimum C2	2	69
Optimum C2/Pedestal	2	99
Optimum C4/Pedestal	5	130
Optimum OPT 3406	3	149
Optimum C5/Pedestal	6	150
Optimum OPT 4906	4	199
Optimum OPT 6606	5	249
Optimum OPT 340	3	249
Optimum OPT 490	4	299
Optimum OPT 440	4	299
Optimum OPT 10206	6	299
Optimum AV 300	3	329
Optimum OPT 700	5	349
Optimum OPT 610	5	349
Optimum OPT 660	4	349
Optimum OPT 1020	6	399
Optimum OPT 1190	7	450
Projekt A3	3	145
Projekt A4	4	215
Projekt A5	5	235
Projekt B3	6	255
Projekt A6	6	280
Projekt B3i	6	300
Projekt B4	8	340
Projekt B Multi	8	345
Projekt B3ii	7	345
Projekt C3	9	375
Projekt D3	12	420
Projekt C3i	8	420
Projekt B5	10	425
Projekt C3iii	11	465
Projekt C3ii	10	465
Projekt D3i	12	500
Projekt C4	12	500
Projekt C3iv	10	510
Projekt D3ii	14	545
Projekt C Multi	9	555
Projekt D4	16	560
Quadraspire Q45 mini shelf	1	65
Quadraspire Q45 shelf	1	65
Quadraspire QKS Cabinet shelf	1	80
Quadraspire QAV shelf	1	130
Quadraspire Q4M mini table	4	250
Quadraspire Q4 table	4	250
Quadraspire Q4SP Table	4	320
Quadraspire QAV table	3	350
Quadraspire QAVSP Table	3	400
Quadraspire QK Cabinet	4	450
Reson DOMOWS	1	195
Reson DOMOWS	1	195
Sound Org Z022	1	65
Sound Org Z021	2	78
Sound Org Z030	3	100
Sound Org Z060	4	120
Sound Org Z038	5	135
Sound Org Z540	4	140
Sound Org Z560	5	160
Sound Org Z545	4	160
Sound Org Z530	3	170
Soundstyle X300	3	180
Soundstyle X305	3	210
Soundstyle X053	4	210
Soundstyle X050	3	210
Soundstyle X6300	3	215
Soundstyle X100	4	230
Soundstyle X6110	4	230
Soundstyle X058	5	240
Soundstyle X310	3	250
Soundstyle X105	5	250
Soundstyle X6053	4	255
Soundstyle X6100	4	265
Soundstyle X6310	3	275
Soundstyle Radius SR100	4	280
Soundstyle X6058	5	290
Soundstyle X6105	5	300
Soundstyle Finewoods W105	5	320

Standesign Design 4	4	190
Stands Unique Isolation Platform	1	52
Stands Unique Sound Support	4	249
Stands Unique Sound Tower	5	289
Stands Unique Compact Sound Support 4	4	315
Stands Unique Sound Support 10	4	315
Stands Unique Sound Twr Cabinet	4	369
Stands Unique Ref Wall Support	1	550
Stands Unique Ultimate Tower	10	689
Stands Unique Ref Floor Support	6	799
Target B5	5	175
Townshend Seismic Sink 1-CD		110
Townshend Seismic Sink 1-3D		400
Townshend S/Sink Stand 1-4	4	999
Townshend Seismic Sink Stand	4	1,245
Vibraplane Passive	1	1,895
Vibraplane Active	1	3,600
Wilson Benesch Standard Shelf	1	130
Wilson Benesch Mono Block	1	265
Wilson Benesch Kevlar Shelf	1	270
Wilson Benesch Asside Basic	4	590
Wilson Benesch Asside	4	720
Wilson Benesch Triptych	1	990



## EQUIPMENT SUPPORTS Speaker Stands

**KEY**  
60 - Height of stand in cm.

Alphason NCI	60	47
Alphason Akros I	60	49
Alphason RS1	120	49
Alphason NCIII	60	84
Alphason HDS	60	85
Alphason Titan S	60	125
Apollo Olympus	60	75
Apollo AZ6	66	80
Atacama BD21	56	55
Atacama BD17		55
Atacama BD25		60
Atacama SE16		65
Atacama SE12		65
Atacama SX500		67
Atacama F2		70
Atacama F1		70
Atacama SX600		70
Atacama SL200		70
Atacama SE24	61	70
Atacama SE20		70
Atacama SX700		73
Atacama SL300		73
Atacama TP600		75
Atacama TP500		75
Atacama SE615		75
Atacama SE515		75
Atacama SE415		75
Atacama SL400		76
Atacama SE1000S		80
Atacama R724	60	150
AVF Tower P6144BP	60	35
BCD Model 1010	60	595
Black Box Speaker Stand	700	797
Credo STD 001		284
Custom Design Tri 100	50	50
Custom Design R/S300	60	70
Custom Design M3	55	75
Custom Design M2	55	75
Custom Design M1	55	75
Custom Design Tri 300	55	85
Custom Design SCS 24	60	85
Custom Design X24	61	109
Deadrock 903	60	60
Deadrock 902	47	60
Deadrock 901	39	60
Elemental Reference SB1	8	399
Elemental Isotube SZ	49	499
Elemental Isotube SZse	61	599
Elemental Isotube SCZ	49	699
Elemental Isotube SCZse	49	799
Elemental Reference SZ	52	999
Elemental Reference SCZ	52	1,499
Harbeth HL-Stands	21	249
Heybrook Stand-ULT	3	55
Heybrook Stand-56	63	69
Heybrook Stand-54	48	69
JPW MS2	45	45
JPW MS3	61	55
JPW MS1	46	80
JPW HS1	61	120
JPW HS2	45	120
Kudos Audio Arrow	60	50

Kudos Audio S-50	60	100
Kudos Audio S-100	63	270
Mana Sound Base		175
Opera WS1/E	60	235
Opera S1	60	295
Opera S2	60	345
Partington A-4	60	119
Pioneer CP-7		50
Pioneer CP-8		80
Projekt Signature	55	80
Revolver RS1	50	70
Royd Royd	55	99
Russ Andrews Torlyte	61	599
SD Acoustics SD Alexandra	50	369
Silverado Silverado 1 Stand	60	350
Sonus Faber Ironwood		475
Sonus Faber Stonewood		497
Sound Org Z037		55
Sound Org Z027		55
Sound Org Z026		55
Sound Org ZS18		65
Sound Org Z524	45	69
Soundstyle X6118	61	42
Stands Unique Speaker support	59	159
Stands Unique Tuned Spkr Support	59	220
Stands Unique Tuned Carbon Fibre	59	299
Stands Unique Vvas CF Spkr Supp	60	349
Target TR60	60	68
Target R1	53	280



## LOUDSPEAKERS

**KEY**  
 ↕ - Floorstander; larger models requiring no separate stand.  
 ≡ - Stand mount; smaller models designed to be raised above the floor.  
 ≡ - Wall mount; designed to be sited on or near the wall.  
 □ - Box type, including infinite baffle, reflex and transmission line types.  
 ▢ - Horn type; mostly large and very efficient.  
 □ - Panel type, including electrostatic and planar magnetic types.

<b>UP TO £130</b>	
Allison Micro Monitors	95
Allison Mini References	120
Ariston MSX 03	30
Ariston MSX 05	50
Celestion 12i	119
Denon SC-M2	80
Denon SC-E313SE	130
Gale Mini Monitors	70
Gale Gold Monitors	90
Gale 2i	130
Genexa GX300	80
Genexa GX330	80
GLL Arena	90
GLL Imagio IC208	100
Goodmans Active 75	65
Heybrook Prima 2	129
Interaudio XL1000	130
Jamo Studio-80	70
Jamo D-110	100
Jamo SAT-170	110
Jamo Studio-110	110
Jamo Artina	120
Jamo D-115	120
Jamo 28	125
Jamo Cornet 145	130
JBL CM40	90
JBL MX300	90
JBL Control 1X	100
JBL CM42	130
JPW Mini Monitor	60
JPW ML110	70
JPW Gold Monitor	80
JPW ML210	80
JPW ML310	90
JPW ML410	100
JPW ML510	130
JVC SX-SC1VBK	60
JVC SP-V50	80
JVC SP-X220TBK	100

JVC SP-X550BK	130
KEF Coda 7	129
Kenwood LS-90UK	130
Mission 700	130
NAD 801	100
Paradigm Micro v2	100
Paradigm Atom v2	120
Pioneer CS-3030	120
Polk AB410	100
Realistic Minimus 26	56
Realistic Minimus Pro-77	100
Revolver Beretta	100
Solid HCM2	130
Sony SS-86E	100
Tangent Monitor 3	60
Tangent Monitor 5	80
Tannoy Mercury M1	120
TDL Nucleus 1	75
TDL Nucleus 2	130
Teac LS-X8 Mk II	80
Technics SB-CS55	80
Technics SB-CS65	100
Technics SB-CS75	100
W'dale Valduis 100	80
W'dale Diamond 7.1	100
W'dale Valduis 200	110
W'dale Modus Micro	110

<b>£131 TO £200</b>	
Acoustic Energy Aegis One	150
Acoustic Energy AE100i	200
Allison Model 4A	170
B&W DM302	150
B&W CWM5	170
B&W DM601	199
Bose 201 IV	200
Boston CR6	149
Boston 325	149
Boston Micro 80 Sat	169
Boston Runabout	169
Boston 335	179
Boston 351	189
Boston CR7	199
Boston Runabout II	200
Celestion 15i	199
Cerwin-Vega CT-165	200
Eltax Liberty 3+	149
Genexa CX650	140
Genexa Pro	160
GLL Imagio IC218	140
GLL Imagio IC318	200
Heybrook Heylette B	199
Heybrook HB1	199
Interaudio XL2000	200
Jamo Cornet 165	150
Jamo 38	150
Jamo 525	150
Jamo 560	150
Jamo 660	170
Jamo Studio 180	180
Jamo D165	200
Jamo 68	200
Jamo 892	200
JBL CM52	150
JBL MX1000	170
JBL LX20	200
JBL MX1500	200
JPW ML610	170
JPW SS551	200
KEF Cresta 2	150
KEF Coda 8	189
KEF Model 60S	199
KEF Q15	200
Kenwood LS-200G	200
Magnat Vector 22	179
Mission 701	160
Mission 771	170
Mission 702	200
Mission 771e	200
Mission 702e	200
M-A Monitor 1	200
Paradigm Mini Monitor	200
Pioneer CS-5050	170
Polk M2	180
Polk RT3	200
Polk AB610	200
Rega Kite	198
Revolver Colt	139
Revolver The 230	169
Revolver Purdey MkII	199
Royd A7X	155
Sequence 200	199
Solid Monitor	200
Sony SS-126EB	150
Sony SS-176E	200
Tangent Monitor 9	150
Tangent Monitor 11	180
Tannoy Mercury M2	140
Tannoy Revolution R1	200
TDL Nucleus 3	200
Technics SB-CS95	150
Technics SB-M20	200
TLC Maestro 70S	159
W'dale Valduis 300	150
W'dale Diamond 7.3	150
W'dale Modus Music Two	200

W'dale Diamond 7.2 Ann'y	200
W'dale Valduis 400	200

<b>£201 TO £300</b>	
Acoustic Energy AE200	250
Arcaydis Baby 1	299
Audio Gem Opal	230
B&W CWM6i	280
B&W DM602	300
Blueroom Minipod	250
Bose 151	220
Bose 301 IV	300
Boston 361	219
Boston CR8	239
Boston 381	259
Boston CR9	279
Boston Voyager	299
Castle Iss	250
Celestion C1	299
Celestion 23i	299
Cerwin-Vega VS-8	250
Cerwin-Vega CT-330	300
Chario Syntar 100	249
Chario Ref 100	299
Chario Hyper 1000	300
Dali 102B	260
Dali 150	300
Eltax Linear Response	249
GLL Imagio IC238TL	250
Heybrook Optima	259
Heybrook Heylios	269
Interaudio XL3000	230
Interaudio XL4000	260
Jamo Cornet 175	230
Jamo Classic 4	250
Jamo Art	300
Jamo D265	300
JBL CM62	250
JM Lab Tantal 507	295
JPW ML710	230
JPW ML810	260
JVC SX-SW10	300
KEF Coda 9	299
KEF Model 70S	299
Linn Kan	295
Mission 750	248
Mission 772	250
Mission 705	300
M-A Monitor 2	250
M-A Silver 3	300
Mus Tec Kestrel SE	300
NAD 802	280
Paradigm Monitor 5	250
Paradigm Monitor 7	300
Pioneer CS-7030	230
Pioneer CS-9030	280
Pioneer S-LC1	300
Polk AB505	220
Polk M3 II	220
Polk RT5	250
Polk RT7	300
Polk M5	300
Promenade SP1	299
Rega EL8	388
Revolver The 250	250
Royd The Envoy	249
Royd Minstrel	275
Ruark Epilogue	239
Sequence 300	249
Solid HCM1	250
Sony SS-176EB	250
Tannoy Mercury M3	230
Tannoy Precision P10	300
TDL Nucleus 4	300
TLC Maestro 130S	289
TLC Voyager 350	289
W'dale Modus Music Four	230
W'dale Valduis 500	300
Yamaha NS10M	300
ZYP A1	219
ZYP A2S	295

<b>£301 TO £500</b>	
Acoustic Energy AE105SE	320
Acoustic Energy AE109	350
Acoustic Energy Aegis Three	450
Acoustic Energy AE209	500
Acoustic Energy AE120	500
Allison Model 2A	420
Arcaydis Baby 2	399
Arcaydis ASC	399
Arcaydis AK1	449
Audiovector C1	399
AVI Neutron	499
AVI NuNeutron	500
B&O Beovox CX50	325
B&O Beovox CX100	425
B&W CWM8i	350
B&W DM305	350
B&W CDM2SE	400
B&W Signature 7	500
B&W Signature 352	352
Boston Micro 90 Sat	369
Boston Micro 80 Sys	369
Boston VR20	380

Castle Kendal	400
Castle Inversion 15	425
Castle Eden	500
Celestion 25i	399
Celestion 30i	449
Celestion 35i	499
Cerwin-Vega VS-10	350
Chario Syntar 100T	399
Chario Ref 1000	499
Clements 300si	395
Dali 104B	370
Dali Royal Menuet MkII	400
Dali 605	400
Dali Royal	500
Def Tech Celsius	395
Dynaudio Audience 40	399
Epos ES12	499
GLL Imagio IC248TL	350
GLL Imagio IC258TL	450
GLL Imagio IC348TL	500
Heybrook Heylo	359
Heybrook Ultima	399
Jamo Classic 6	330
Jamo Comet 195	350
Jamo BX-100A	350
Jamo 98	350
Jamo D365	400
Jamo Classic 8	400
Jamo Graphic	400
Jamo 128	450
Jamo BX-150A	450
Jamo Atmosphere	500
JBL LX60	350
JBL Ti 200	400
JM Lab Micron	395
JM Lab Tantal 515	495
JM Lab Megane	495
Jordan Watts JHFLG	380
Jordan Watts JH200	420
JPW ML910	330
JPW SS555	400
JPW ML1010	400
JPW Ruby 1	400
JPW Ruby 2	500
KEF Q35	349
KEF Q55	499
KEF RDM One	499
Linn Sekrit	395
Magnat Vector 55	349
Magnat Vector 77	449
Mission 751f	348

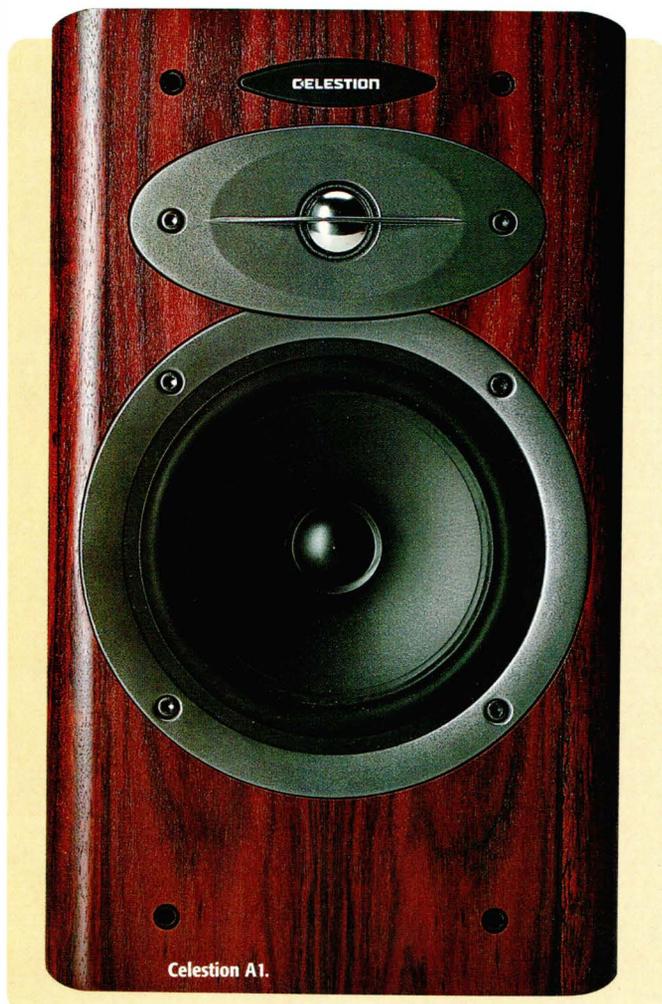
Mission 773e	400
Mission 704	450
Mission 774	500
M-A Monitor 3	350
M-A Silver 5	400
M-A Studio 25E	500
M-A Monitor 4	500
M-A 700 PMC	500
Mus Tec Harner	400
Mus Tec PM15	475
NAD 804	400
Neat Critique	445
Opera Duetto	395
Opera Prima	495
Origin Live OL-1A5	399
Origin Live Monarch	399
Paradigm Studio/20	350
Paradigm Monitor 9	400
Pentachord A	469
Pioneer S-LC2	450
Polk AB705	330
Polk RT8	400
Polk RT10	500
Polk AB805	500
Prof Monitor Co TB15M	403
Prof Monitor Co TB1	410
Prof Monitor Co TB15	430
Prof Monitor Co TB1M	447
Prof Monitor Co XB1	499
Promenade SP2	399
Promenade SP3	499
Rega Jura	450
Rega ELA MkII	498
Revolver The 260	350
Royd The Squire	350
Royd Minstrel SE	399
Royd Doublet	485
Ruark Icon	399
Sequence 400	329
Solid Verticale	400
S Coast Odette	325
Spendor S3/5	499
System 1130	500
Tannoy Revolution R2	350
Tannoy Precision P20	400
TDL G20	380
TDL Chiltern CF100	450
TDL G30	500
Technics SB-M300	350
Technics SB-M500	450
TLC Altus 300	366

Triangle Cometes	359
Wdale Modus Music Six	330
Wdale Modus Music Eight	430
Wdale Modus Music 1/6	500

<b>£501 TO £800</b>	
Acoustic Energy AE505	700
Acoustic Precision Elkos FR1	800
Allison Model 3A	525
Arcadyis AK3	599
Arcadyis AS2	699
Arcadyis AK4	699
Audio Gem Emerald	540
Audio Note AN-K/D	620
Audio Note AN-J/B	799
Audiovector M1	759
Audiovector C2	799
AVI Biggatron	599
B&O Beolab 2500	750
B&W 603 S2	550
B&W CDM1 SE	600
B&W P4	675
Bose 501	600
Bose A'mass AM3	650
Boston VR30	600
Castle Severn 2	600
Celestion A Compact	599
Celestion 45i	599
Celestion C2	699
Cerwin-Vega VS-12	550
Cerwin-Vega VS-15	700
Chano Constellation Lynx	549
Chario Ref 100T	599
Chario Hiper 1000T	699
Clements 600si	595
Cura CA-10	699
Dali 107	600
Dali 350	600
Dali 450	700
Dali 109	800
Def Tech BP6B	750
Diapason Micra II	750
Dynaudio Audience 50	577
Dynaudio Audience 60	729
ELAC CL310i JET	800
Epos ES14	675
Harbeth BBC LSS3/5A	699
Harbeth HL-P3ES	799
Heybrook Duet	799
Infinity Kappa 60	595
Infinity Kappa 70	795
Jamo BX-200A	530
Jamo Classic 10	600
JBL LX80	550
JBL Ti 400	550
JBL SVA1500	650
JBL Ti 600	650
JM Lab Cobalt 807	595
JM Lab Cobalt 810	775
Jordan Watts JH400	515
JPW Ruby 3	800
KEF LSS3/5a	649
KEF RDM Two	699
KEF Q65	799
Kelly KT2	700
Linn Tukan Passive	550
Linn Keilidh Passive	750
Magnat Vintage 710	799
Meridian A500	750
M&K S-85	700
Mission 752f	578
Mission 705	600
Mission 753f	798
M-A Silver 7	600
M-A 702PMC	600
M-A 703PMC	800
Mus Tec Falcon	680
Naim Intro	680
Neat Mystique 2	575
Neat Petite II	745
Opera Seconda	595
Opera Platea	795
Origin Live Resolution	732
Paradigm Studio/60	650
Paradigm Studio/80	750
Pentachord B	519
Pentachord Pentode	729
Polk RT12	600
Polk RT16	799
Polk LSS50	800
ProAc Tablette 50	599
ProAc Studio 100	699
Promenade SP4	650
Quad 10L	600
Roksan ROKone 1	595
Roksan Ojan 3	795
Royd The Sorcerer	595
Royd Abbot	695
Ruark Templar II	559
Ruark Sceptre	599
Ruark Talisman II	799
Ruark Prologue One	799
SD Acoustics SD3R	649
Shinpy Polarys	595
Silverado Raider	695
Snell K5	795

Sonus Faber Concertino	599
S Coast Hades	695
S Coast Lancelot	795
Spendor S1	549
System 1150	750
T+A TB 100	700
Tannoy Precision P30	600
Tannoy Definition D100	689
Tannoy Precision P40	800
TDL Cotswold CF200	650
Titan Logic T/26	646
Titan Logic T/2	704
TLC Classic 2	535
TLC Classic 1	800
Totem Mite	599
Totem Rakk	765
Triangle Zephyr II	599

<b>£801 TO £1,500</b>	
Acoustic Energy AE509	850
Acoustic Energy AE520	1,000
Acoustic Energy AE2-II	1,095
Acoustic Solutions Eight	1,200
Apertura Prima	1,095
Apertura Nova	1,395
Arcadyis AC1	1,099
Arcadyis AK5	1,399
ATC SCM10	1,006
Audio Note AN-J/D	930
Audio Note AN-K/SPx	1,060
Audio Note AN-E/B	1,299
Audio Note AN-J/SPx	1,415
Audio Physic Step	1,299
Audiovector M1 Super	999
Audiovector M2	1,399
Audiovector M1 Sig	1,449
AVI Positron	899
B&O Beolab 4000	1,100
B&W P5	875
B&W CDM7	1,000
B&W DM604	1,000
B&W P6	1,095
B&W Matrix 805 V	1,095
B&W N805	1,400
Bandor Trident	846
BKS Audio Hybrid 107	1,500
Bose A'mass AM5	900
Bose 701	1,000
Boston VR40	1,000
Castle Harlech	900
Celestion A1	899
Celestion C3	999
Celestion A2	1,499
Cerwin-Vega AL-1000	1,100
Cerwin-Vega 1515	1,300
Chario Ref 1000T	999
Chario Academy 1	1,299
Clements Reference 1	995
Cura CA-20	1,199
Dali 850	1,100
Def Tech BP8B	1,000
Def Tech BP10B	1,500
Diapason Prelude II	875
Diapason Karis	1,275
Dynaudio Contour 1.1	879
Dynaudio Audience 70	1,100
Dynaudio Contour 1.3	1,198
Dynaudio Audience 80	1,460
Electrocompaniet EC-M1	995
Electrocompaniet EC-Qube	1,195
Electrocompaniet EC-Qube SE	1,495
Epos ES15	890
Epos ES22	1,185
Harbeth HL-K6	1,049
Harbeth HL-Compact 7	1,499
Harbeth BBC LSS5/12A	1,499
Heybrook Quintet	1,199
Impulse Kora	1,250
Infinity Overture 1	900
Infinity Kappa 80	995
Infinity Kappa 90	1,295
Infinity Overture 2	1,500
Jadis Orchestra	999
Jamo Concert 8	1,365
JBL SVA 1600	850
JBL 4312 MkII-WX	1,000
JBL SVA 1800	1,000
JBL SVA 2100	1,250
JM Lab Cobalt 815	900
JM Lab Electra 905	1,095
JM Lab Cobalt 820	1,175
Jordan Watts JH1+1	1,150
JPW Ruby 4	1,000
KEF Q75	999
KEF Ref. Model One	1,199
KEF RDM Three	1,500
Kelly KT3	1,200
Linn Tukan Aktiv	1,050
Linn Keilidh Aktiv	1,250
L Voice Auditorium	1,500
Lowther Accolade 2	1,199
Lumley L/M3.5	1,050
Magnat Vintage 720	1,199
Magneplanar SMG-C SE	990
Magneplanar MG-0.6 SE	1,370
Meridian Argent 1	995



Celestion A1.

M&K S-125	1,150
Mission 705a	900
Mission 754f	1,298
M-A Studio 6	900
M-A Silver 9	1,000
M-A 705PMC	1,150
Mus Tec Condo	1,000
Mus Tec Hawk	1,250
Mus Tec Eagle	1,500
Naim Credo	1,090
Opera Terza	995
Opera Callas Gold	1,095
Opera Divina II	1,495
Origin Live Sovereign	1,130
Paradigm Studio/100	950
Polk LS70	1,200
Polk RT20p	1,500
ProAc Tablette 50 SIG	899
ProAc Tablette 2000 Sig	899
ProAc Studio 125	1,000
ProAc Response 1 SC	1,199
Prof Monitor Co LB1	935
Prof Monitor Co AB1	1,496
Rega XEL	1,040
RMS Revelation S 1	1,299
Roksan Ojan 3X	995
Royd The Albion	985
Ruark Solus	1,200
Shahinian Super Elf	875
Shahinian Starter	1,195
Shahinian Compass	1,495
Shinpy Microphonica	1,099
Silverado Ryder	1,395
Sonus Faber Concerto	945
Sonus Faber Concerto CP	999
Sonus Faber Signum	1,200
S Coast Merlin Monitor	849
S Coast Classic	1,495
Spendor SP3/1P	825
Spendor FL6	1,099
Spendor SP2/3	1,187
Spendor FL8	1,355
T+A TAS 1200E	1,050
T+A TB 120	1,060
Tannoy Definition D300	999
TDL Cheviot CF300	850
Technics SB-M1000	1,500
Titan Enigma T/3	822
Titan Sovereign T/4	1,292
Totem The Arro	959
Totem The Staaf	1,249
Totem Model One	1,249
Veritas 7	1,000
Veritas 15	1,300
Veritas 20	1,400

### £1,501 TO £3,000

Acoustic Energy AE1 Sig	1,995
Acoustic Energy AE2 Sig	2,995
Alon I Mk II	1,795
Alon II Mk II	2,495
Apertura Agora Signature	2,295
Apertura Tanagra	2,395
Apertura Tanagra Sig.	2,795
ATC SCM20SL	1,750
ATC SCM20 Tower SL	2,400
Audio Note AN-E/D	1,520
Audio Note AN-E/SPx	2,250
Audio Physic Spark 2	1,749
Audio Physic Tempo	1,999
Audio Wk p Cyclone 34	2,000
Audiostatic DCI	2,495
Audiovector M3	1,899
Audiovector M3 Sig.	2,499
B&O Beolab 6000	1,550
B&O Beolab 8000	2,100
B&O Beolab Penta 3	2,650
B&W Matrix 804	1,695
B&W Matrix 803s2	2,495
B&W Matrix 802s3	2,995
Bandor Bandora/Mora	2,350
Bandor Siren	2,800
BKS Audio Hybrid 128	2,549
Bose 901 VI	1,650
Boston Lynfield 300L	2,000
Cary SP-301	2,295
Celestion A3	2,399
Celestion Kingstom	2,500
Chario Academy 2	1,649
Chario Academy Mill'm 2	2,100
Clements Reference 7	1,995
Credo SPB 003	1,820
Credo SPB 009	2,453
Cura CA-30	1,799
Dali Grand Coupe	2,500
Def Tech BP2002	2,400
Diapason Adamantes III	1,995
Dynaudio Contour 1.8	1,894
Dynaudio Craft	2,598
Dynaudio Contour 3.0	2,930
ECA Servo A.2	2,450
ELS Res'ch Vision	2,800
Epos ES50	2,385
Gamma Epoch Ref Five	2,999
Harbeth HL-S8	1,999
Helius Syrius II	2,395

Helius Syrius I	2,850
Heybrook Octet	1,799
Hi Q Sound SM108	2,000
Impulse Lali	1,850
Infinity Overture 3	1,750
Infinity Kappa 100	1,895
Jamo Concert 11	2,250
JM Lab Electra 915	1,795
JM Lab Electra 920	2,350
Jordan Watts JH2K	2,400
Jordan Watts JH5K	3,000
KEF Ref. Model Two	1,599
KEF Ref. Model Three	1,999
Linn Kuber Passive	2,000
Linn Kuber Aktiv	2,640
L Voice Aud'm Avatar	2,100
Lowther Fidelio	1,999
Lowther Academy	2,399
Lowther Bel Canto	2,699
Lumley L/M2 Mk3	2,995
Magnat Vintage 760	1,999
Magneplanar MG-10 SE	1,650
Magneplanar MG-1.5 SE	1,780
Magneplanar MG-2.7 SE	2,650
Martin-Logan Aeries i	2,199
Meridian M60	2,150
M-A Studio 20SE	2,500
Naim SBL Active	1,885
Naim SBL Passive	2,050
Neolith NEO 1	2,999
Opera Caruso II	2,495
Origin Live Conqueror	1,750
Pentachord P'column	1,649
Polk LS90	1,700
Posselt Albatross	2,500
ProAc Response 2S	2,000
ProAc Response 2.5	2,700
Prof Monitor Co IB1S	2,099
Rehdeko RK115	1,700
Ruark Crusader II	1,649
Ruark Equinox	2,000
SD Acoustics SD5	1,549
Shahinian Arc	1,995
Shahinian Obelisk	2,850
Shinpy Euritmica	1,995
Shinpy Altair	2,895
Silverado Silverado 1	1,995
Sonus Faber Electa Amator 2	2,849
Sound-Lab Quantum	2,150
S Coast Excalbur	2,750
Spendor SP1/2	1,674
Spendor SP100	2,234
T+A TB 140	1,760
Tannoy Definition D500	1,999
Tannoy Stirling TW	2,200
Tannoy Definition D700	2,500
TDL Studio Monitor-m	2,750
Totem Tabu	2,299
Totem The Forest	2,675
Veritas 25	1,750
Veritas H1	2,995
Wilson Benesch Orator	2,900

### OVER £3,000

Acoustic Energy AE5	7,995
Alon Lotus SE	3,500
Alon V Mk III	5,495
Alon Adriana	8,500
Alon Circe	12,000
Alon Phalanx	19,000
Apertura Athena	6,995
Apertura Atlante	8,995
ATC SCM20A PRO	3,049
ATC SCM20TASL	3,995
ATC SCM50PSL	4,250
ATC SCM100PSL	4,950
ATC SCM50ASL	5,775
ATC SCM100ASL	6,475
ATC SCM70PSL	8,000
ATC SCM70ASL	10,000
ATC SCM200ASL	15,595
ATC SCM300ASL	17,731
Audio Note AN-JSE Silver	7,900
Audio Note AN-ESE Silver	9,600
Audio Physic Virgo 2	3,399
Audio Physic Avanti 2	6,699
Audio Physic Caldera	10,599
Audio Physic Medea	24,999
Audiostatic DCI Plus	3,750
Audiovector 5X	3,999
Audiovector 6X	5,699
Avalon Avatar	5,995
Avalon Arcus	6,995
Avalon Eclipse Classic	8,995
Avalon Radian HC	13,995
Avalon Edolon	20,495
Avalon Sentinel	79,995
AVI Gavitron	4,250
B&W Matrix 801s3	3,995
B&W Silver Signature	5,500
B&W Nautilus 801	8,500
B&W Nautilus	35,000
Bandor Bandoline	3,290
Beauhorn Virtuoso Bronze	3,325
Beauhorn Virtuoso Gold	3,395
Beauhorn Virtuoso Reference	3,799

Beauhorn Accelerando	6,600
BKS Audio Hybrid 175	3,995
Boston Lynfield 500L	4,449
Chario Academy 3j	5,999
Credo SPB 012	3,147
Credo SDL 001	5,677
Dali Grand	4,000
Def Tech BP2000	3,600
Diapason Adamantes Ltd	3,995
Dynaudio Contour 3.3	4,815
Dynaudio Confidence 3	4,846
Dynaudio Confidence 5	5,924
Dynaudio Consequence	14,566
Dynaudio Evidence	50,909
Eggleston Rosa	8,500
Electrofluidics Sonolith 2.2xi	5,999
ELS Res'ch Vista	3,900
ELS Res'ch Illusion MkII	9,000
Impulse Ta'us	3,100
Inner Sound Eros	3,995
Jadis 2	5,900
Jadis 1	18,900
Jamo Oriel	9,000
JM Lab Mini Utopia	4,500
JM Lab Mezzo Utopia	7,250
JM Lab Utopia	18,300
JM Lab Grande Utopia	35,000
Jordan Watts JH10K	7,570
KEF Ref. Model Four	3,299
Linn Keltik Aktiv	6,000
L Voice Air Scout	19,500
L Voice Air Partner S	37,200
Lowther Delphic	3,099
Lowther Opus One	4,999
Lumley L/M 2 Sig. Mk3	4,500
Magnat Vintage 770	3,500
Magneplanar MG-3.5SE	3,800
Magneplanar MG-20 SE A	10,300
Magneplanar MG-20 SE B	11,000
Martin-Logan CL3	3,399
Martin-Logan SL3 Iiz	4,555
Martin-Logan Re-Quest Z	5,875
Meridian DSP5000	3,295
Meridian DSP5500	5,950
Meridian DSP6000	9,400
M-A Studio 50	3,300
M-A Studio 60	5,000
Naim DBL Active	8,050
Neolith NEO 2	3,499
Neolith NEO 3	4,999
ProAc Response 3.8	3,990
ProAc Response 5	9,000
ProAc Response 4	12,000
Prof Monitor Co MB1P	4,370
Prof Monitor Co BB5 A	16,688
Quad ESL63	3,450
Rehdeko RK125	3,200
Rehdeko RK145	4,800
Rehdeko RK175	8,800
Revel Gem	5,295
Rockport Merak	13,995
Rockport Syzygy	15,000
Rockport Procyon	32,500
Ruark Solstice	4,000
Ruark Excalbur	7,000
SD Acoustics SD1E	3,495
Shahinian Hawk	5,495
Shahinian Diapason	9,495
Shinpy Enigma	3,995
Shinpy Euphonia	5,995
Shinpy Magnifica Suprema	14,500
Shun Mook Bella Voce	6,000
Snell XA-75ps	4,500
Sonus Faber Guarneri Homage	5,795
Sonus Faber Amati Homage	11,450
Sound-Lab Dynastat	3,790
Sound-Lab Aura	6,490
Sound-Lab Pristine III+	7,990
Sound-Lab A-3	11,990
Sound-Lab Ultimate II	13,950
Sound-Lab A-1	13,990
Sound-Lab Ultimate III	18,950
Sound-Lab Ultimate I	23,950
S Coast King Arthur	3,095
S Coast Excalbur Ref	12,400
Spendor FL10	3,475
T+A A4D	3,850
T+A A3D	4,550
T+A A2D	8,400
Tannoy Edinburgh TW	3,250
Tannoy Definition D900	3,999
Tannoy GRF Memory TW	4,000
Tannoy Westminster TW	6,600
Tannoy Canterbury 15 TW	7,720
Tannoy Westminster Royal	14,920
TDL Ref Standard-m	6,000
Titan Goliath T/4	4,112
Totem Mani-2	3,100
Totem Shaman	9,999
Veritas 45	3,750
Veritas H2	4,495
Veritas H3	5,995
Wilson Audio Cub	5,495
Wilson Audio WATT 5	8,390
Wilson Audio WITT II	10,995
Wilson Audio Maxx	34,995
Wilson Benesch Actor	3,900

Wilson Benesch ACT1 spkr 1,500

Wilson Benesch Act 2 8,900

Wilson Benesch The Bishop 20,000



**SUBWOOFERS**

**KEY**

(A) - Active; includes a dedicated power amplifier.

(THX) - THX-approved by LucasFilm for use in Home THX installations.

Acoustic Energy AE108S	(A)	300
Allison Mini Ref Sub		210
Alon Poseidon	(A)	12,000
ATC SCM 0.1/15	(A)	3,810
Audio Physic Terra	(A)	3,499
B&W ASW1000	(A)	500
B&W AS6	(A)	500
B&W ASW2000	(A)	800
B&W ASW3000	(A)	1,000
B&W Matrix 800ASW	(A) (THX)	1,500
Boston CR400	(A)	300
Boston VR500	(A)	450
Boston VR2000	(A) (THX)	800
Celestion CS135		139
Celestion CSW MkII		329
Celestion S1i		349
Celestion A6s	(A)	800
Cerwin-Vega HT-10D		250
Cerwin-Vega HT-12D		299
Chario Syntar Bass		499
Chario Hiper Bass		3,054
Credo SD01	(A)	350
GLL Le Bass	(A)	200
Jamo SW303E	(A)	250
Jamo SW400E	(A)	300
Jamo SW401e	(A)	300
Jamo SW505E	(A)	400
JBL Control Sub 6	(A)	200
JBL Control Sub 10	(A)	300
JM Lab Tantal SW20	(A)	349
JM Lab Cobalt SW27A	(A)	595
JM Lab Electra SW33A	(A)	895
JM Lab Sub Utopia	(A)	2,200
JPW Subwoofer		150
JPW SW40		199
JPW SW60		350
JPW SW-120		500
KEF Model 20B	(A)	349
KEF Model 30B	(A)	499
KEF Model AV1	(A) (THX)	2,499
Kenwood SW500	(A)	250
Kenwood SW501	(A)	349
Linn AV150	(A)	2,850
L Voice RW24	(A)	11,500
Magnat Vector Sub 30P	(A)	149
Magnat Vector Sub 30A	(A)	299
Meridian M2500	(A)	1,595
M&K VX-7MkII	(A)	450
M&K V-75 MkII	(A)	650
M&K V-125	(A)	800
M&K V-125 (THX)	(A) (THX)	800
M&K MX-70	(A)	900
M&K MX-150 (THX)	(A) (THX)	1,500
M&K MX-700	(A)	1,595
M&K MX-200	(A)	1,800
M&K MX-350THX	(A) (THX)	1,995
M&K MX-5000 (THX)	(A) (THX)	2,900
Mission 70as	(A)	300
Mission 75as	(A)	548
M-A ASW110	(A)	500
M-A ASW210	(A)	700
Mus Tec PMS 45	(A)	500
Mus Tec Tercel	(A)	700
Muse Model 22	(A)	1,890
Muse Model 18	(A)	3,790
Neat Gravitas	(A)	1,095
Paradigm PDR10	(A)	250
Paradigm Servo 15A	(A)	800
Polk PSW50	(A)	350
Polk PSW150	(A)	500
Polk PSW300	(A)	750
REL Q50	(A)	375
REL Q-100E	(A)	495
REL Strata II	(A)	575
REL Strata III	(A)	600
REL Storm	(A)	695



## HI-FI HELP

Let our experts help with your hi-fi problems. Send your query to 'Help' at the usual address.

REL Stadium II	Ⓐ	995
REL Stentor II	Ⓐ	1,800
REL Studio II	Ⓐ	4,000
Revel Sub-15	Ⓐ	2,195
Revolver The Recoil	Ⓐ	100
Roksan Ojan 3S	Ⓐ	795
Ruark Log-Rhythm	Ⓐ	750
Sequence FW120	Ⓐ	249
Solid PB100	Ⓐ	350
Sony SA-W305	Ⓐ	130
Sunfire Sub Junior	Ⓐ	1,099
Sunfire True Sub	Ⓐ	1,499
Sunfire Trus Sub Sig.	Ⓐ	1,699
TDL Nucleus SBR	Ⓐ	200
Tsunami TS300	Ⓐ	300
Tsunami TS200	Ⓐ	300
Tsunami TS210	Ⓐ	399
Wdale Modus Sub Bass	Ⓐ	180
Wilson Audio Puppy 5.1	Ⓐ	8,450
Wilson Audio Whow III	Ⓐ	10,999
Wilson Audio XS	Ⓐ	17,000
Yamaha YST-SW40	Ⓐ	140
Yamaha YST-SW80	Ⓐ	180
Yamaha YST-SW150	Ⓐ	280
Yamaha YST-SW300	Ⓐ	350

Graham Mk 2.0 Basic	Ⓐ	1,810
Graham Mk 2.0 Deluxe	Ⓐ	2,650
Helius Orion 4 Copper	Ⓐ	549
Helius Cyalene 2	Ⓐ	1,495
Kuzma Stogi S	Ⓐ	399
Kuzma Stogi	Ⓐ	750
Kuzma Stogi Ref	Ⓐ	1,250
Linn Akito	Ⓐ	500
Linn Ekos	Ⓐ	1,500
Moth Mk I	Ⓐ	109
Moth MKIII Stainless	Ⓐ	146
Moth Mk III Tungsten	Ⓐ	174
Moth Moth 900	Ⓐ	598
Naim ARO	Ⓐ	1,070
N'ham Space	Ⓐ	450
N'ham Paragon 3	Ⓐ	550
N'ham Paragon 2	Ⓐ	800
N'ham Mentor	Ⓐ	800
N'ham Foot	Ⓐ	1,100
N'ham Paragon 1	Ⓐ	1,600
Pro-Ject 9	Ⓐ	350
Rega RB250	Ⓐ	109
Rega RB300	Ⓐ	174
Rega RB900	Ⓐ	598
Rockport Series 7000	Ⓐ	6,000
Roksan Tabriz	Ⓐ	350
Roksan Tabriz Zi	Ⓐ	450
Roksan Artemiz	Ⓐ	895
SME 3009 Ser II Imp	Ⓐ	309
SME 3009 S2 Ser II Imp	Ⓐ	338
SME Series II 3009-R	Ⓐ	514
SME Series II 3010-R	Ⓐ	526
SME Series II 3012-R	Ⓐ	565
SME 309	Ⓐ	689
SME 310	Ⓐ	705
SME 312	Ⓐ	802
SME Series IV	Ⓐ	983
SME Series V	Ⓐ	1,461
Triplanar V1A	Ⓐ	3,500
Triplanar V1B	Ⓐ	3,750
Wilson Benesch Act 0.5	Ⓐ	795
Wilson Benesch ACT2	Ⓐ	1,350
Zeta AS	Ⓐ	469
Zeta VDH	Ⓐ	549



## TONEARMS

KEY  
⊙ - Pivoted.  
# - Parallel tracking.

Air Tangent IC	⊙	4,600
Air Tangent 10B	⊙	8,600
Air Tangent Reference	⊙	14,000
Audio Note AN-ARM 1	⊙	169
Audio Note AN-0s	⊙	795
Audio Note AN-1s	⊙	995
Audiomeca SL5	⊙	2,500
Clearaudio Souther TQ-1	⊙	1,670
Clearaudio Master TQ-1	⊙	3,620
Dynavector 507	⊙	1,995

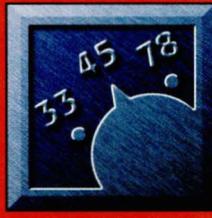


## TUNERS

KEY  
'P20' (etc.) - Number of presets.  
RDS - Radio Data System; receives text information on station, programme type etc.

Akai AT1200	P30	170
Arcam Alpha 7	P24	230
Arcam Alpha 8	P24	280
Arcam Delta 280	P20	300
Ariston TX-510	P20	60

AVI S2000MT	P16	599
AVI S2000MT2	P99	899
Cambridge T500	P64	180
Creek T43	P64	399
Cyrus FM7	P29	398
Davidson-Roth FM Ref Classic		5,990
Denon TU-260L MKII	P40	RDS 130
Denon TU-215RD	P40	RDS 150
Denon TU-425RD	P40	RDS 200
Denon TU-1500RD	P40	RDS 2,350
Fanfare FT1	P08	1,395
H/K TU930	P30	150
H/K TU950	P30	RDS 200
Kenwood KT-2080	P20	130
Kenwood KT-3080	P30	180
Linn Kudos	P50	775
Linn Kremlin	P80	2,600
Magnum Dynalab FT11		499
Magnum Dynalab FT-101A		795
Magnum Dynalab Etude		1,250
Magnum Dynalab MD108		4,990
Marantz ST-48	P60	RDS 120
Marantz ST-17	P60	RDS 600
McIntosh MR7084	P50	2,499
McIntosh MX118	P50	4,999
McIntosh MX130	P50	6,999
Meridian 504	P30	695
Musical Fidelity E50	P20	300
Myrad T-30	P39	400
Myrad MT100	P29	600
NAD 412	P24	190
NAD C440	P30	RDS 250
NAD 414RDS	P30	RDS 200
NAD 710	P24	270
NAD 712	P24	330
Naim NAT03	P30	615
Naim NAT02	P24	1,130
Naim NAT01	P24	1,780
Onkyo T 421ORDS	P30	RDS 180
Onkyo T 409	P30	230
Onkyo T 411RDS	P30	RDS 260
Pioneer F-204RDS	P30	RDS 140
Pioneer F-504RDS	P40	RDS 250
Pioneer F-504RDS Precision	P40	RDS 300
Quad 99	P25	700
Quad 77FM	P25	RDS 700
Rega Radio	P24	298
Roksan Caspian	P50	695
Rotel RT-935AX	P20	160
Rotel RT940AX	P20	200
Sony ST-SE200	P30	100
Sony ST-SE300	P30	RDS 120
Sony ST-SE500	P30	RDS 120
Sony ST-SB920	P30	RDS 180
Sony ST-SA3ES	P30	RDS 250
T+A T1200R	P60	RDS 790
TAG McLaren T20	P39	1,099
Teac T-R400	P40	100
Teac T-R460	P40	RDS 120
Teac T-H500	P30	RDS 170
Technics ST-GT350L	P30	RDS 130
Technics ST-GT550L	P39	RDS 180
Technics ST-GT650L	P39	RDS 230
Thorens TRT-2000	P59	RDS 499
Thule Audio Spirit TU100	P40	RDS 499
Yamaha TX-480L	P40	100
Yamaha TX-10 II	P40	RDS 130
Yamaha TX-492RDS	P40	RDS 130
Yamaha TX-59 2RDS	P40	RDS 180
Yamaha RX-396RDS	P40	RDS 250



## TURNTABLES

KEY  
⊙ - Arm included.  
⊙ - Cartridge included.  
UP TO £500

Audio Note AN-TT 1	⊙	349
Dual CS435-1	⊙	150
Dual CS455	⊙	190
Dual 505-4 UK	⊙	250
Eclipse TT430	⊙	70
Genexa Lab-710	⊙	60
Genexa Lab-810	⊙	70
Kenwood KD-492F	⊙	100
Michell Mycro	⊙	455
Moth Alamo	⊙	199
Moth Kanoot MkI Arm	⊙	279
Moth Kanoot Mk3 Arm	⊙	329
NAD 533	⊙	220
N'ham Interspace	⊙	500

Pioneer PL-J2500-C	⊙	80
Pioneer PL-990	⊙	130
Pro-Ject 0.5/OM10	⊙	170
Pro-Ject 1/510	⊙	200
Pro-Ject 2/510	⊙	250
Pro-Ject Classic/510	⊙	360
Pro-Ject 6/510	⊙	400
Pro-Ject 6.9	⊙	500
Rega Planar 78	⊙	214
Rega Planar 2	⊙	214
Rega Planar 3	⊙	274
Roksan Radius	⊙	470
Sherwood PM8550	⊙	160
Sony PS-LX150H	⊙	90
Sony PS-LX300H	⊙	150
Technics SL-J110D	⊙	120
Technics SL-BD20	⊙	160
Technics SL-BD22	⊙	180
Technics SL-1210MKII	⊙	400
Technics SL-1200MKII	⊙	400
Thorens TD-180 AT91	⊙	190
Thorens TD-280 IV/UK	⊙	210
Thorens TD-166 VI/UK/RB	⊙	400
Thorens TD-318 III TP50	⊙	500

### OVER £500

Audio Note AN-TT 2	⊙	995
Audio Note AN-TT 3	⊙	1,895
Audiomeca Romance	⊙	1,995
Audiomeca J1	⊙	3,500
Avid Volvere	⊙	1,399
Avid Acutus	⊙	3,995
Basis 2000	⊙	1,995
Basis 2001	⊙	2,995
Basis Ovation II	⊙	5,400
Basis 2500	⊙	5,495
Basis 2800	⊙	7,495
Basis Debut Gold Std III	⊙	8,200
Basis Debut Gold Vacuum	⊙	10,300
Chantry QT Level 2	⊙	705
Clearaudio Solution	⊙	925
Clearaudio Evolution	⊙	1,095
Clearaudio Revolution	⊙	2,500
Clearaudio Reference	⊙	3,835
Clearaudio Master Ref.	⊙	8,510
DNM-Reson Rota 1	⊙	3,900
DNM-Reson Rota 2	⊙	5,600
Impulse Moskito	⊙	695
Kuzma Stabi S	⊙	695
Kuzma Stabi	⊙	1,950
Kuzma Stabi Reference	⊙	3,750
Linn LP12 Basic	⊙	1,100
Linn LP12 Lingo	⊙	1,750
Michell Gyro Spider Ed'n	⊙	775
Michell Gyrodek	⊙	875
Michell Orbe SE	⊙	1,725
Michell Orbe	⊙	1,995
N'ham Spacedeck	⊙	750
N'ham Graphic	⊙	1,200
N'ham HyperSpacedeck	⊙	1,500
N'ham Mentor	⊙	2,600
N'ham Ana Log	⊙	5,500
Oracle Delphi	⊙	3,370
Oracle Delphi 15th Anniv	⊙	3,800
Pink Triangle Tarantella II	⊙	850
Pro-Ject Perspective	⊙	750
Rega P25	⊙	598
Rega Planar 9	⊙	1,598
Reson RS1M	⊙	695
Reson Rota 1	⊙	3,900
Rockport Capella II	⊙	7,000
Rockport Sirius III	⊙	50,000
Roksan Xerxes 10	⊙	1,295
Roksan TMS	⊙	2,750
SME Model 20/2	⊙	3,403
SME Model 20/2A	⊙	4,863
SME Model 30/2	⊙	10,675
SME Model 30/2A	⊙	12,135
Stratosphere ST1	⊙	6,500
Technics SL-1200LTD	⊙	700
Thorens TD-146 VI TP50	⊙	550
Thorens TD-2001 TP90	⊙	700
Thorens TD-520 SME	⊙	1,050
Well Tempered Record Player	⊙	1,895
Well Tempered Classic V	⊙	3,500
Well Tempered Reference	⊙	5,500
Wilson Benesch Circle	⊙	795
Wilson Benesch WB Turntable	⊙	1,775
Wilson Benesch Full Circle	⊙	1,995

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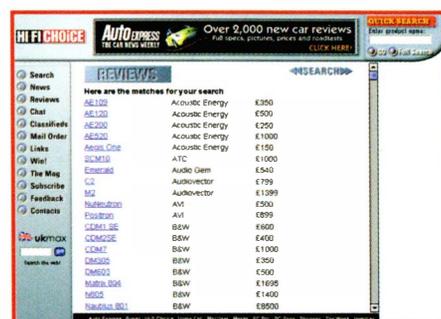
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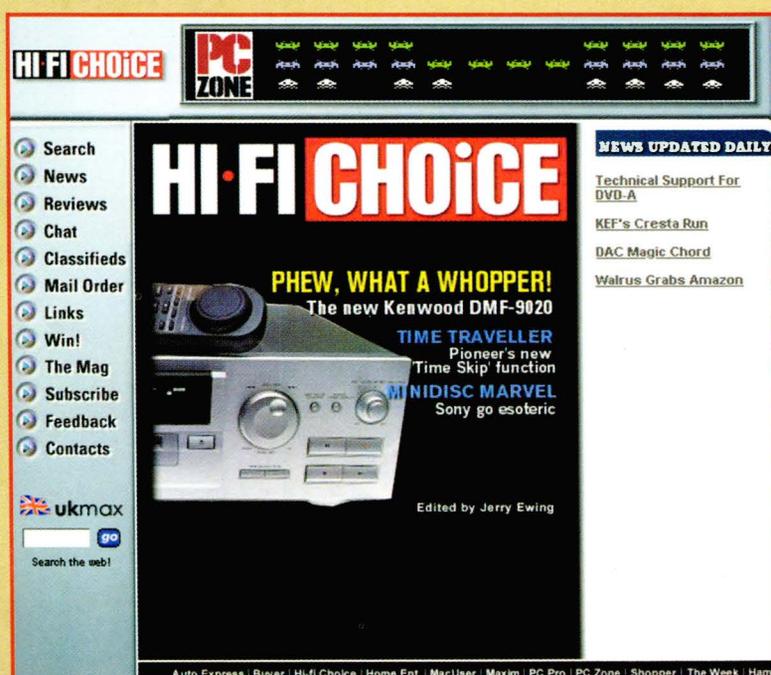
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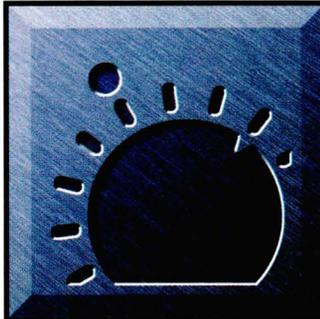


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# THE DIRECTORY

THE WORLD'S MOST COMPREHENSIVE HI-FI LISTING. PROBABLY.



## Amplifiers

The amplifier is at the heart of any hi-fi system, accepting the outputs from various music sources, increasing the amplitude of their signal and then driving the loudspeakers to produce sound. One-box 'integrated' amps rule the roost at low-to-middle price points, but if you pay more, the low-level and high-level signal processes are separated into preamp and power amp boxes, and even separate 'outboard' power supplies come into play. Another luxury is a separate amp for each stereo channel: such devices are known as monoblocks. Finally, output power and sound quality are not necessarily related. Some of the finest amplifiers outputs only 12 Watts, but will yield loudness aplenty when partnered with high-efficiency loudspeakers.

### KEY TO SPECIFICATIONS

**LINE INPUTS:** Number of input sockets for line-level (non-vinyl) sources such as CD players, tuners and cassette decks.  
**MM PHONO INPUT:** An input specially designed for moving magnet (high output) phono pickup cartridges.  
**MC PHONO INPUT:** An input for moving coil (low output) phono pickup cartridges.  
**REMOTE CONTROL:** An infra-red handset to adjust volume etc.  
**HEADPHONE SOCKET:** An integral output for headphones.  
**POWER OUTPUT (Watts):** Our measurement of an amp's RMS power output into 8 Ohms.  
**RECEIVER:** An amplifier with built-in radio receiver (tuner).  
**FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed reprint service. For full info, see the Factsback advert on the penultimate page of the mag.  
**ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

**B** BEST BUY    **R** RECOMMENDED    **E** EDITOR'S CHOICE

## Amplifiers

### SPECIFICATIONS

LINE INPUTS    MM PHONO INPUTS    MC PHONO INPUTS    REMOTE CONTROL    HEADPHONE SOCKET    POWER OUTPUT (W)    RECEIVER    FACTSBACK NO.    ISSUE NUMBER

STATUS

PRODUCT	(E)	COMMENTS	LINE INPUTS	MM PHONO INPUTS	MC PHONO INPUTS	REMOTE CONTROL	HEADPHONE SOCKET	POWER OUTPUT (W)	RECEIVER	FACTSBACK NO.	ISSUE NUMBER
Alchemist Maxim	319	Vivid and colourful-sounding amp, but just too bold and brassy	5	●				30		1737	154
Alchemist Kraken APD6A	579	Compact, with Darth Vader styling, yet sound quality is meek and mild, despite strong midband dynamics	5	●				55		2150	175
Alchemist Nemesis	700	Good if ultimately undistinguished amplifier whose strengths include warmth, authority and distinctive aesthetics	6					80		2006	168
<b>R</b> AMC 3025a	140	Surprisingly potent and easy on the ear, if not especially analytical – classic bargain-basement material, in fact	4	●	●	●	●	30		2045	171
<b>R</b> AMC 3050a	170	Tremendous value for money, and a full, big, if rather uninformative sound	4	●	●	●	●	45		1970	167
<b>B</b> Arcam Alpha One	230	Rather like an Alpha 7 but without the remote control and what appears to be better sound quality still	6					35			186
<b>B</b> Arcam Alpha 8R	380	The Alpha 8R sets a high level of resolution and stability, and has some useful features for home cinema users	5	●		●	●	50			192
<b>R</b> Arcam Alpha 9	500	Not quite a match for the Alpha 9/9P combo, the solo integrated is nevertheless colourful and explicitly detailed	7			●	●	70		2007	168
<b>R</b> Arcam Alpha 10	800	Although not the best sounding in its class, the Alpha 10's modular nature demands it be taken seriously	5			●		100			181
<b>E</b> ATC SIA2-150	1,984	An impressive sounding integrated amp with a dynamic, open and detailed sound	4				●	150			192
Aria S2	1,000	Glamorously packaged valve amp produces a real eyes closed, feet up kind of sound	4					12			190
<b>B</b> Audio Analogue Puccini	450	Superbly finished, the entry-level Audio Analogue performs way out of its class	5	●	●			40		2147	175
Audio Analogue Puccini SE	595	Upgraded, more powerful Puccini is disappointingly sluggish and curiously lacking in musical vitality	5	●	●			40			181
Audiogram MB1	493	The only flaws are the amateurish build, a number of technical problems and inconsistent sound quality	4	●			●	40		2235	178
<b>R</b> AVI S2000MI	999	Fine, detailed amplifier with excellent timing and strong control of a wide range of loudspeaker loads	5				●	100		2155	175
Bryston B60R	1,249	Great build, but the lazy bass and opaque treble bracket an articulate midband. Comes with 20 year guarantee	5				●	60		2156	175
Cambridge A500	200	Bargain-basement amplifier whose dowdy appearance conceals a surprisingly powerful and sophisticated sound	6			●		75			193
<b>R</b> Copland CSA8	945	Sophisticated yet transparent, this is one of those amplifiers that sounds good even when the gloss has worn off	5					60		2010	168
<b>R</b> Copland CSA 28	1,249	Elegant Scandinavian cool, abundantly detailed if somewhat system dependent	5	●			●	60			189
Copland CTA 402	1,698	A unusually flexible valve amp with an attractive and textured sound	5	●			●	35			193
CR Developments CR324	569	Solid and capable on paper, this is a bit of a blunt instrument when let loose on the music	5					150			181
Cymbal CA1	499	Lacklustre amplifier tends to underperform with complex material. Best with straightforward compact loudspeakers	6					40		2236	178
Creek 4330	279	Diminutive but classy amp will drive anything, and can be specified in various configurations	4	●				40			192
<b>R</b> Cyrus SL	398	Articulate amplifier with build quality to die for, superb, outgoing midband and lean but well-extended bass	6					50			168
Cyrus III	598	Beautifully presented, but mid-dominated balance was not liked. Upgradeable using PSX PSU unit				●	●	50		1854	162
<b>R</b> Denon PMA-250SE	140	This amp can sound rough when extended, but within its limits it is open, detailed and likeable	5				●	30		2046	171
<b>R</b> Denon PMA-350SE	180	Reinvented in the minimalist tradition, this SE model is a control freak, but can sound wonderful	5				●	50		1856	162
Denon PMA-535R	230	The kind of amp they made in the 70s, dressed to the nines, and nowhere to go	5	●		●	●	50			192
Denon PMA-725R	350	Warm, bold, up-front presentation, but musically unexciting	5	●	●	●	●	97		1802	157
<b>R</b> Denon PMA-1500R	500	Recommended for its outrageous power, especially with problem speakers	5	●	●	●	●	70			181
<b>R</b> Densen Beat B-100 MkII	650	High 'air guitar' factor, and can punch above its weight, but check it will complement your system	5					60		1855	175
Densen DM-10	1,375	Big, bold and expressive amplifier, but sometimes rough around the edges, and not as powerful as it appears	6					75			189
Edmund Audio ES110	400	Honest but unexciting straight line amp from REL associate company	6					85			192
Exposure XX Super	700	Rather transistorised, unexciting sound. Good coherence and rhythm. Best played loud	6					55		1743	154
Exposure RCXXV	1,000	Unaccountably rather underwhelming top of the line integrated sounds a little soft and detached	6				●	60			189
<b>R</b> Electrocompaniet EC1-2	995	A 50 Watt amplifier which sounds more powerful, and makes 'real-sounding' music	4					50		2158	175
<b>B</b> Harman/Kardon HK610	180	Lively and friendly sound, but could prove too exciting for the faint hearted	6	●				30		1465	149
<b>R</b> Harman/Kardon HK630	200	Sharp, clean but sometimes slightly raw-sounding budget amp	4	●				40			192
<b>B</b> Harman/Kardon HK620	250	Capable and musical amplifier which is one of the nicest at this price. Optional add-in MM/MC board available	6					40		1858	162
Hofli Audis Signature	750	A 'no-feedback' circuit giving outstanding resolution, but significant load dependency	4	●				65			181
JoLida 202	695	Well-built and technically accomplished, affordable valve integrated with subtle refined, if not quite gripping sound	4					40		2011	168
JVC AX-V4	200	Respectable performance for a Pro-Logic AV amplifier. Lacks resolution and sparkle, though	5	●			●	63		1805	157
JVC AX-R5	200	Versatile, and lots of even-handed, articulate detail; but let down by superficiality	5	●			●	45		1466	149
Kenwood KAF-3010R	180	Plenty of twiddly bits yet weak on inputs, and basically good, but somewhat uneven sound quality	4	●			●	70			186
Kenwood KA-5090R	300	Large, well equipped and high tech integrated, but TRAITR output still gives a harsh, unsuitable performance	5	●	●	●	●	65		2053	171
Krell KAV-500I	5,000	More at home in background listening/home cinema applications than out and out audio maniac set-ups	5				●	250			192
<b>E</b> Lavardin Model IT	3,200	Banishment of 'memory distortion' delivers an amp with the best of valve and transistor sound characteristics	4					40			184
Linn Majik (phono)	800	The cornerstone of Linn's modular hi-fi system is innovative, but sounds vague and confused	5	●	●			33		1013	129
<b>R</b> Magnum IA120	265	Mirror finish amplifier with bold, colourful delivery, but needs careful system matching to avoid loss of clarity	6				●	65		2054	171
<b>B</b> Magnum IA170	330	Gives a realistic sense of instruments playing within a very believable acoustic; preserves colour and dynamics	6				●	96		1260	142
<b>R</b> Magnum IA200	599	Sweet, valve-flavoured solid state amplifier which flatters where it doesn't cast light	7					160		1860	162
Magnum Class A SE	795	A MOSFET amplifier drawing inspiration from the world of valves, this is an erratically refined, detailed amplifier	5	●				80		2159	175

CONTINUED

# Amplifiers

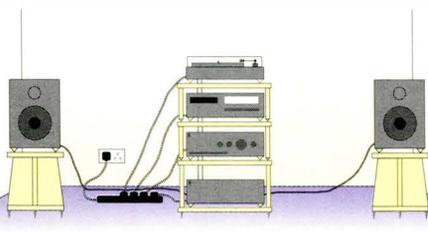
STATUS

SPECIFICATIONS

MM PHONO LINE INPUTS MC PHONO INPUTS REMOTE CONTROL HEADPHONE INPUTS POWER OUTPUT (W) RECEIVER OUTPUT SOCKET FACTSBACK NO. ISSUE NUMBER

PRODUCT	(£)	COMMENTS	MM PHONO LINE INPUTS	MC PHONO INPUTS	REMOTE CONTROL	HEADPHONE INPUTS	POWER OUTPUT (W)	RECEIVER OUTPUT SOCKET	FACTSBACK NO.	ISSUE NUMBER
Marantz PM-48	150	Fine entry level amplifier has excellent midband resolution and top, with a slightly coarse textured bass	5	●	●	●	50	●		186
Marantz PM-57	200	Well equipped but ultimately anodyne amplifier which lacks for nothing but star quality	5	●	●	●	50	●	2049	171
Marantz PM-68	300	Rather matter of fact delivery, lacks transparency and detail	6	●	●	●	90	●		192
Marantz PM-66SE	230	A bit lush, and power output is limited, but it gives airy, large-scale music. An excellent budget buy	5	●	●	●	50	●	1969	167
Marantz PM66 Ki-Signature	400	It knows how to rock and roll with holographic detail and stereo, but prefers small/medium scale acoustic material	5	●	●	●	50	●	2003	168
Marantz PM-17	900	Probably worth it for the WBT terminals and other build features alone, but this model doesn't sing as it should	6	●	●	●	60	●		181
Marantz PM-17 Ki-Signature	1,300	Full feature audiophile amp where the end results don't quite justify the fantastic ingredients	6	●	●	●	60	●		189
Monrio ASTY	400	Engaging, but ill-disciplined, even OTT amplifier with unpredictable system compatibility	5	●	●	●	55	●	2237	178
Musical Fidelity E1	199	Richly flavoured tone and realistically-scaled imagery distinguish this entry-level Richer Sounds special	6	●	●	●	30	●	2050	171
Musical Fidelity E11	299	Well built minimalist amp with a 5 year guarantee, but can sound congested when extended	6	●	●	●	60	●	2232	178
Musical Fidelity X-A1	479	Idiosyncratic visuals just another plus for an amp that is powerful, well built, and serves the music superbly	6	●	●	●	50	●		181
Musical Fidelity A2	500	Lucid, transparent midband and a full upper bass are provided by this highly proficient A1 replacement	5	●	●	●	25	●	1862	162
Musical Fidelity A220	700	Powerful, authoritative and well turned-out amplifier that is easy to match with comparably priced speakers	5	●	●	●	50	●	2012	168
Musical Fidelity X-A100R	999	Sings like a thoroughbred, but better with Mozart than Mötörhead	6	●	●	●	75	●		189
Myryad T-40	400	The T-40 is a well built and sensible, but needs more dynamics and finesse	6	●	●	●	50	●		192
Myryad M1120	600	Well styled, well built: a good, even tempered amplifier, although it can sound rather brittle	6	●	●	●	60	●	2153	175
NAD 310	100	Fleet and sure of foot, it seems likely to set all appendages tapping with its blend of enthusiasm and artfulness	5	●	●	●	20	●	1468	149
NAD C320	200	Excellent budget amp from the maker of the seminal 3020 offers better clarity and neutrality and good build	6	●	●	●	40	●		186
NAD C340	270	A classic NAD amplifier copes with any speaker, delivers plenty of power, and does so with calm decorum	6	●	●	●	50	●		192
NAD S300	1,900	Substantial integrated with loads of power and no shortage of finesse, slightly bass-strong	5	●	●	●	100	●		189
Naim Nait 3	575	Distinctive and highly musical sounding integrated amp. Perhaps too distinctive for some tastes	5	●	●	●	30	●	1748	154
Naim Nait 3R	780	Remote control variant of the basic Nait has a similarly dynamic credible sound but ultimately lacks power	5	●	●	●	30	●		189
Pioneer A-300R	200	Its bright and breezy sound is a natural tonic to those of us worn down by the ongoing stress of life	5	●	●	●	50	●	1469	149
Pioneer A-407R	230	Clean, consistent, finely detailed sound, good finish and (mainly) good build	5	●	●	●	45	●		186
Pioneer A-607R	300	Lively, articulate amp with plenty of drive and a hint of brightness	5	●	●	●	60	●		192
Pioneer A-300R Precision	400	Sophisticated variant of the A-300R. Not an obvious winner, but will slowly ply you with its subtle charms	5	●	●	●	35	●	1863	162
Pioneer A-07	999	Curious blend of high-end attributes and inconsistent, though undeniably detailed sound	5	●	●	●	80	●	2160	175
Pracisa Acustica Sonoro	1,800	It is not often that transistor amplifiers are made to sound so palpably valve-like	5	●	●	●	100	●		189
Primare A-20 Mk II	799	Everything except packaging has changed in Mk II version: but balsier model has lost none of its refinement	5	●	●	●	70	●		181
Primare A30.1	1,499	Superb build and aesthetics, and undemonstrably musical down to its smallest screw	6	●	●	●	100	●		189
Quad 77 Integrated	700	Compact and sophisticated amp. Has limited inputs when used with 'foreign' components. (Optional system remote)	3	●	●	●	84	●	2013	168
Rega Elex	398	Minimalist amplifier, derived from Elicit, is a little uninspiring, though at least it is well behaved	4	●	●	●	50	●	1865	162
Restek Fantasy II	1499	Muscular, but ultimately rather strident amplifier which needs careful system matching	6	●	●	●	100	●		189
Roksan Caspian	695	Well-built, open and articulate amplifier, which is also consistent from system to system	6	●	●	●	70	●	2014	168
Rose Scion	615	Unique two-box integrated gives real subtlety and low level resolution, but the sound lacks scale and weight	5	●	●	●	65	●	2009	168
Rotel RA-931	150	Rather dry and unforgiving sound from this internally well specified and attractively priced amplifier	4	●	●	●	35	●	2048	171
Rotel RA-971	200	Budget buy par excellence, especially for large rooms and insensitive speakers	6	●	●	●	70	●		186
Sony TA-F448BE	250	Minimalist interface is matched to carefully considered circuit with satisfactory effect – but keep the volume in check	5	●	●	●	55	●	2055	171
Sony TA-F3000ES	500	Champagne 'shoebbox amp' may lack power reserves, but is quick and articulate. In every sense a knockout	5	●	●	●	35	●	2239	178
T+A PA-1220R	1,445	Unique presentation and feature set, but sometimes rather relentless sound quality	7	●	●	●	100	●		189
Tact Millennium Mk II	7,000	This digital class D amplifier represents a bold declaration on the future expansion of digital audio in the home	n/a	●	●	●	150	●		194
TAG McLaren 60i	800	Clean, slightly antiseptic sound from this beautifully turned out entry level Audiolab 8000LX replacement	6	●	●	●	60	●		189
TAG McLaren 60iRv	999	Looks, feels and sounds better than the Audiolab it supersedes. Smooth, open, refined but lacks body and drive	6	●	●	●	60	●		184
Talk Electronics Storm 1	500	Good soundstaging and strong detail are provided by this unassuming and not especially powerful model	6	●	●	●	50	●	1868	162
Talk Electronics Storm 2	650	Crisp, clean, well defined sound, arguably lacking warmth, but a good midrange purchase overall	6	●	●	●	50	●	2154	175
Teac A-BX7R	700	Characterful balance mars a meticulously designed amplifier. Includes a balanced input, optional MM/MC stage	5	●	●	●	50	●	1869	162
Technics SU-A660 Mk 3	200	Plenty of wellie for the price, but the sound can be a tad coarse and lacking in fine detail	5	●	●	●	37	●		186
Technics SU-A700 Mk 3	250	Fully equipped, high-tech amplifier ultimately fails the authenticity test, and can sound messy and inarticulate	5	●	●	●	45	●	1870	162
Technics SU-AB00D Mk 2	300	Two-box amplifier looks great, has plenty of gadgets, and makes good, if slightly over-exuberant, music	5	●	●	●	55	●	2234	178
Technics SU-A900D Mk 2	400	Looks like a pre/power amplifier, but in effect it's an integrated, with a rather soft-centred sound to match	5	●	●	●	70	●	2149	175
Token Audio K50	350	Stainless steel finish, others available. Sound is warm and attractive, though a little undynamic	5	●	●	●	50	●		186
Yamaha AX-392	170	Standard budget fare, and it's easy to pick holes, but in undemanding surroundings it works creditably	6	●	●	●	60	●		192
Yamaha AX-492	220	Powerful, well equipped amplifier at an attractive price, offers powerful and engaging music-making	5	●	●	●	85	●	2231	178
Yamaha AX-592	280	Fine, middle ranking amplifier, with a detailed midband but performance declines at frequency extremes	5	●	●	●	100	●	2056	171
<b>PREAMPLIFIERS (CONTINUES OVERLEAF)</b>										
Amp Flux System 2	3,000	Three-box affair with a clean, spacious sound and plenty of slam. A touch steely, but undeniably potent	5	●	●	●	50	●		187
Alchemist Kraken APD7A MkII	549	Unusual looks and unusual sound too, rather rough and lacking detail	6	●	●	●		●		187

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## Cables

Cables are an integral part of a hi-fi system, required to connect source components to amplifiers, and the latter to speakers.

- Analogue Interconnects connect source components and amplifiers, and run between pre and power amps. They are priced for one-metre terminated pairs.
- Digital interconnects connect CD transports to DACs or digital recorders. They come in optical and electrical varieties, the former being made of plastic or glass. The prices shown are for a terminated linear metre.
- Speaker cables are used between the amplifier and speaker. Our prices are per unterminated metre. Termination (plugs and soldering) costs vary.

### KEY TO SPECIFICATIONS

- **SYMMETRICAL:** A twisted pair of conductors.
- **COAXIAL:** A central 'hot' conductor and a shield that carries the negative signal.
- **STRANDED:** Multiple strands with no intervening insulation.
- **SOLID CORE:** Single or multiple, individually insulated strands.
- **COPPER:** Material used for conductor.
- **SILVER:** Material used for conductor.
- **DIG CABLE TYPE:** O - optical digital; E - electrical digital for CD Players, DACS and digital recorders.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback ad on the penultimate page of the mag.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

**B** BEST BUY    **R** RECOMMENDED    **E** EDITOR'S CHOICE

STATUS

# Cables

### SPECIFICATIONS

SYMMETRICAL    COAXIAL    STRANDED    SOLID CORE    COPPER    DIG CABLE TYPE    FACTSBACK NO.    ISSUE NUMBER

#### PRODUCT (E) COMMENTS

##### ANALOGUE INTERCONNECTS (PRICES PER TERMINATED METRE PAIR)

PRODUCT	(E)	COMMENTS	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	DIG CABLE TYPE	FACTSBACK NO.	ISSUE NUMBER	
Acoustic Precision Eikos	89	Not entirely neutral: probably best suited to upbeat music. Very stiff construction								188	
Audio Note AN-A	18	Not especially impressive: warm but well-rounded balance that restricts 'air' but is quite clear								108	
Audio Note AN-C	35	Neutral but lacking in subtle texture and unable to distinguish fine detail							1687	131	
<b>R</b> Audio Note AN-S	99	Up-beat and enthusiastic sound with satisfyingly deep and grumbly bass							1687	131	
Audio Note AN-V	179	15 individually insulated silver strands make up this very clean and dynamically unchallenged cable							1687	131	
Audioquest Turquoise	40	A 'fit and forget' cable that sounds distinctly lazy								160	
Audioquest Topaz X2	60	Well made but let down by a pervading sense of muddle and congestion in the sound								188	
<b>R</b> CableTalk Advanced 2	35	Slight roughness in loud music barely detracts from a well-balanced performance with good imaging							2166	176	
<b>R</b> Cable Talk Studio 2	65	A first-class performer from tonal, dynamic and rhythmic standpoints								160	
Cambridge Pacific	30	Lacks subtlety and bass impact but is otherwise quite serviceable for the price								2167	176
<b>R</b> Cambridge Audio Studio Ref	40	Dynamic cable with strong soundstaging and only a slight lack of detail								160	
Cambridge Silver Spirit 60	100	Good bass but a lack of detail and differentiation of instruments								188	
Chord Cobra 2	50	Good, strong sound with full-bodied music, less happy with smaller forces								2167	176
Chord Chameleon 2	90	Deep bass is fine but despite that the sound can be a bit hard and lacking body and resonance								188	
<b>R</b> Connections Midas HD	39	Canary yellow cable with excellent plugs and an open sound. Slight treble glare								160	
<b>B</b> DNM TCC75	34	Price for 0.75m. High resolution cable, but best in short runs due to higher than average series impedance							1690	131	
DPA Slink	41	Slightly bright and zingy with flat soundstaging and hollow bass, though vocals and strings sound convincing								1690	131
DPA White Slink	75	Bass recedes as the music gets complex; midrange and treble better with quite good detail and imaging								2168	176
<b>R</b> DPA Black Slink	245	Initially dark and meaty but after running in, it's lucid and transparent. Quad geometry, Gore-Tex dielectric							1691	131	
Goertz M1 Interconnect	145	Soft sound lacking in bite, with excessive and plummy bass (NB sample used in review was only 0.5m)								2168	176
Insert Audio IC100 MKII	47	Mostly good sound is let down by pervasive dryness								2169	176
<b>B</b> Ixos 104	20	Open and detailed presentation, full bass and silky if overly smooth treble							1692	131	
Ixos Gamma 1002	39	Lumpy bass, grainy treble, and poor integration. Nice colour, though								2169	176
<b>R</b> Ixos 103	45	Even-handed and generous sound, bass has a well-rounded, bouncy quality							1692	131	
Ixos 102	60	A bit bright and undynamic, this cable is nevertheless a good all-rounder, whose faults are largely subtractive								160	
Ixos 101	100	A cable with personality: its veiled and shut in quality bring an earthiness to vocals and rhythm guitar alike								1693	131
<b>B</b> Kimber PBJ	68	Assured sound, solid and natural bass and clear treble - excellent performance all round								188	
<b>R</b> Kimber Hero	110	Slight roughness detracts from some music; seems well suited to rock and jazz. Lively and detailed							2170	176	
<b>R</b> Moth Ley Line Black	100	Offers a full sound, neutral yet very solid and confident in delivery. Expansive imaging retains music's energy								108	
Moth Ley Line Grey	200	Detailed, but there's a sense of distance between music and listener: vocals are coarse rather than liquid								108	
Nordost Black Knight	60	Flat black cable that is distinctive but slightly coloured - but not in a wholly negative manner								160	
<b>R</b> Nordost Solar Wind	85	Good tone and dynamics, with just occasionally a touch of bass-lightness in busy music								188	
<b>R</b> Nordost Blue Heaven	145	Very good bass and only slightly grainy treble add up to a well integrated, natural-sounding cable								176	
Precious Metals SS35	50	Extended bass, but dry character suits electronic music better than acoustic								188	
<b>R</b> Prowire Silver	60	A good cable in every way, with just the occasional hint of coloration and coarseness							2171	176	
PAD Elementa	145	A fat, heavy and frankly rather lazy-sounding cable; best with music for small forces								2171	176
<b>B</b> QED Qnet 2	30	Very well balanced, refined and detailed, this is everything a good cable should be, and excellent value							2172	176	



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CONTINUED

# Cables

STATUS

SPECIFICATIONS

SYMMETRICAL  
COAXIAL  
STRANDED  
SOLID CORE  
COPPER  
SILVER  
DIG. CABLE TYPE  
FACTSBACK NO.  
ISSUE NUMBER

PRODUCT	(£)	COMMENTS	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	DIG. CABLE TYPE	FACTSBACK NO.	ISSUE NUMBER		
QED Qnet 4S	70	Some coloration and roughness in the midrange and treble, but bass is gratifyingly solid	●				●				188		
Reference CS1	75	A moderate performer, with a little coloration and a tendency to lose bass at climaxes	●				●				188		
Silvertone Ex-Static	35	Pleasantly unfatiguing and competitively priced cable that lacks detail and insight			●		●				160		
SonicLink Silver Pink	35	Dynamically sensitive and muddle-free. We're unsure about the flesh-coloured finish though...	●				●		●		160		
SonicLink Black	49	Nickel-plated copper with a slight dryness in the bass and a hint of treble roll-off don't compromise integration	●				●			2172	176		
SonicLink Lilac	65	Some dryness can affect transient sounds, though tone is generally good, especially in the bass	●				●				188		
Straight Wire Chorus	40	A very confident cable with good bass, though perhaps a shade of treble loss			●		●			2173	176		
Straight Wire Sonata	80	Tonal balance favours lower frequencies but despite this it's a very listenable cable			●		●				188		
Supra EFF-ISL	80	Excellent sound in all areas – nothing to criticise	●				●		●		188		
Tara Labs Prism 22	64	Mild tendency to plumminess offsets some hardness in complex music with mixed results			●			●	●		188		
van den Hul The Storm	25	Price for 0.8m. Rich and warm but bass is rolled off; however there's plenty of drive and top end is clean			●		●			1701	131		
van den Hul Source HB	50	Price for 0.8m. Hybrid carbon-fibre/copper cable that is a paragon of naturalness			●		●				160		
van den Hul PB5	50	A highly neutral cable with fine dynamic and rhythmic performance too – excellent			●		●		●		188		
van den Hul D102 MkIII	70	A cable with everything; good bass, treble, imaging and naturalness			●		●		●	2173	176		
van den Hul The First	210	Using 12,000 carbon fibres, a gentle and subtle sounding cable that conveys oodles of information			●		●			1702	131		
van den Hul The Second	240	Wonderfully open and relaxing but also intimately detailed, slightly softens percussive dynamics	●				●		●	1702	131		
XLO Type 150	50	A restrained but useful cable for taming lively CD players, dynamics lack freedom, treble lacks clarity			●		●			1703	131		
XLO Type 0.1	180	Unusual but highly expressive and detailed with a hint of graininess on powerful vocals						●	●		1703	131	
<b>DIGITAL INTERCONNECTS (PRICES PER TERMINATED LINEAR METRE)</b>													
Audioquest Digital Pro	100	A silver cable with all the drive of Video Z but lacking its clear-cut transparency			●		●				E	108	
Chord Codac	36	A connection with a stranded inner core and a sound that lacks integration			●		●				E	108	
Chord Prodac	50	Price for 0.6m length. Lively detailed treble, drives music along confidently with no hint of fizz			●			●	●		E	1706	131
DPA Opti-link	20	Sound is lacklustre									O	108	
DPA Digi-link	28	Can seem slightly impressive but there's no avoiding its exceptionally detailed sound			●		●		●		E	108	
Ixos 105	25	Extended but soft-edged treble that's mercifully free of fatiguing colorations; plenty of weight, smooth			●			●	●		E	1707	131
Kimber Kable Opti-link	50	Appears to be a bog-standard PMNA fibre, yet sounds a little brighter and livelier than most									O	108	
Moth Leyline Datalink	140	A thin, coaxial version of Leyline Black with a rather hard and unforgiving character. Too expensive			●		●		●		E	108	
QED DigiFlex	20	A top performance, low-loss 75 Ohm coax with a very open, almost liquid quality			●		●		●		E	108	
Siltech HF-6	145	Sounds detailed, very clean and extended, but bass is less well resolved – a treat for high-end systems	●				●		●		E	1709	131
SonicLink Green	60	Spacious, positive and engaging if a bit over-crisp at times – very compelling, however			●		●		●		E	1709	131
van den Hul The First	125	Exceptionally natural albeit slightly cautious compared to some. Plenty of subtle information and integration			●		●				E	1710	131
<b>LOUDSPEAKER CABLES (PRICES PER METRE LENGTH)</b>													
ALR Jordan QMM	5	Generally neutral, if sometimes bass-shy, but not very communicative	●				●					183	
Audio Note AN-D	4.50	Supplied in linear, non-polarised lengths that are twisted into stereo pairs. Sounds rather grippy and forward						●	●			109	
Audio Note AN-B	16.50	Well suited to valve systems, elastic bass, methodical but unintrusive and musical					●		●		1711	133	
Audio Note AN-L	29.50	Fruity bass and expressive vocal rendition was appreciated by the panel, which was happy to accept its foibles	●					●	●		1712	133	
Audio Note AN-SP	150	A calm and civilised presentation, very quiet in the way it reveals subtle low level detail. Great poise and clarity	●					●	●		109		
Audioquest F-14	2.2	Ideal for laying under carpets. F-14 encourages a slightly warm and vibrant sound						●	●		109		
Audioquest F-18	3.60	Slightly lumpy bass and lack of midrange detail: can also be a bit dry	●					●	●		192		
Audioquest Type 4	5	Four 18-gauge OFHC copper conductors wound in a Litz-type fashion increases capacitance but restrains 'bite'	●				●		●		109		
Audioquest Type 6	9	A very inflexible cable in which the sonic ends don't quite justify the means	●				●		●		183		
Audioquest Crystal	25	Neutral balance is spoiled by some graininess and smearing	●				●		●		168		
Bandridge LC7409	4	Detailed and up-beat cable. A bit too steely for classical strings					●		●		1800	157	
Cable Talk Talk 3.1	2.25	Quite well-balanced but tends to lose bass lines in complex music	●				●				168		
Cable Talk Talk 4.1	4.25	Smooth and cultured sound that lacks fine detail and is a bit too restrained					●			1800	157		
Cable Talk Concert 2.1	8	Can make stereo images recede, and favours the upper bass	●				●		●		192		
DNM LSC350	6.95	Majors on midband and lower treble lucidity at the expense of bass and extreme treble extension	●				●		●		168		
Chord Company Odyssey	17	Relatively vice-free cable with good detail throughout the range and generally neutral bass	●				●				192		
DNM LSCB500	12	High impedance can influence the treble response, but this was a winner on sound per pound. Bi-wire						●	●		1716	133	
DPA Black Sixteen	100	Unflappable resolution of musical details. No dampening of dynamics, simply oodles of taut information	●					●	●		1717	133	
Gale XL189	1	Slightly bright and not too subtle, but a perfectly acceptable cable for any starter system	●					●	●		168		
Gale XL315	2	A little lacking in detail but plenty of life and excellent value	●					●	●		1800	157	
Gale XL160-2	2.50	Rhythmic and bouncy-sounding bi-wire cable. Can be slightly manipulative					●		●		1800	157	
Goertz M2	32	Remarkably detailed, smooth, neutral and with excellent bass; check amplifier compatibility	●					●	●		168		
Heybrook Heywire	3.5	This well-meaning facsimile of earlier ribbon cables ends up sounding lumpy and uneven						●	●		109		
Hitachi LC-OFc	7	Very crisp, very clear and very confident. In the right system would be very expensive to better	●				●		●		109		
ixos Gamma 6006	5	Bass is better than treble, which can become spitty and sibilant – though only slightly						●	●		192		
Kimber 4PR	90 (5m)	Considering the price, this cable's very slight dryness is forgivable when everything else is so right					●		●		192		
Kimber 4TC	19.6	A well-balanced cable with good performance in all areas	●				●		●		168		
Kimber 4VS	9	A good mix of virtues including particularly fine bass					●		●		183		
Linn K20	4	Seems to work best with lively, unobtrusive music – can be dry and edgy	●				●		●		183		
Naim NAC A5	5.5	A 'dinosaur of a cable', this stiff wire rod doesn't belong outside Naim systems, where it works a treat					●		●		109		
Nordost Octava	3	Fair bass but confused treble and some coloration	●					●	●		168		
Nordost Flatline Gold II	9.50	Exciting sound but a bit too 'in-her-face', and bass is not always even	●					●	●		192		
Ortofon SPK100	3	Grey-sounding – strips instruments of their natural richness and resonance. A bit bass-shy, too					●		●		133		
Ortofon SPK200	4.99	Good strong bass and fair detail, only slightly marred by a little dryness	●				●		●		183		
Ortofon SPK300	8	Tremendously open and atmospheric, with robust, full-blooded bass – if slightly bright at times						●	●		133		
Precious Metals SL102	10	Unusual construction gives rather strained sound, only really cheering up with simple musical textures	●				●		●		183		
Puresonic 7845	1.95	Big, weighty sound – but too messy and bloated for its own good	●				●		●		183		
Puresonic 7891	2.85	Chunky cable design; shame about the sound quality	●				●		●		1800	157	
QED Qudos	2.25	Despite high-tech design and excellent Air-Loc plugs, its music-making failed to gel						●	●		1800	157	

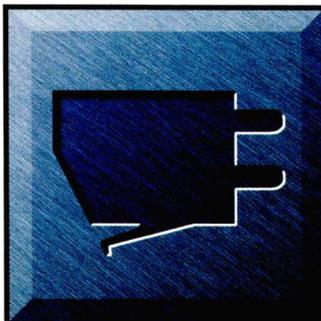
CONTINUED

# Cables

STATUS

SPECIFICATIONS						ISSUE NUMBER
SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	DIG CABLE TYPE	FACTSBACK NO.

PRODUCT	(£)	COMMENTS	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	DIG CABLE TYPE	FACTSBACK NO.	ISSUE NUMBER
QED Profile 4x4	9	Good midrange and treble balance, but bass is rather slack and detail not outstanding								168
<b>B</b> QED Qudos Silver	5	A few minor flaws but overall performance is very assured for this price								192
Silver Sounds 12 gauge	15	Basic 'homemade' construction gives fairly neutral sound. Price not outstandingly competitive								168
SonicLink S300	18	Happiest with simple music; tends to smudge detail in complex pieces								168
<b>R</b> SonicLink AST50	1.95	It may look like bell-wire, but AST50 sounds detailed, ordered and balanced							1800	157
<b>R</b> SonicLink AST150	3.95	Slightly plummy bass and a useful way of holding musical strands together							1800	157
Sonic Link AST200x2	5.95	At its best with exciting music, this cable seems shy of subtler details								192
Straight Wire Rhythm	6	Its major flaw seems to be woolly and indistinct bass, which pervades most types of music								192
<b>B</b> Straight Wire Quartet	8	A good all-rounder with full tone, clear detail and natural ambience								183
<b>R</b> Supra Ply 3.4	6.95	Clean sound which stays together well at high levels, with full bass – perhaps a touch of treble restriction								183
<b>R</b> Tara Labs Klara	2.95	A good budget cable with an even spread of virtues – and very minor vices – across the board								183
van den Gold Water	7	Bass becomes shy when there's a lot happening, and detail could be clearer								183
van den Hul The Clearwater	7	Despite its evocative title, the Clearwater turns out to be a disappointingly murky-sounding cable								109
van den Hul CS122	12	Good dynamics can make for exciting sound, but fine detail suffers and the treble is often dry								192
van den Hul The Magnum	38	Touted as vdH's most prestigious twin-lead cable, The Magnum sounds soft and old-fashioned								109
<b>R</b> van den Hul The Wind	40	'The Wind' kicks up a storm with its lush midrange and bone-crunching bass!								109
van den Hul Revolution	76	Silver-plated OFC combined with carbon fibre prompts a sombre character with an easy and relaxed treble							1726	133
XLO Pro Type 625	4	Lively but natural and relaxed-sounding – a hint of congestion at frequency extremes							1726	133
XLO Pro 600	16.60	Basically neutral tonality but can become aggressive and two-dimensional								168



# Cartridges

Cartridges fall into two groups: high output MM (moving magnet) models, capable of working directly into most phono inputs; and generally more expensive low- and very-low-output MC (moving coil) models. MC cartridges usually have better mechanical integrity, tighter tolerances and give better performance. Many amplifiers are no longer equipped with the necessary phono input for a cartridge, and a separate phono stage is necessary. Phono-input-equipped valve amps need a transformer to cope with MC cartridges. ■ Even basic high-output MM cartridge designs will benefit from a customised amplifier input load. Consult your dealer for further details on this topic.

## KEY TO SPECIFICATIONS

- **MM:** Moving-magnet cartridge with a normal output, suitable for all amplifier phono inputs.
  - **MC:** Moving-coil cartridge with a low output, only suitable for high-sensitivity MC amplifier phono inputs.
  - **REPLACEABLE STYLUS:** Most MM cartridges have a stylus (needle) that can be removed and replaced when worn out.
  - **OUTPUT (mV):** Cartridge output in millivolts.
  - **MASS (g):** The mass of your chosen cartridge
- affects the choice of partnering tonearm. Consult dealers or manufacturers to establish which arms and pickups work well together.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback ad on the penultimate page of the mag.
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**B** BEST BUY    **R** RECOMMENDED    **E** EDITOR'S CHOICE

# Cartridges

STATUS

SPECIFICATIONS						ISSUE NUMBER
MM	MC	REPLACEABLE STYLUS	OUTPUT (mV)	MASS (g)	FACTSBACK NO.	ISSUE NUMBER

PRODUCT	(£)	COMMENTS	MM	MC	REPLACEABLE STYLUS	OUTPUT (mV)	MASS (g)	FACTSBACK NO.	ISSUE NUMBER	
<b>B</b> Audio Technica AT-95E	20	Clear and dynamic, though richly balanced					2.8		48	
Audio Technica AT-OC9ML	330	A well-finished cartridge with a sound that's smoothly detailed, but also rather unexciting					0.4	8	192	
<b>B</b> Clearaudio Signature	1,495	A great all-round performer with fine dynamic vitality and a seductive midband intimacy					0.55	11.5	2142	175
<b>B</b> Denon DL110	70	A fine all-rounder, this high output MC model is likely to perform well					1.0	6	48	
Denon DL160	90	Although listeners just preferred the 110, its brother here survived lab tests and is still 'thoroughly competent'					0.1	6	43	
Denon DL103	100	Good performance in bass and good 'life'. Is seriously let down by its spherical stylus which kills subtle detail					0.1	6	103	
<b>B</b> Denon DL304	200	Uncoloured, detailed, tracks superbly. Top notch altogether, and a bargain at the price							103	
<b>R</b> Dynavector DV-20X L	299	Articulate-sounding, with impressive treble resolve, though lightweight at times. Needs a high quality turntable and arm					0.25	8.6	192	
Dynavector Karat 17D2 mk2	450	Clean and controlled sound with taut, tuneful bass. Detailed and musically cogent					0.15	5.3	158	
<b>R</b> Dynavector Te-Kaitora	1,698	A real smoothie, but pricey. Worth checking out for its delicate laid-back transparency and low needle-talk					0.25	8.5	2142	175
<b>R</b> Dynavector XX-1L	998	Very clear, very detailed; a response lift around 20kHz seems to do no harm					0.25	12	84	
Dynavector XX-1	998	Good, but not immensely competitive at the price, and not helped by comparison with the low output version					2.0	12	84	
<b>R</b> Goldring Elan	19	A lightweight and frisky-sounding MM apparently based on Nagaoka MM4 body					5.0	7	67	
<b>R</b> Goldring 1012GX	79	Slightly harsh but plenty of life and detail. Some high frequency coloration apparent					6.5	7	85	
<b>R</b> Goldring 1022GX	99	As with 1012, a touch harsh; detail and transient purity improved					6.5	7	85	
<b>R</b> Goldring Erica LX	110	Not the most subtle cartridge in the world: can sound edgy at times, but lively and informative					0.5	8	84	
Goldring 1042	120	Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively, though					6.5	6	91	
Goldring Elite	220	The basics are right, and it will cheerfully tackle any source material, but its sound is not the cleanest					0.5	8	103	
Goldring Excel VX	525	Good bass drive but dull and imprecise higher up. An old-fashioned sound that falls short of the true high end					0.45	8	2143	175
<b>B</b> Grado Prestige Gold	149	Rich sounding with an unusually refined top-end for a moving magnet-type cartridge					4	6	158	
Grado Reference	995	Loads of tracking headroom but treble is limited. A prospect for mid-oriented valve amp users					1.7	6.5	2143	175
<b>B</b> Linn K9	125	Linn improved this model by beefing up the Basik's bodywork and adding a super stylus					4.5	5	Col	
London Decca Maroon	259	Now manufactured under the London brand name, this Decca cartridge is as iconoclastic as ever					5.0	6	67	
London Decca S Gold	399	Immediate and detailed, but coloured and nonlinear, with a questionable effect on records					5.0	6	84	
<b>R</b> Lyra Lydian Beta	599	A thoroughly enjoyable cartridge – smooth, agile and dynamic in character					0.5	8	192	
<b>R</b> Lyra Lydian	649	Superbly capable all-round musical performer that improves markedly when its body cover is removed					0.3	7	158	
<b>R</b> Lyra Clavis Da Capo	995	A stable tracker, and one of the finest cartridges we've heard					0.1	7	143	
Lyra Parnassus D.C.t	1,895	A real little jewel of a cartridge, with many good qualities, but handicapped by a rather too obvious treble peak					0.22	10.5	2144	175
<b>B</b> Ortofon 510/P	38	For the price, a good blend of virtues – weight, clarity and neutrality					3.0	5	85	
<b>R</b> Ortofon 520/P	65	Sensitive to load capacitance, but the 520/P has a lively, effervescent sound					3.0	5	67	

CONTINUED

# Cartridges

STATUS

SPECIFICATIONS

REPLACEABLE STYLUS  
MM MC  
OUTPUT (mV)  
FACTSBACK NO.  
ISSUE NUMBER  
MASS (g)

PRODUCT	(£)	COMMENTS	REPLACEABLE STYLUS	OUTPUT (mV)	FACTSBACK NO.	ISSUE NUMBER
Ortofon MC3 Turbo	130	The 3 Turbo is bright, cheerful and bouncy, but unsubtle – take it as it comes!	●	3.3	4	103
Ortofon MC15 Super II	130	A good all-rounder, with outstanding resolution, if slightly bright and close up	●	0.35	7	103
Ortofon MC25E	180	An excellent upgrade for a mid-price turntable	●	0.5	11	139
Ortofon MC25FL	250	A bit too stark and honest, but faithful to what's on the LP	●	0.5	11	139
Ortofon MC 10 Supreme	300	A full and cultured-sounding cartridge, with collective attributes far outweighing its shortcomings	●	0.5	10.7	192
Ortofon MC30 Supreme	525	Highly detailed and even-sounding cartridge that has a special affinity with female vocal recordings	●	0.5	10.7	158
Ortofon Rohmann	1,000	A class act in nearly every respect, with fine groove security and a very smooth and even-handed sound	●	0.25	8.5	2144
Ortofon MC3000II	1,100	A real ear-opener. Nothing to criticise anywhere – one of the very best	●	0.12	10	84
Ortofon MC5000	1,500	Limited tracking ability, bright and forward sound, but good stereo	●	0.12	10	91
Rega Bias	39	Difficult to mount in some arms due to its shallow body, but the Bias offers a gentle, refined sound	●	5	4	67
Rega Elys	85	Clearly superior to the Bias, the Elys is more detailed, accurate and convincing	●	5.0	5	67
Reson Recla	250	If you're after a high quality moving magnet cartridge, they don't get much better than this	●	6.5	6.3	192
Roksan Corus Black	130	Recognisably related to the Corus Blue, but smoother and more civilised	●	6.5	5	91
Sumiko Blue Point Special	250	A no-nonsense performer with engaging musical properties – one of the best around for less than £300	●	2.5	9	192
van den Hul MM-1	250	If woody midrange could be tamed, imaging and security would pull it through	●	5.5	6	103
van den Hul DDT-II	600	Outstanding stereo imaging and neutral balance are appealing, but rhythmically the DDT-II is a bit lazy	●	0.35	7.6	158
van den Hul MC-10	750	A neutral, balanced performer, gives fine depth and focus and a firm, extended bass	●	0.4	6	60
van den Hul MC-One	900	This extends all the positive qualities of the 10, but adds greater authority and scale – worth all the extra money	●	0.4	6	60
van den Hul MC-Two	1,200	MC-Two rewards with a highly detailed yet fluid and musically convincing portrayal	●	0.4	6	72
van den Hul Frog	1,500	Seems to control/suppress surface noise better than its rivals. This delicate and subtle performer has great charm	●	0.65	7	2145
van den Hul G' hopper IIICLA	2,800	Undoubtedly one of the finest cartridges available. It has tremendous bandwidth, energy and finesse	●	0.4	6	122
Wilson benesch Matrix	786	Extraordinarily well balanced cartridge: neutral and detailed yet lively and rhythmically assertive	●	0.58	6	158
Wilson benesch Carbon	1,573	Carbon fibre body contributes to a delightfully clean and open midrange, and a quick, lively and coherent sound	●	0.45	7	2145



## Cassette Decks

The compact cassette is still the world's most versatile and ubiquitous music storage medium. Cassette decks hook up to the 'tape loop' inputs and outputs offered by most modern amplifiers. It's worth taking care to choose the best tapes for a specific machine. For example, expensive metal tapes will be a wasted investment for a cheap deck. Many better-specified decks have manual or automatic bias adjustment to get the best from specific samples of tape. Twin decks offer the possibility of copying from tape to tape, playing two cassettes sequentially or recording onto two tapes at once. Autoreverse is a useful feature, but uni-directional mechanisms promise better sound. Dolby S is the ultimate noise reduction system, and three-head decks permit record monitoring off-tape.

KEY TO SPECIFICATIONS

- **DOLBY B/C:** The first and second Dolby hiss-killers.
- **DOLBY S:** A desirable derivative of Dolby SR professional noise-reduction.
- **DOLBY HX-PRO:** Extends headroom for cassette recording.
- **3-HEAD:** Permits monitoring off-tape while you're recording.
- **TWIN DECK:** Contains two decks for dubbing and continuous play.
- **AUTOREVERSE:** Automatically plays both sides of the cassette.
- **AUTO CALIBRATION:** The deck will automatically set up bias and EQ for any tape.
- **ADJUSTABLE BIAS:** Permits manual optimisation of tape.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback advert on the penultimate page of the mag.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

**B** BEST BUY    **R** RECOMMENDED    **E** EDITOR'S CHOICE

STATUS

# Cassette Decks

SPECIFICATIONS

DOLBY C  
DOLBY S  
DOLBY HX PRO  
3-HEAD  
TWIN DECK  
AUTO REVERSE  
AUTO CALIBRATION  
ADJUSTABLE BIAS  
FACTSBACK NO.  
ISSUE NUMBER

PRODUCT	(£)	COMMENTS	DOLBY C	DOLBY S	DOLBY HX PRO	3-HEAD	TWIN DECK	AUTO REVERSE	AUTO CALIBRATION	ADJUSTABLE BIAS	FACTSBACK NO.	ISSUE NUMBER
Aiwa AD-F450	120	Basic but well-designed deck. Astonishing value; only the poor metering gives the game away	●	●	●	●	●	●	●	●	1513	136
Aiwa AD-WX727	170	High-class twin for those who want bells, whistles – and music	●	●	●	●	●	●	●	●	1377	146
Denon DRM-550	160	There are some technical limitations, but this remains a fine-sounding deck, and excellent value	●	●	●	●	●	●	●	●	158	158
Denon DRW-580	200	Twin deck: OK for casual use, but will quickly pall with more quality critical applications	●	●	●	●	●	●	●	●	171	171
Denon DRS-640	200	Draw-loading deck, with simple facilities and smooth, well-adjusted sound	●	●	●	●	●	●	●	●	1591	140
Denon DRM-650S	230	An improvement on predecessors, it offers a wide-ranging, sound. Dolby S is not the best feature	●	●	●	●	●	●	●	●	1920	164
Denon DRM-740	270	Breathed-on DRM-710, with good external treatment, offers good, if somewhat detached sonics	●	●	●	●	●	●	●	●	1514	136
Denon DRS-810	310	Draw-loading deck, carefully designed yet lacking in subtlety on audition	●	●	●	●	●	●	●	●	127	127
Harman/Kardon TD420	250	Minor inconsistencies detract from a well-conceived, minimum features design	●	●	●	●	●	●	●	●	1592	140
Harman/Kardon TD450	350	Draw loader with poor tape navigation features; good midband but shallow bass	●	●	●	●	●	●	●	●	1920	164
JVC TD-R472	200	Excellent auto-reverse deck which doesn't suffer the usual disadvantages and is very sharply priced	●	●	●	●	●	●	●	●	158	158
JVC TD-V662BK	270	Assured, clean and agile-sounding recorder, if not quite the most refined in its class	●	●	●	●	●	●	●	●	1380	146
JVC TD-W718	300	Twin deck. Good for creative live recording, but no timer standby. Respectable performance	●	●	●	●	●	●	●	●	2039	171
Kenwood KX-W6080	200	Modestly decent-sounding twin deck, with some transport instability and ragged bass	●	●	●	●	●	●	●	●	2040	171
Marantz SD455	170	Works well as a single deck, especially on replay, but dubbing at high/low speed compromises sound	●	●	●	●	●	●	●	●	184	184
NAD 613	230	Rough and ready, but enjoyable sound, though marred by mechanical motor noise	●	●	●	●	●	●	●	●	158	158
NAD 616	300	Twin deck with basic features. No Dolby setting memory, transport is too unstable for audiophile use	●	●	●	●	●	●	●	●	2041	171
Onkyo K-611	460	Cute drawer-loading mini-size component with 3-heads and dual capstan transport	●	●	●	●	●	●	●	●	1384	146
Pioneer CT-S550S	250	Great features, good with cheap low bias tapes, but slightly synthetic sound quality	●	●	●	●	●	●	●	●	1920	164
Pioneer CT-W806DR	300	Had it not been for the iffy transport quality, this sophisticated twin would have been Recommended	●	●	●	●	●	●	●	●	2042	171
Pioneer CT-S830S	500	High-class mechanism, if lacking in battleship externals, and superb sound	●	●	●	●	●	●	●	●	1385	146
Sony TC-KE600S	300	Mild setting-up problems notwithstanding, this UK-tweaked design has a smooth, open sound	●	●	●	●	●	●	●	●	158	158
Teac V01050	180	One of the cheapest 3-head machines around, but it shows in very 'thick' sound	●	●	●	●	●	●	●	●	184	184
Technics RS-AZ6	200	For those who can't afford the RS-AZ7; clarity over the widest bandwidth thanks to AZ thin-film head	●	●	●	●	●	●	●	●	1920	164
Technics RS-AZ7	270	Thin-film head gives a solid, almost CD-like bass and midrange. A clear advance in state-of-the-art	●	●	●	●	●	●	●	●	158	158
Yamaha KX-490	200	Electrifyingly transparent and capable deck whose only flaw is a trace of audible wow and flutter	●	●	●	●	●	●	●	●	158	158
Yamaha KX-580SE	250	Subtle, engaging and transparent deck, with a lightweight tonality, but stability and strong detail	●	●	●	●	●	●	●	●	2043	171



## CD/DVD Players

All CD players offer a basic selection of facilities, and some can keep you entertained for hours as you programme in disc names and track orders. All but the excessively inexpensive feature remote control. Most CD players can be upgraded by adding an outboard DAC (see p129). To do this the player needs a digital output of either electrical or optical type. The former is preferable for the ultimate sound. A CD player can be split into two basic components: the disc drive or transport, and a device which converts the disc's digital bitstream into an analogue audio signal. This is called a digital to analogue converter, or DAC. Although most players are contained within a single box, expensive players are usually two-box affairs. The first new DVD players have not excelled with CD software.

**B** BEST BUY      **R** RECOMMENDED      **E** EDITOR'S CHOICE

### KEY TO SPECIFICATIONS

- **ELECTRICAL DIGITAL OUTPUT:** For electrical connection to an outboard DAC.
- **AES/EBU ELEC DIG OUTPUT:** Balanced digital output to be used with similarly equipped DACs.
- **OPTICAL DIGITAL OUTPUT:** For optical connection to an outboard DAC.
- **ST OPT DIG OUTPUT:** High-speed optical output to be used with similarly equipped DACs.
- **BAL ANALOGUE OUTPUT:** Balanced analogue output for amplifiers equipped with balanced inputs.
- **HEADPHONE SOCKET:** For 'can' users.
- **VARIABLE OUTPUT:** Remotely adjustable output level (usually non-audiophile).
- **MULTI-DISC:** Equipped with a carousel or multi-tray system for continuous play of multiple discs.
- **DAC TYPE:** BS - Philips Bitstream; MB - multibit; Hyb - hybrid of multibit and bitstream technologies; 1bit - single bit types eg MASH, bitstream, PWM, etc; CC - constant calibration.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full information, see the Factsback advert on the penultimate page of the magazine.
- **ISSUE NUMBER:** The issue of *H-Fi Choice* in which an original review appeared. Factsback information page.

# CD/DVD Players

### SPECIFICATIONS

AES/EBU ELEC DIG OUTPUT    OPTICAL DIGITAL OUTPUT    ST OPT DIG OUT    BAL ANALOGUE OUTPUT    HEADPHONE SOCKET    VARIABLE OUTPUT    MULTI-DISC    DAC TYPE    FACTSBACK NO.    ISSUE NUMBER

STATUS

PRODUCT	(E)	COMMENTS	AES/EBU ELEC DIG OUTPUT	OPTICAL DIGITAL OUTPUT	ST OPT DIG OUT	BAL ANALOGUE OUTPUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	DAC TYPE	FACTSBACK NO.	ISSUE NUMBER
<b>B</b> Acurus ACD11	899	First-rate if costly player, which combines a delightful transparency with an uncontrived naturalness	●							1bit	1962	166
Acoustic Precision Eikos	1,850	Seriously customised Pioneer with extraordinary resolution and world beating imaging and bass	●							1bit		165
Advantage CD1S	3,995	A CD player of some stature - what it lacks in dynamics it makes up for in subtlety and flow	●	●	●			●		20bit		193
Alchemist Kraken	1,249	Distinctive looking player likely to suit a Alchemist system, but will result in variable results elsewhere				●				24/96		190
<b>R</b> Alchemist Nexus APD32A	597	Refined treble, constrained yet capable bass and attractive all-round presentation	●							Hyb		169
AMC CDBA	150	Has balanced output, but is otherwise rather grey and unremarkable					●			BS	2071	172
<b>B</b> AMC CD9/DAC8	200	Beer-budget two-box system (player + DAC) is smooth, attractive and easy on the ear	●							CC	2261	179
Anthem CD1	1,595	Unusual combination of high-end player, complete with HDCD, and changer. Good, but noisy	●	●						MB	2219	178
<b>B</b> Arcam Alpha 7SE	350	A thoughtful evolution of a popular player keeps the Alpha 7 flag flying high	●			●				24bit		194
<b>R</b> Arcam Alpha MCD	450	Excellent bass and natural midband, but just a touch of treble dryness, from this very listenable changer	●							MB	2220	178
<b>R</b> Arcam Alpha 8	520	Refined, intricately detailed but a little cautious. Should be broadly compatible with a variety of amps	●							BS	1873	163
<b>B</b> Arcam Alpha 8SE	600	Excellent (and very reasonably priced) HDCD-compatible player is a strong all-rounder	●			●				1bit		176
<b>B</b> Arcam Alpha 9	800	Refined, articulate player which employs new DAC technology to great effect	●							Ring		188
Audio Analogue Paganini	750	Basically good, but sometimes heavy-handed player	●							24bit		191
Audio Research CD1	3,290	Suspends disbelief with a real yet obviously coloured sound. A rare proposition among CD players	●	●	●		●			BS	1875	163
Audio Note CD1	600	Easy on the ear, and for a valve player, easy on the pocket, but a bit Radio 2 flavoured								Hyb		188
AVI S2000MC2	899	A chip off the old block. This model's in-ner-face balance obstructs an otherwise finely detailed sound	●							MB	2179	176
<b>R</b> AVI S2000MC Reference	1,399	Lean, dry, high resolution player, built to outlast most of us. A fine performer in a sympathetic system	●							MB		169
Balanced Audio Tech VK-D5	3,995	A valve-infused player with a big and engaging sound. Lacks a little subtlety	●					●	●	18bit		194
<b>R</b> Cambridge Audio CD4	150	Basic appearance and sluggish track access/track search belies its up-and-at-'em sound quality							●	Hyb	1268	147
<b>B</b> Cambridge Audio CD4SE	200	Among the best encountered at the price, considerably more refined and convincing than the CD4	●							BS	1877	163
<b>B</b> Cambridge Audio CD6	250	A sharp, articulate player, a real thoroughbred in fact, perhaps too sharp and lively for some systems	●					●		BS		159
<b>R</b> Copland CDA-266	1,199	Simple yet elegant design is unexpectedly sophisticated under the skin, and effective in execution	●							MB	2183	176
Copland CDA 289	1,898	Beautifully built and musically enjoyable. Lacks some precision, but still among the best below £2,000	●							20bit		194
Copland CDA-288	2,199	A gentle giant of a player that errs in favour of pastel shades rather than bold daubs of colour	●			●				MB	1880	163
<b>R</b> Cymbol CDP12	1,299	Clean, detailed and airy HDCD-equipped player with minimalist trappings	●						●	Hyb	2184	176
<b>R</b> Cyrus dAD1.5	395	Improved dAD1 variant has improved digital filter for a more natural, easy on the ear quality	●							Hyb		191
<b>R</b> Cyrus dAD3	598	A relaxed style of delivery that convinces with guile and subtlety rather than orchestral ordnance	●							BS	1887	163
<b>B</b> Cyrus dAD3Q	898	Lucid, transparent and uncontrived sound quality, superb build, and readily upgradeable	●					●		MB	1887	169
<b>R</b> Denon DCD-435	130	Good low cost player, and a step up from the DCD-425, its predecessor	●				●			DS		191
<b>B</b> Denon DCD-635	180	Modest presentation gives little clue to the thoroughbred electronics ticking away inside	●				●		●	MB	2075	172
Denon DCD-625	200	DCD-615 replacement is generously equipped but lacks sophisticated sound of its forebear	●						●	MB	1269	147
<b>R</b> Denon DCD-835	280	Refined version of Denon's multibit technology is a bit of a star	●			●			●	MB		184
Denon DCD-1550AR	350	Disappointing bland and ploddy sound from an immaculately constructed, high-tech player	●			●			●	MB	2266	179
<b>R</b> Denon DCD-3000	1,000	Sings with the temperament of a huge orchestra under the baton of a timid conductor	●			●				MB	1881	163
Exposure CD player	1,049	Slightly weak sounding, but otherwise well optimised, if costly player	●							MB		188
harman/kardon HD710	200	A player of integrity, but can sound a bit hard and rough when extended, and is amplifier fussy	●							1bit		159
<b>R</b> harman/kardon HD740	300	Powerful but subtle and involving player: welcome back, harman/kardon!	●			●				DS		191
<b>R</b> harman/kardon FL8300	300	Generally capable changer with relaxed sound and firm bass. Just a hint of roughness on occasion	●			●			●	MB	2220	178
<b>R</b> Helios Model 2	950	This player may not be to everyone's taste, but it is an individual, with some interesting things to say	●							1bit	2180	176
Helios Model 3	650	Disappointing entry level model from Helios lacks verve and transparency	●							DS		188
<b>R</b> JVC XL-V184BK	120	Excellent budget player, well presented, a little opaque, but its heart is in the right place	●						●	1bit	2072	172
<b>R</b> JVC XL-V284BK	140	Featuring a new set of bitstream innards, this flexible player has a refined sound	●			●			●	1bit	1270	147
JVC XL-Z574	250	Strong resolving power, good midband and dynamics, but slightly raw and thin	●							1bit		159
<b>R</b> JVC XL-Z674BK	300	Even-handed, but glosses over the most intimate moments	●			●			●	1bit	1637	151
<b>B</b> Kenwood DP-3080	170	Bold, dynamic and outgoing sound, although somewhat aggressive. Poor build quality and finish	●				●		●	1bit		159
Kenwood DPF-3010	180	Grey, somewhat mechanical sounding player					●			Hyb		191
<b>B</b> Kenwood DP-4090	250	Focuses a clear, wide aperture lens on the music - and has CD Text too!	●				●		●	1bit	2076	172
Kenwood DP-5090	300	Disappointing senior brother to the excellent DP-4090, but surface interface is good	●				●		●	1bit	2267	179
<b>B</b> Kenwood DP-7090	400	A lively and compelling performer with an even-handed and coherent disposition	●				●		●	MB	1885	163
Linn Mimik	875	Useful multi-room features matched to strong bass, but poor imagery and transparency	●							Hyb	1762	155
Marantz CD-48	200	Somewhat inconsistent, middle ranking player which hints at better things	●							1bit	2077	172
<b>R</b> Marantz CD-67 Mk II	250	The digital equivalent of a safe pair of hands. Smoooooth	●			●				BS	2268	179
Marantz CD-670SE MkII	300	Lacks dynamic consistency to justify the stunning performance with simple material	●			●			●	BS		184
<b>R</b> Marantz CD-63 MkII KI Sig	400	It's the quintessential sound of Marantz - warm, open, and smooth almost to a fault	●			●			●	Hyb		169
<b>R</b> Marantz CD-17	800	Fabulous packaging and an excellent all round performer: smooth, detailed and consistent	●			●				BS	1763	155
<b>R</b> Marantz CD-17KI Sig	1,100	Minor QC problems aside, this is a superbly turned-out machine, but ultimately a little bland	●			●				BS	2181	176
<b>R</b> Marantz CD-7	3,500	A superbly designed CD player, both inside and out. Precise and dramatic in equal measure	●			●		●		16bit		194

CONTINUED

# CD/DVD Players

SPECIFICATIONS

ISSUE NUMBER  
FACTSBACK NO.  
DAC TYPE  
MULTI-DISC  
VARIABLE OUTPUT  
HEADPHONE SOCKET  
BAL. ANALOGUE OUT  
ST OPT DIG OUT  
OPTICAL DIG OUT  
AES/EBU ELEC DIG OUT  
ELEC DIGITAL OUTPUT

STATUS

PRODUCT	(£)	COMMENTS												
<b>R</b> Meracus Tanto	1,395	Believable tonal colours and textures, refinement takes preference over dynamics – but it's not cheap	●										DS	169
<b>B</b> Meridian 506	1,100	Revised 506 includes MSR remote and a new D/A chip, which makes it livelier and more detailed	●	●									1bit	2182 176
Micromega Premium 18	650	Upgradeable player, now with Sony mech, sounds comparatively thin and lifeless	●										20bit	191
Monrio Privilege	995	Costly and well-engineered, but ultimately rather heavy-handed and dull, if refined player	●										MB	1963 166
Musical Fidelity E60	300	This entry-level player lacks proper stereo localisation and clarity	●		●								BS	1959 166
<b>B</b> Musical Fidelity E624	500	Similar to X-RAY, but both better sounding and cheaper	●	●									MB	188
<b>B</b> Musical Fidelity A2	500	Warm (too warm), attractive and open player, a great improvement on (related) E60	●	●									BS	169
Musical Fidelity X-RAY	799	Brilliantly packaged and clean but slightly antisepic sounding player	●	●									MB	184
Myryad T-10	400	Rather ordinary player fails to shine with good music recordings	●										DS	184
<b>R</b> Myryad MC100	700	A little extra get-up-and-go wouldn't go amiss, but its sheer maturity and composure ensure listenability	●										BS	1889 163
Myryad MCD500	1,300	Well-built, attractive player, showing much promise, but can be a little heavy-going on audition	●										1bit	2185 176
NAD 522	170	Crude, mechanical sounding player fails to tickle the music buds	●										1bit	2262 179
NAD 524	250	Clean, clear and essentially musical player in the NAD mould	●										MB	191
<b>E</b> NAD S500	1,100	24-bit player with considerable transparency and bass grunt	●	●			●						MB	189
<b>R</b> Naim Audio CD3.5	1,000	Forward and explicit sound needs careful system matching											Hyb	188
<b>R</b> Naim Audio CD2	2,000	Provides bags of detail with a solid stereo focus but not all the romanticism we know to be possible											MB	1890 163
<b>E</b> Naim NACDSII/XPS	5,625	Brings you the Naim sound, but for once doesn't have to rely on Naim ancillaries to get the results											MB	188
Onkyo DX-7510	400	Strongly flavoured, assertive sound	●		●								BS	1640 151
<b>R</b> Orelle CD-100EA	649	Excellent imagery, timing and transparency, and readily upgraded or reconfigured	●	●	●								MB	1964 166
Parasound C/DP-1000	499	Comes on like a high end player, but ultimately sounds a bit weak and soft-centred	●										Hybrid	184
<b>B</b> Philips CD-721	130	Surprisingly well-sorted, articulate if slightly glossy and attractively presented sound. Captive signal lead											1bit	159
Philips CD751	150	Inconsistent and occasionally opaque and scrawny sounding cheapie	●										1bit	172
Pioneer PD-S507	200	Low cost Legato Link implementation sounds gentle but slightly muddled			●								DS	191
<b>R</b> Pioneer PD-S707	300	Idiosyncratic Legato Link dominated sound, but always subtle and interesting	●	●	●								MB	184
Pioneer PD-F906	350	Interesting appearance and concept, but this changer's sound is lacklustre and ergonomics frustrating			●								1bit	2223 178
Pioneer PD-S904	400	Too much legato – literally – in sound, but a very smooth performer	●		●								1bit	1641 151
<b>R</b> Pioneer PDS-06	550	Technologically sophisticated. Pioneer's first multi-bit player for years is polished and capable	●	●	●								MB	2176 176
<b>B</b> Pioneer PD-S505 Precision	460	Assured, fluid-sounding player, with great spatial coherence	●										1bit	1965 166
Primare D20	799	Well presented player doesn't quite cut the mustard, though it performs promisingly	●										BS	188
<b>R</b> Quad 77	900	A true thoroughbred combining a penetrating insight into detail with poise rarely found at the price											Hyb	1893 163
Revox Exception E426	2,250	Very stylish with a light, agile sound that extends superbly and has fine timing	●										BS	182
<b>R</b> Roksan DP3P	1,495	Dramatic and compelling. Classical listeners should be ready to 'air conduct' when auditioning	●										BS	1896 163
<b>R</b> Roksan Caspian	895	Solid, articulate, and fundamentally well-engineered player, but with some subtle low-level limitations	●										Hyb	169
Rotel RCD-951	300	Disappointing chopped down RCD-971 – buy the original	●										MB	191
<b>B</b> Rotel RCD-971	350	Odd disc handling logic, but bold, detailed and refined sound make this a must	●										MB	184
<b>R</b> Rotel RCD-970BX	375	A combination of solid build, useful facilities and an attention-grabbing sound make this a winner	●										BS	1897 163
Rotel RCD-991	750	Flagship player with programmable dither options available to alter its 'voicing'. We liked option number 4!	●										MB	193
<b>R</b> Sherwood CD-4030R	180	Easy on the ear, smooth-sounding player, with limits set by the slightly soft, compressed quality	●	●	●								BS	159
Sherwood CD1	1,100	A very neutral, even handed sounding player with a rather flat, lifeless sound. Beautiful construction	●										BS	1899 163
<b>R</b> Sony CDP-XE310	140	Excellent value and bright as a button, but can sound OTT in some systems			●								1bit	179
Sony CDP-XE510	180	Souped up CDP-XE500 which tells a rather bland and unengaging story	●		●								1bit	172
<b>R</b> Sony CDP-XB720E	200	Good basic performance and a number of filter settings make this an interesting player for tweaks	●	●	●								Low bit	184
<b>B</b> Sony CDP-XB920	300	Stunning player that serves real musical ends. The switchable filters are merely icing on the cake	●	●	●								Low bit	191
Sony CDP-XA20ES	450	High tech, with a long list of gadgets, oddly configured player that ultimately sounds less than compelling	●	●									1bit	2177 176
<b>B</b> Sony CDP-X3000ES	500	Shoobox format player, looks to die for, switchable digital filters to tweak the already excellent sound	●	●	●								BS	169
T+A CD1210R	1,185	Intriguing player with rather pushy basic sound, but has switchable digital filters	●		●								DS	188
Talk Electronics Thunder 2	699	Fine player, slightly lacking in dynamics, but readily, if expensively upgradeable in various ways			●								1-bit	191
<b>R</b> TAG McLaren CD20R	1,249	Dry and unatmospheric, but plenty of presence – recommended with caution	●										BS	188
<b>B</b> Teac CDP-3450SE	200	For once a budget player where gadgets take second place to respectable, budget amp-friendly sonics	●		●								1bit	1960 166
Teac CD-5	350	Bright, breezy and up-beat – but short in the trouser department	●		●								BS	1643 151
Teac VRDS-8	600	Superb build quality is matched to good, but not exceptional sound quality	●		●								MB	184
Teac VRDS-9	700	Well-presented. This Teac is crisp, yet shallow, and inconsistent in sound quality and partnering skills	●		●								1bit	2178 176
Teac VRDS-10SE	850	Superbly built and presented, but rather leaden bass, with an over-prominent mid/top	●		●								BS	169
Teac VRDS-25	1,300	A solid player in all respects, combining powerful sound with state-of-the-art technology	●		●								MB	1903 163
Technics SL-PC480A	130	Full driving sound, but somewhat uneven in balance with a unusable, slightly harsh top end	●										1bit	159
<b>R</b> Technics SL-PS670D	200	Fine, middle ranking player which sounds solid, sometimes even a little stolid			●								1bit	2264 179
Technics SL-PS770D	250	High tech and well built technology battleship which smooths the rough edges off the music			●								BS	2080 172
<b>R</b> Technics SL-MC410	250	If you fancy a CD player that holds 111 discs, this one's cheap, pretty capable, and easy to use											Hyb	2224 178
Thule Spirit CD100	600	Definitely a try before you buy machine, but the bass and mid are excellent	●										DS	188
Trichord Genesis	549	Breathed-on Pioneer is warm and mellifluous, but ultimately lacks drive and authority	●										Hyb	169
Trichord Revelation	799	Well-ordered and clean sound that may be a little too refined for some, images well	●										1bit	1966 166
Tube Technology Fulcrum	2,800	An imaginative two-box player with a smooth sound that lacks some lustre	●	●	●								24bit	194
XTC CDP-1	1,250	Bright and sometimes abrasive, but detailed player	●										MB	2186 176
Wadia W830	3,000	Envelope busting dynamics, power and imaging in a rather unexciting box (digital volume control)											MB	183
Wadia 860	7,450	Flagship CD player has unique digital volume control, superb neutrality and awesome bass	●	●	●	●	●						MB	189
Yamaha CDX-493	180	Open and lively, but this player is also messy and lacking resolving power	●		●								Hyb	191
Yamaha CD-X993	400	A bit of a lush, though the sound is singularly free of grain, and equipment levels are strong	●		●								BS	184
<b>R</b> YBA CD1α	3,895	A remarkably fluid and graceful sound – one of the best we've heard below £5,000	●										18bit	194
<b>TRANSPORTS</b>														
Audio Note CDT Zero	399	Neat shoe box size transport sounds smooth and fluid in the right system. (Tested with DAC Zero)	●											191
Linn Karik	1,850	Based on early Linn transport, the Karik is dry but very positive, detailed and engrossing			●									1323 144
Roksan Attessa ATT-DP3	1,295	Not the most detailed or refined but capable of sounding exciting with the right material	●		●								1bit	1867 162
Teac VRDS-T1	550	Superb quality engineering is mated to tidy and composed sound. (Tested with D-T1)	●		●									1325 144
Theta Data Basic II	2,397	Uses a Philips CDM9 Pro mechanism and works a treat with more lively DACs	●											1494 130
Thorens TCD2000	999	Lively presentation not helped by rather loose bass and splashy treble. (Tested with TDA 2000 DAC)	●		●									1867 162
<b>R</b> Trichord Digital Turntable	699	Very detailed, precise, controlled yet involving, a first-rank performer	●	●										1867 162

CONTINUED

# CD/DVD Players

SPECIFICATIONS

ISSUE NUMBER  
FACTSBACK NO.  
MULTI-DISC  
DAC TYPE  
VARIABLE OUTPUT  
HEADPHONE SOCKET  
BAL. ANALOGUE  
ST OPT DIG OUT  
OPTICAL DIG OUTPUT  
AES/EBU ELEC DIG OUT  
ELEC DIGITAL OUTPUT

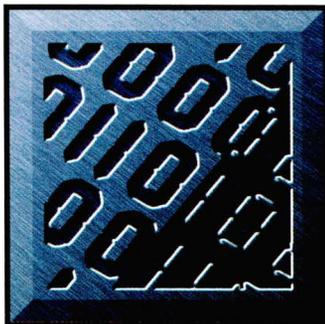
STATUS

PRODUCT (€) COMMENTS

DACs										
	Alchemist TS-D-1	300	24/96-equipped DAC sounds tidy but a little shut-in with both 16-bit CDs and 24-bit, 96kHz DVDs							BS 187
	Audio Note DAC Zero	369	Neat valve-equipped DAC sounds smooth and fluid in the right system. (Tested with CDT Zero transport)							Hyb 191
	Linn Numerik	1,500	A new 20-bit DAC and revised Karik transport have cleaned up; but sounds a bit dry and humourless							MB 1323 144
E	Musical Fidelity X-24K	300	24/96 ready with a warm, natural sound and good soundstaging (tested with Pioneer DV-717)							MB 187
R	PS Audio UltraLink 2 HDCD	2,590	The sound positively sparkles with colour and resonant detail. (Tested with Lambda transport)							MB 1106 133
	PS Audio Reference Link	4,550	Consolidates reputation of PS Audio for high performance digital electronics							MB 1069 132
	Roksan Attessa ATT-DA2/DSS	1,145	Not the most detailed or refined but capable of good excitement with the right material							1bit 1867 162
	Teac D-T1	500	Teamed with VRDS-T1 for test, this superb quality unit is tidy and composed							BS 1325 144
	Thorens TDA2000	700	Lively and up-front presentation not helped by rather loose bass and splashy treble							BS 1867 162
R	Trichord Pulsar Series One	1,395	Very detailed, precise, controlled yet involving; a first-rank performer. Switchable phase, dither etc							Hyb 1867 162

DVD PLAYERS

E	Denon DVD-5000	1,600	The first DVD-V player that ain't bad as a CD player. A fine musical device	●	●					BS 187
B	Denon DVD-3000	700	Enjoyable rather than analytical, includes 24/96 and AC-3/MPEG-2 Audio	●	●					BS 180
	Hitachi DV-P2E	400	DVD player, based on last generation Pioneer, is good but uninspiring	●	●					24/96 190
	JVC XV-S2000	475	DVD player with excellent picture but flat sound in most modes	●	●					PEM 190
R	Kenwood DVF-9010	1000	DVD player with brilliant picture and clean, lively sound	●	●					24/96 190
	Micromega Premium DVD	1,500	Unique lack of regional coding constrictions but both DVD and CD replay are compromised	●	●					BS 183
	Panasonic DVD-A150	400	Simple, mid-market DVD player is vice-free but limited for the audiophile		●					24/96 190
R	Panasonic DVD-A350	700	24/96 converter and AC-3 & MPEG-2 Audio included, well balanced, if slightly blurred and shut in	●	●					BS 180
B	Pioneer DV-515	400	Unusually well equipped (CD-R compatible etc) DVD with more than fair sound and picture quality	●	●					MB 190
B	Pioneer DV-717	550	Superb DVD player with good picture quality and which really knows how to play 24/96 discs	●	●					MB 190
	Pioneer DVL-909	900	DVD and LD player: self-recommending to AV nuts; musically detailed but occasionally seems disjointed	●	●					BS 180
	Samsung DVD-907	500	DVD player with below average picture, and lacklustre sound quality	●	●					24/96 190
R	Sony DVP-S715	600	24/96 converter for DAD compatibility, sharp, forward, but slightly unsubtle sound	●	●					BS 180
	Theta DaViD	4,650	A top-notch CD transport, that also plays DVD-Video discs well. Pricy for a DVD transport, but worth it	●	●	●	●			24/96 191
	Thomson DTH2000	380	This DVD player's main attributes are reasonable pricing and fair to good all round performance	●	●					24/96 190
	Toshiba SD3107B	550	Dynamic sound and good stereo which lacks lowest stratum of detail	●	●					BS 180
R	Yamaha DVD-S700	600	DVD player, similar to Panasonic DVD-A350 but cheaper – an excellent buy	●	●					24/96 190



## Digital Recorders

Domestic digital recording has been possible since the launch of digital audio tape (DAT) in the '80s. Since then DAT has remained expensive and largely esoteric, favoured only by well-heeled or professional users. Digital Compact Cassette and MiniDisc (MD) were launched in the early '90s but only MD has stayed the course. A little later came domestic CD-Recorders using CD-R discs, while the latest twist is the arrival of re-recordable CDs known as CD-RW discs. The recording quality hierarchy is as follows: DAT, CD-R/CD-RW, MD. MD is probably the most convenient to use, and offers sophisticated editing facilities, while CD-R is ideal for making digital 'dones' of prerecorded CDs. DAT is the medium of choice for high-quality location recording.

KEY TO SPECIFICATIONS

- **FORMAT:** Type of recorder – see left for descriptions.
- **DAC TYPE:** Digital to analogue converter: BS - Philips Bitstream; MB - multibit; Hyb - hybrid of multibit and bitstream; 1bit - single bit types such as MASH, bitstream, PWM etc
- **ADC TYPE:** The analogue to digital converter (ADC) converts sound into digits during live recording. Types of ADC are as per DACs (qv).
- **PORTABLE:** Battery operable, but not necessarily personal-stereo-sized.
- **OPTICAL IN/OUTPUTS:** Digital socketry for optical cable.
- **ELEC IN/OUTPUTS:** Digital socketry for electrical cable.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback advert on the penultimate page of the mag.
- **ISSUE NUMBER:** The issue of *HI-FI* Choice in which an original review appeared.

**B** BEST BUY    **R** RECOMMENDED    **E** EDITOR'S CHOICE

STATUS

# Digital Recorders

SPECIFICATIONS

ISSUE NUMBER  
FACTSBACK NO.  
ELEC IN/OUTPUTS  
OPTICAL IN/OUTPUTS  
PORTABLE  
ADC TYPE  
DAC TYPE  
FORMAT

PRODUCT (€) COMMENTS

MINIDISCS										
	Denon DMD-1000	300	A good machine, but it still doesn't manage to shake off the MiniDisc plague of losing the listener's interest							184
	Denon DMD-1300	500	Sound sometimes lacks integration but tonal balance is good and it handles loud music with panache							2193 177
R	Kenwood DMF-9020	500	One of the best MD decks yet for sound quality, and the first to make titling a practical proposition							191
R	Kenwood DM-9090	550	Slight sibilance and image vagueness do not detract from excellent balance and solid bass							2194 177
	Marantz CM635	500	CD player and MD recorder in one box: a practical idea but sound and features don't really match the asking price							191
	Onkyo MD-121	450	Midi-sized deck that sounds slightly coloured at times, though immediate and lively							2195 177
R	Pioneer MJ-D707	250	A handy set of features for the price, though sound is not outstanding							191
R	Sharp MD-R1 MkII	200	It's cheap: sound is not outrageously bettered by rather pricier competition. A bit thin on features though							191
	Sharp MDR3H	300	Nifty machine combining a 3-disc CD changer with a MD recorder. Sound on both is rather below par, though							184
B	Sharp MD-R2	300	Budget recorder that loses little or nothing in comparisons with much more expensive models – highly capable							2196 177
R	Sony MDS-JB920	300	One of the better MD decks, its sound is neutral and dynamic. European Audio Recorder of the Year '98-'99							184
B	Sony MDS-JA20ES	500	Sound quality about as good as it gets with MD to date, and a very comprehensive features set too							191
E	Sony MDS-JA555ES	650	Probably the best MD deck to date, with consistently less quality loss over a wide range of programme. Lots of features							194
	Yamaha MDX-793	300	Nice machine to use and has some useful features, but sound quality a little wanting							191

CD RECORDERS										
	Marantz DR700	600	Dearer than Philips and Traxdata equivalents, with apparently only a smarter front panel to show for it							191
R	Philips CDR-880	499	Capable of making perfect copies of CD digital, and very acceptable copies of anything analogue too							184
R	Pioneer PDR-555RW	480	Competitor to Philips' CDR880; it can't make perfect copies but has the edge in replay and analogue record sound							184
	Pioneer PDR-04	700	Scaled down version of the PDR-05 with auto level setting but all the socketry and features you need to make CDs							171
	Pioneer PDR-05	1,000	The first domestic CD-R deck – excellent sound quality							1652 152
R	Traxdata Traxaudio 900	499	Identical to Philips and Marantz models: it makes bit-perfect copies of CDs and has perfectly acceptable replay							191



# Headphones

There are several different ways of making a headphone. The most expensive models employ electrostatically-driven diaphragms within an open-backed earcup. Most mid-price designs feature dynamic, moving-coil-driven diaphragms in open, semi-open or closed-back designs. An open-backed headphone can sound remarkably transparent, but also permits the ingress of external noise. Closed-back designs keep out unwanted sound, but may be less comfortable to wear and more coloured. The latest development is the cordless headphone using either infrared light or, more recently, radio waves. Quality is improving, but has yet to match the best corded designs.

## KEY TO SPECIFICATIONS

- **TYPE:** Operating principle: D - dynamic; E - electrostatic
- **SUPRA-AURAL:** Where a flat pad presses on the outer ear
- **CIRCUM-AURAL:** Where the earcup encloses the ear
- **OPEN BACK:** Offers an open sound but lets in noise
- **CLOSED BACK:** Keeps out external noise
- **MASS (g):** Mass in grams
- **IMPEDANCE (Ω):** Load offered to the headphone amplifier. Many headphones offer a significantly higher value than loudspeakers, for example, but this does not mean they will be incompatible with the majority of amplifiers.
- **3.5MM JACK ADAPTOR:** Compatible with mini-jacked components, eg personal stereos.
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**B** BEST BUY    **R** RECOMMENDED    **E** EDITOR'S CHOICE

# Headphones

## SPECIFICATIONS

STATUS: **R** RECOMMENDED    **E** EDITOR'S CHOICE

TYPE: SUPRA-AURAL, CIRCUM-AURAL, OPEN BACK, CLOSED BACK, MASS (g), IMPEDANCE (Ω), 3.5mm JACK ADAPTOR, FACTSBACK NO., ISSUE NUMBER.

PRODUCT	(E)	COMMENTS	TYPE	MASS (g)	IMPEDANCE (Ω)	3.5mm JACK ADAPTOR	FACTSBACK NO.	ISSUE NUMBER
AKG 301	70	Big 'phones with even and detailed sound but lacks sufficient bass weight	D		230	100	●	194
AKG K 240 DF	100	Inoffensive 'phones that are very laid back, if lacking in grunt	D		240	600	●	186
<b>R</b> AKG K1000	700	One of the best dynamics on the market, hooks directly into speaker outputs	D		270	120	●	99
<b>R</b> Audio Technica ATH910PRO	80	The closed back 910s are an improvement on the 909s, with a nice rhythmic quality rarely found	D	●	280	40	●	55
<b>R</b> Audio Technica ATH-D40fs	100	Detailed and involving sound with a professional 'studio' quality appeal	D		250	66	●	194
<b>R</b> Audio Technica ATH-M40	120	Incredible detail and honesty from these classically designed studio 'phone	D		250	60	●	186
Beyer DT311	50	Uncharacteristically tight, unrefined sound quality from this otherwise well engineered 'phone	D	●	124	40	●	1098 133
Beyer DT411	63	A reasonable but not very thrilling headphone that doesn't really offer enough at the price	D	●	120	250		111
Beyer DT331	65	Clear and extremely detailed sound with rather thin bass	D		210	40	●	194
Beyer DT431	81	Nice looking 'phones that may not be the best players on the field, but will always give 100 per cent	D		210	40	●	186
<b>R</b> Beyer DT511	106	Superb midband clarity and speed slightly at odds with soft bass. High tingle factor, even so	D		200	250	●	2063 172
<b>R</b> Beyer DT531	135	A good buy for serious, heavy-duty music making	D	●	245	250		144
<b>R</b> Beyer DT831	140	These provide silky, smooth textures in abundance and we're not just talking about the velvet ear pads	D	●	1/2	295 250	●	186
Beyer DT100	160	Rugged, modular professional design, but bass is woolly and treble lacks detail	D		350	600		157
<b>R</b> Beyer DT911	170	Probably too revealing for many headphone amps: these are very subtle and fine, if expensive cans	D	●	275	250		111
Denon AH-D550	80	A competent 'phone with integrity, but little panache or charisma. Hard headband causes brain strain	D		200	35	●	1801 157
Denon AH-D750	130	Loud and gutsy, meaty bass, good with rock and dance. Can sound thick and clumsy	D		250	30	●	2063 172
Grado SR-40	45	Cheap and nasty appearance largely redeemed by cheerful, up-beat sound. Very comfortable	D	●	120	32	●	2064 172
<b>R</b> Grado SR60	79	For sheer musical enjoyment these 'phones are hard to beat. Retro styling may not be to everyone's taste	D	●	200	32	●	194
Grado SR-80	100	Open and dynamic with pedantically open mid-band. Crude physical design, rough frequency extremes	D	●	60	8	●	1801 157
<b>R</b> Grado SR125	150	What these 'phones lack in style they make up for ten-fold in musical quality	D	●	200	32	●	186
<b>R</b> Grado SR-225	200	Warm, darkly-coloured tonally and ultimately lacking in clarity, but true to the spirit of the music	D	●	200	32	●	1883 163
<b>R</b> Jecklin Float Model 1	79	While very unusual in appearance, the Floats give remarkable sound quality and openness	D	●	400	200	●	55
<b>R</b> Jecklin Float Two	99	Unusual design that won't suit everyone but with a neutral and spacious sound	D		385	200		194
<b>R</b> Jecklin Float Model 2	99	Helmet shaped, but open sounding and comfortable in the long term, despite lack of adjustment	D		400	200		63
JVC HA-D50	45	Detailed but with a characteristic mid-band all of their own and a modest amount of lower bass	D		290	56	●	194
JVC HA-W60	49	Remarkable lack of interference and hiss ameliorates adequate sound of this cordless design	D	●	165	1/2	●	172
JVC HA-D910	65	Broadly acceptable if unexciting design with low level losses and some colorations	D	●	220	32	●	121
<b>R</b> JVC HA-W200RF	75	Distinct lack of hiss from these FM cordless 'phones ensures that detail and depth are easily heard	D		280	20,000	●	186
Koss TD/80	50	Oodles of bass but with a recessed midband; tiresome on the head with prolonged wearing	D		250	60	●	194
Koss R/100	100	Rather cheap looking 'phones that supply good detail but are severely lacking in midrange excitement	D		215	60	●	186
Precide Ergo Model 2	140	Still has much of the spaciousness of the Float from which it is derived, but coarse mid/top	D		380	100	●	1892 163
<b>R</b> Philips SBC 3396	70	Remarkably airy for closed-back designs. Fine tonal balance, punchy delivery. Amazing value for money	D	●	255	32	●	2064 172
Philips SBC HP900	90	Sharper, snappier midrange than 3396: initially impressive but blows it on balance and listenability	D		200	32	●	2065 172
Sennheiser IS 380	55	As close as you'll get to real hi-fi with infra-red phones at this price. Inevitable hiss spoils the illusion	D	●	192	1/2	●	172
<b>R</b> Sennheiser HD 455	55	Inoffensive, if nondescript sound; modular, but can become dislodged from head	D	●	185	60	●	1801 157
Sennheiser HD 500	70	A disappointing pair that offer good stereo-imaging, but little else	D		210	32	●	186
Sennheiser HD 475	80	Elegant, uncluttered sound and very comfortable but lean bass saps satisfaction	D	●	120	60	●	2065 172
Sennheiser RS 400	80	FM cordless 'phones that are very wearable, but slightly woolly sounding with interference problems	D	●	160	N/A	●	186
<b>R</b> Sennheiser HD 570 Symph	90	Comfortable, light-weight 'phones with a detailed and open sound but lacks bass depth on weightier music	D		210	64	●	194
<b>R</b> Sennheiser HD 545	125	Fine all-rounder that takes all styles of music in its stride. Ear-clamping headband	D		255	150	●	2066 172
<b>R</b> Sennheiser HD 565 Ovation	150	Wide bandwidth design which is refined, expressive and extremely comfortable	D	●	255	150	●	1801 157
Sennheiser HE 60/HEV70/UK	998	Very nearly a superb electrostatic, with a pure midband, but top end is sibilant and edgy	E		260	N/A	●	1898 163
Sony MDR-605LP	50	Funky looking headphones that have a very bold, but tiring sound, with coloured bass	D		145	40	●	186
Sony MDR-CD770	100	Neutrality and comfort make the Sony easy to live with. Correct-sounding too, yet musically unrewarding	D				●	1801 157
Sony MDR-V700DJ	100	Great looking fold-away 'phones with exceptional build quality. Kickin' bass	D	●	300	24	●	194
<b>R</b> Sony MDR-CD1700	200	Astonishingly detailed, uncoloured and free of the usual artefacts from a sealed back headphone	D	●	325	32	●	1901 163
Sony MDR-F1	100	Natural, easy-going sound teamed with great looks and comfort. Shame about the lightweight bass	D		300	12	●	2066 172
Technics RP-DJ1200	130	Functional design with head-pulping bass and muggy tonal balance. Good job they're sweat-proof	D	●	250	32	●	2067 172
<b>R</b> Stax Lambda Nova Basic	449	Refined, articulate, yet with real presence - and a notable bargain by electrostatic standards	E	●	347	N/A	●	1902 163
Vivanco Cyberwave FMH3000	40	The only cordless 'phone to offer genuine walkabout freedom, but sounds like a cheap FM tuner	D	●	210	FM	●	172
Vivanco IR5800	50	Consistently musical infra-red design. Doesn't reach for sonic heights so hiss can be forgiven	D		226	1/2	●	172
<b>R</b> Vivanco SR650	50	Unusually comfortable 'phone with excellent detail resolution but aggressive	D	●	175		●	1801 157
<b>R</b> Vivanco SR750	60	Cossetting physical design, attractive sound, though suffers overhang and lacks ultimate dynamics	D	●	188		●	1801 157
<b>R</b> Vivanco SR 950	80	Cuddly feel and sound make these an enjoyable pair of 'phones	D		252	32		194
Vivanco FM7980	80	A fair amount of whine and crackle detracts from 'phones which are otherwise very listenable	D	●	280	9,000	●	186
Vivanco FM8180	99	Well thought-out features and a better than average sound are, at times, marred by intrusive hiss	D		240	9,000	●	186



# Hi-Fi Loudspeakers

As the last link in the hi-fi chain, loudspeakers are at the mercy of incoming signals. Nevertheless, distortions introduced by loudspeakers tend to be the most obvious. Inside the average loudspeaker is a simple electrical circuit (the crossover) which splits the incoming, full-frequency-range signal for the specific drive units to handle: highs to the 'tweeter', lows to the 'woofer'. For any speaker, designers must balance the 'sensitivity' of the loudspeaker (how loud it goes for a given electrical input) against bass extension (how low it goes). Subwoofers augment bass and are either passive (unamplified) or, preferably, active (self-amplified). Our 'bass from' figures are based on measurements in a particular room therefore results will vary in different environments.

### KEY TO SPECIFICATIONS

- **SIZE wXhXd (cm):** Width by height by depth in centimetres.
- **FLOORSTANDER:** Requires no stand support.
- **SENSITIVITY (dB/W):** How much sound results for a given electrical input – the higher the figure, the louder the speaker.
- **IMPEDANCE (Ω):** Impedance, measured in Ohms, indicates how much resistance the speaker presents to an amplifier. As impedance decreases, demands on an amplifier increase.
- **BASS FROM (Hz):** The lowest frequency that a speaker can reproduce effectively.
- **FREE SPACE:** Speakers which should not sit close to walls.
- **CLOSE TO WALL:** Speakers which should sit between 3 and 12cm from the rear wall.
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**B BEST BUY** **R RECOMMENDED** **E EDITOR'S CHOICE**

# Hi-Fi Loudspeakers

### SPECIFICATIONS

SIZE wXhXd (CM)    FLOORSTANDER    SENSITIVITY (dB/W)    IMPEDANCE (Ω)    BASS FROM (Hz)    FREE SPACE    CLOSE TO WALL    FACTSBACK NO.    ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	SIZE wXhXd (CM)	FLOORSTANDER	SENSITIVITY (dB/W)	IMPEDANCE (Ω)	BASS FROM (Hz)	FREE SPACE	CLOSE TO WALL	FACTSBACK NO.	ISSUE NUMBER
Acoustic Energy Aegis One	150	At a new low price, this has a very natural and transparent midband, erring a little on the dull side	19,36,5,24		87	6	40	●			187
Acoustic Energy AE200	250	Metal-cone miniature has a tendency to shout but is still lots of fun, and well built too	18,5,30,25		87	6	40	●		2199	177
Acoustic Energy AE109	350	Lots of mass-loaded twin-driver speaker for the money, especially for loud, driving bass	18,90,25		88	4	25	●		1904	164
Acoustic Energy AE120	500	Attractive presentation and good sonic headroom, but a heavy, uneven overall balance	18,98,28		89	4	25	●		1904	170
Acoustic Energy AE520	1,000	Could be more neutral, but high-class build is reflected in a high-class sound. Very elegant too	21,98,30		91	3	25	●			190
ATC SCM10	1,000	A compact speaker with good transparency but light-weight bass	18,38,25,5		80	8	65		●		192
ATC SCM20	1,599	Massively built, invariably informative but the rather forward presentation can be uncomfortable	24,44,31		83	8	28		●		86
Audio Gem Emerald	540	Pretty compact floorstander with lively if lightweight sound	18,94,21		87	6	40	●		1905	164
Audio Note AN-J/B	799	Light damping and local unevenness add some coloration, but don't spoil the speaker	38,58,25		93	8	25	●			110
Audio Note AN-E/B	1,299	Coherent, dynamic and transparent, with extended bass and high sensitivity – but ugly!	36,84,28		94	8	20	●			106
Audio Physic Tempo	1,999	Tall and unusually-styled floorstander has stunning stereo but suspect bass tuning	22,107,47		88	8	28	●	●	1344	143
Audiovector C2	799	Elegant two-and-a-half-way has a big, full bandwidth sound, but midband seemed a little under-developed	19,106,27		90	4	20	●			190
Audiovector M2	1,399	High-class, smooth and slightly laid-back performer has driving bass. It's upgradeable, too!	20,102,30		89	4	22	●			180
AVI NuNeutron	500	A smooth and subtle though pricey sub-miniature, albeit with the inevitable limitations of the breed	14,27,23		86	4	50	●			190
AVI Positron	899	This 'mini-floorstander' is capable of great precision and delicacy, but in a rather small scale way	17,5,74,24,5		85	6	40	●		2130	174
B&W DM302	150	Highly competent and neutral all rounder; clever Prism enclosure	19,32,22		88	4	45	●	●	1778	156
B&W DM305	350	Ridged paper cone gives lively sound, clever box, but a little uneven	22,87,31		89	4	40	●		1908	164
B&W CDM2SE	400	Beautifully styled and finished, respectable midband. Lacks definition towards frequency extremes	22,32,25		87	6	40	●			183
B&W 603 S2	550	Capable of being driven seriously loud, but the cautious balance seems less happy playing at low levels	23,5,87,29		91	4	22	●			193
B&W CDM1SE	600	A great looking stand-mount with one of the best midbands around, and a subtle blend of other qualities	22,37,29		88	5	40	●		2209	177
B&W CDM7	1,000	A combination of serious welly and physical elegance; but a basic lack of midband smoothness	22,97,29		90	4	22	●		2131	174
B&W Nautilus 805	1,400	A great looking and extremely capable design with excellent timing and real communications skills	24,41,5,34,5		88	8	22	●			191
B&W Nautilus 802	6,000	Outstanding example of the high-tech speaker builder's art, needs real power but gives real sound	39,111,55		91	8	34	●	●		183
B&W Nautilus 801	8,500	The 801 is a magnificent loudspeaker in nearly every respect, but it is one that likes to play loud	52,111,69		91	8	34	●			186
Blueroom MINIPOD	249	The MINIPOD can show its competitors a thing or two about freedom from boxiness and looks fab	18,34+,17		91	4	50	●			193
Cabasse Farella 400	950	Exciting but very upfront-and-in-yer-face sound. High sensitivity, fine build and good dynamic drive	26,92,32		92	5	28	●			180
Castle Isis	250	A great miniature at a competitive price. Sound is lightweight but very coherent, with a fine overall balance	17,35,5,21		87	8	45	●		2019	170
Castle Inversion 15	425	This striking looking stand-mount is a good allrounder, commendably free from boxiness	19-22,42,25		91	4	30	●			193
Castle Kendal	500	A beautifully finished compact floorstander with a decidedly forward but communicative sound	17,76,20		86	6	45	●		2204	177
Castle Severn 2	539	Carbon fibre cone gives lovely, subtle midband but treble is a bit dull and bass a bit thumpy	21,84,25		87	8	30	●		2120	174
Castle Avon	730	Lovely box and lovely voices from carbon-fibre composite cone	22,91,28		85	8	22	●		1909	164
Castle Harlech	880	Handsome big-sounding floorstander, great value and dynamic midrange	20,96,33		88	8	28	●	●	1820	160
Celestion 12i	119	Not without virtue, but the relentless enthusiasm and mid-band colorations can become wearing	19,31,21		88	6	45	●		2254	179
Celestion 23i	300	Cosmetically flawed, but the bottom end has fine get-up-and-go, and works well with dance tracks	24,86,27		89	6	30	●		2200	177
Celestion A Compact	600	Provided the room isn't too large, and your tastes not too heavy, this is a charming little number	17,24,21		90	3	45	●			193
Celestion A1	899	Rich, warm and laid-back, but a true quality sound; lovely build	24,41,35		88	6	25	●	●	1910	164
Celestion A2	1,500	Full scale, big sound from ultra-elegant floorstander. Smooth and slightly laid back presentation	24,93,39		89	6	22	●			180
Chario Syntar 100	249	Pretty with a pleasantly easygoing balance, but not the most communicative or exciting sound around	18,32,27		87	6	45	●		2020	170
Chario Hiper 1000	300	Classy looking stand mount has a sweet, easygoing sound with fine midband voicing	18,35,28		87	4	45	●			187
Chario Constellation Lynx	550	Beautiful near-miniature is let down by a midband too laid back for its own good	20,36,26		87	3	40	●			190
Chario Academy Millennium 2	2,100	Price includes stands. A showy speaker that lives up to its own hype	22,53,35		90	4	55	●			190
Dali 606	400	A big bruiser at a tempting price. Sounds refined and polite, but also packs some punch	22,97,32		91	4	25	●		2121	174
Dali Royal Menuet MkII	400	Classy sub-miniature with a beautiful box and fine ingredients, but a little lacking in subtlety and excitement	16,26,18		87	3	50	●			190
Dynaudio Audience 5	400	Follows the Dynaudio tradition for fine midband transparency, but the overall timbre is a bit thin	20,31,26		85	4	40	●		2205	177
Dynaudio Audience 40	400	Classy engineering content creates a winning combination of neutrality, dynamic range and involvement	17,28,25		87	4	40	●			190
Dynaudio Audience 50	577	This stand-mount doesn't look big, but sound quality can match many models at twice the price	20,33,25		86	4	30	●		2122	174
Dynaudio Contour 1.8 MkII	1,842	Wonderful voice-band delicacy and loads of deep bass from a very elegant and compact box	21,95,29		85	4	20	●		1986	167
Eltax Liberty 3+	150	Bright, bassy, laid back and attractively enhanced, but dynamically challenged. Big box for your dosh	20,5,38,34		86	4	25	●			187
Eltax CL 310i Jet	800	It's pricey, and you can buy better performance for the money. Small speaker, good sound	12,3,20,8,28,2		86	4	42	●			191
Eltax Linear Response	249	A curiously dumpy shape, but smooth, laid-back performer is easy on the ears, with fine tonal accuracy	25,35,32		85	4	40	●		2201	177
Epos ES12	499	High quality luxury stand-mount has great midband and stereo imaging	20,38,25		85	8	45	●		1823	160
Epos ES25	1,655	Handsome floorstander with a rather uneven and bass heavy balance	24,90,35		88	6	22	●		1346	143
Gale 2i	140	Unspectacular sound and appearance fail to help this solid little miniature stand out from the crowd	22,40,27		88	7	40	●		2021	170
Heybrook Prima 2	159	Great openness, speed and timing. Sounds fresh and vital, though sometimes lacks scale and weight	20,29,18		87	6	50	●		2256	179
Heybrook Heylette B	200	Attractive traditional-style near-miniature with classy main driver now has fine overall balance to match	19,5,30,22		88	4	45	●			187
Heybrook Optima	259	A dumpy ugly duckling with a heart of gold. Deserves a better tweeter, but communicates well	22,88,29		94	4	30	●			193
Heybrook Heylios	389	Great all-round performance in a pretty package at a sharp price	24,36,27		87	6	25	●		1912	164
Heybrook Heylo	439	Good vocal reproduction, but sounds thin and bass seems an afterthought	23,73,19		88	8	30	●		1658	152
Heybrook Ultima	649	Has the bass wallop to justify its dual hi-fi/home cinema roles, but doesn't excite	22,97,29		89	6	45	●		2126	174
Heybrook Octet	1,800	Good-looking but pricey floorstander with novel drivers and a fine ceramic-enclosure midband	24,97,31		90	6	25	●			180
Infinity Delta 60	700	Striking and massive floorstander, lots of speaker for the price, but seems a victim of its own complexity	16-29,115,41		90	4	25	●			183

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# Hi-Fi Loudspeakers

SPECIFICATIONS

SIZE WxHxD (CM)    FLOORSTANDER    SENSITIVITY (db/W)    IMPEDANCE (Ω)    BASS FROM (Hz)    CLOSE TO WALL    FREE SPACE    FACTSBACK NO.    ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	PRICE	TYPE	SENSITIVITY (db/W)	IMPEDANCE (Ω)	BASS FROM (Hz)	CLOSE TO WALL	FREE SPACE	FACTSBACK NO.	ISSUE NUMBER
Infinity Reference 1i	150	Although not to our tastes, this is a competent speaker, and decent material value	20,34,20		89	6	50	●		1403	148
Jamo BX100A	350	Offering a cracking output for their size, these rock boxes can be a bit bright but have decent bass	31,5,54,28		91	8	40	●		1758	155
Jamo Classic 8	400	A lot of speaker for the money; good when playing quietly, but boom'n'tizz character sounded crude	22,90,29		90	4	28	●		1659	152
Jamo Cornet 195	350	Loads of bass, should have plenty of yooof-appeal – it looks the business, and is priced attractively	20,5,91,31		90	3	26	●			183
Jamo 477A	500	Very prettily styled, but build and sound quality are disappointing at the price	19,77,28		88	4	40	●		1549	138
Jamo 507A	700	Imaginative styling keeps the front view super slim yet still it packs a punch. Glass top is a nice touch	22,94,37		88	3	40	●		2126	174
<b>B</b> JBL LX2	250	<b>Invigorating, if a touch crude, this good-hearted speaker reproduces music with considerable enthusiasm</b>	22,40,27		87	8	40	●		2022	170
JBL Ti200	400	Very substantial stand-mount knows how to rock and roll, but can sound uncouth on more delicate material	21,41,30		92	5	40	●			193
<b>R</b> JBL L20	700	Pricey, heavy and a bit laid back, but this is a fine rock'n'roller which is dynamic and communicative	26,42,28		86	8	30	●		1550	138
JBL SVA1500	700	A distinctive Pro-style bi-radial horn tweeter, with a fun sound, enlivened by a juicy bass thump	17,5,51,31		86	8	40	●		2127	174
<b>R</b> JBL L40	1,000	Classic, large, stand-mount three-way is full of vim and vigour, with a superb sense of balance	30,65,31		88	4	23	●		1976	167
<b>R</b> JBL 4312 II	1,000	Crude but startlingly effective dynamics. The original party animal knows just how to rock'n'roll	36,60,30		94	4	25	●			190
<b>R</b> JBL SVA 2100	1,250	Monstrously large and brutish styling, goes very loud as well as deep. Fine focus but some boxiness	37,114,52		91	8	<20	●			180
<b>B</b> JBL L90	1,500	<b>A classic monitor which communicates with gusto and enthusiasm, though it can sound a bit crude</b>	24,94,35		91	6	23	●		1348	143
JBL LX70	550	Bassmeister supreme, shame the rest doesn't match up. Fine sensitivity but an itchy scratchy treble	26,5,94,30		91	4	33	●			183
JMLab Tantal 507	295	Competent all rounder, this compact stand-mount has a good heart and sweet treble, but sounds a bit small	21,38,27		93	4	40	●			193
<b>B</b> JMLab Tantal 515	495	<b>Lively and open if bright. Sound is entertaining and informative, but presentation is nondescript</b>	20,94,26		92	5	32	●			183
JMLab Spectral 909.1	1,375	Multi-driver array in a large and very substantial enclosure. Good scale but lacks delicacy and sweetness	27,107,35		90	4	20	●			180
<b>R</b> JMLab Mezzo Utopia	7,250	Looks good and sounds even better. A genuinely big speaker with fantastic coherence	35,115,47		92	4	30	●			186
<b>R</b> Jordan Watts JH400	565	Piano-finish hexagon has controversial sound, with uneven balance but delightful mid	28,38,21		86	8	50	●			106
<b>B</b> JPW Mini Monitor	60	<b>Ultra-cheap miniature works well in a limited way</b>	18,27,175		86	8	50	●		1781	156
<b>B</b> JPW Gold Monitor	80	<b>More informative than Mini Monitor – but fiercer, too</b>	18,27,175		86	8	50	●		1782	156
<b>B</b> JPW ML510	130	<b>Lots of good-quality speaker for the price, but not an ideal match for cheap budget components</b>	20,34,22		88	5	50	●			169
JPW ML710	230	Good material value but disappointingly uneven bass – check out the 510s instead	20,88,30		88	5	40	●		2202	177
JPW ML910	330	Loads of speaker for the money, plenty of headroom and loudness capability, but sounds dull	23,104,30		91	4	43	●			183
<b>R</b> JPW ML1010	400	A seriously substantial speaker for the price, and an obvious choice for those who like their music loud	22,5,115,40		91	6	25	●		2031	170
JPW Ruby 1	400	Very pretty but pricey luxury metal-cone miniature has good, if slightly edgy balance	19,32,21		87	6	55	●		1572	139
<b>R</b> JPW Ruby 4	1,000	Twin metal-cone main drivers improve the dynamic performance and bass extension, with little sacrifice	22,94,26		88	8	25	●		2132	174
<b>R</b> KEF Coda 7	129	Lovely open voice reproduction, but bass could be tauter; build tougher	18,30,23		88	6	50	●		1783	156
<b>R</b> KEF Coda 8	189	Outstandingly well-balanced, bass is deep but a little vague	20,32,5,29		86	6	28	●		1784	156
<b>R</b> KEF Q15	200	Beautifully balanced and voiced stand-mount, but a potentially tricky amplifier load at high frequencies	20,5,31,27		90	2.5	30	●			187
KEF Coda 9	299	Uneven budget 3-way floorstander with poor bass definition	20,86,28		89	6	30	●		1785	156
KEF RDM One	499	Cute and tiny, nice midband but lack of bass warmth and weight	23,30,24		88	6	70	●		1913	164
KEF Q65	799	Dumpy-looking three-way has loads of bass and a laid-back midband; goes loud but lacks poise and impact	23,95,31		92	2.5	25	●			190
KEF RDM Three	1,500	Definitely a speaker aimed at long-term satisfaction rather than immediate impressiveness. Nice	24,100,27		90	4	40	●			189
KEF Reference Model 2	1,599	Classy, large floorstander that has massive headroom and clean mid-to-treble, but limited deep bass	23,103,34		89	4	30	●		1987	167
<b>B</b> Kelly KT2	700	<b>Chunky floorstander has tacky finish but whopping sensitivity and a very involving, (if characterful) sound</b>	23,89,34		94	4	33	●			183
<b>B</b> Kelly KT3	1,200	<b>Super-high-sensitivity, hefty floorstander sacrifices smoothness for dynamic realism</b>	25,95,36		95	4	28	●		2133	174
<b>B</b> Keswick Audio Aria II	379	<b>Confident and dynamic sound, if a little crude and shut in</b>	21,42,24		89	8	20	●		1405	148
<b>R</b> Keswick Audio Torino	999	Good value, lively contender with distinctive styling. Goes loud and deep but could be smoother	18-26, 93,28		90	4	20	●		1977	167
<b>R</b> Linn Kan	295	Great bass discrimination from size, ensuring a very informative, if slightly shut in experience	19,31,19		86	4	45	●			187
<b>R</b> Linn Keilidh Passive	750	Stunning timing and coherence, and awesome bass drive	20,83,28		87	4	22	●		1552	138
<b>R</b> Linn Kaber Passive	2,000	Dry, bright balance emphasises dynamics and transients, but can sound unforgiving	20,90,28		87	4	25	●			118
<b>B</b> Living Voice Auditorium	1,500	<b>Pretty, compact floorstander has wonderful coherence, high sensitivity and fine dynamic integrity</b>	21,5,98,29		91	4	25	●			180
Magnat Vector 77	450	Tall, dark and a lot of speaker for the money. Beautiful balance, but lacking in subtlety and transparency	22,115,29		89	5	30	●			183
<b>R</b> Magnat Vintage 720	1,200	Slightly crude in some respects but lots of heart, fine scale, decent dynamic coherence and integrity	29,113,32		88	4	20	●			180
<b>R</b> Mission 700	130	A lot of speaker for the money. Good bass weight and extension and goes loud with ease	18,34,26		87	8	40	●		2257	179
<b>B</b> Mission 771	170	<b>Beautiful stand-mount miniature has a delightfully well balanced and voiced sound, and real wood finish</b>	17,31,22		86	7	45	●			187
<b>R</b> Mission 750LE	250	Fabulous cosmetics and a great midband carry the day, though size will out and bass is inevitably limited	17,28,27		86	7	45	●		2203	177
<b>R</b> Mission 773e	400	Beautifully designed slim floorstander could be more neutral but still delivers an all round entertaining sound	17,5,88,26		92	4	30	●			193
<b>R</b> Mission 774	500	Gorgeous floorstander is an entertaining communicator, despite some balance oddities (bright treble)	18,95,31		90	4	40	●			183
<b>B</b> Mission 752 Freedom	578	<b>A beautifully judged compromise in the art of combining presentation with a decent sound</b>	20,90,25		89	8	45	●		2123	174
<b>B</b> Mission 753 Freedom	798	<b>Great styling. New, more restrained tweeter reveals fine midband dynamics</b>	21,90,31		89	4	40	●		1914	164
Mission 754 Freedom 5	1,298	Tall but exceptionally elegant floorstander gives fine midband projection; goes loud but limited deep bass	22,111,31		88	4	40	●		1981	167
Monitor Audio Monitor 3	400	An exceptionally discreet floorstander; sonically uneven, but capable of fine results	16,91,21		88	5	30	●		2032	170
<b>R</b> Monitor Audio Monitor 4	500	An oddball balance but an entertaining sound, and a good looking real-wood-box at a realistic price	20,87,24		84	6	23	●		2210	177
<b>R</b> Monitor Audio MA700 PMC	600	Good-looking luxury compact with all-metal diaphragms: lovely midrange, but occasionally edgy	22,35,26		89	8	45	●		1661	152
<b>R</b> Monitor Audio 702PMC	700	A good all-round stand-mount with intimate midband focus	20,40,25		87	8	30	●		2128	174
<b>R</b> Monitor Audio MA703 PMC	800	Lovely but pricey floorstander has up-front, coherent, 'shiny' sound	20,89,27		88	8	50	●		1826	160
Monitor Audio Studio 12	1,000	A real looker, but sound and content are a bit on the small side for the price	17,92,20		90	8	28	●		1349	143
Monitor Audio 705PMC	1,400	Beautifully finished compact floorstander with fine midband coherence, but limited bass and top end	20,94,28		89	4	25	●			180
Mordaunt-Short MS812	100	Quirky styling and a very laid back presence, but great musical integrity and solid value for money	20,5, 42, 25		88	5	44	●			187
Musical Technology Kestrel SE	300	Brighter and drier-sounding than the standard Kestrel (and not the better for it)	20,84,19		84	5	50	●		1915	164
<b>R</b> Musical Technology Harrier	400	Very pretty package, good measured performance and even sound. Sensitivity is low, and dynamics limp	25,80,23		86	8	25	●		1663	152
<b>B</b> Musical Technology PM15	450	<b>A subtle, understated but very involving example of the 'classic' luxury-finish compact standmount</b>	20,41,27		88	5	38	●			183
<b>R</b> Musical Technology Condor	1,000	Lots of clever ideas in a floorstander, which places transparency and smoothness ahead of dynamic drama	25,91,23		85	4	28	●		2134	174
<b>B</b> Musical Technology Falcon	680	<b>Big speaker has a big but also surprisingly smooth and civilised sound. Fine material value too</b>	33,117,30		89	4	22	●			190
<b>B</b> Naim Intro	660	<b>Great dynamic range and info retrieval, but thin, lacks warmth</b>	24,89,27		89	6	30	●		1916	164
<b>R</b> Naim Credo	1,060	Involving sound, but rather forward and cold. Good clarity, but some coloration and a lack of richness	24,89,30		88	8	28	●			180
<b>R</b> Naim SBL Passive	1,970	Lively and punchy – smoother but more upfront than before	27,89,27		88	6	25	●		1352	143
<b>R</b> Neat Critique 2	445	Contemporary standmount has a clean, crisp sound with lovely natural midband voicing	22,32,24		86	6	50	●			183
<b>B</b> Neat Mystique Mk2	575	<b>This elegant package delivers a fine overall sound quality; some might find the top end too insistent</b>	20,86,18		85	6	23	●		2211	177
Neat Petite II/Gravitas	2,000	Beautifully presented miniature/subwoofer combo with ribbon tweeter gives smooth, laid-back sound	23,105,40		85	6	25	●		1988	167
Opera Prima	495	Good-looking hardwood enclosure, plus fine mid and treble, but less satisfactory bass	19,34,31		90	4	40	●			190
Origin Live Conqueror	1,650	Chunky floorstanding three-way has lovely cabinetwork and lively sound, but limited deep bass	24,94,27		88	8	30	●		1989	167

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# Hi-Fi Loudspeakers

SPECIFICATIONS

SIZE WxHxD (CM) FLOORSTANDER SENSITIVITY (db/W) IMPEDANCE (Ω) BASS FROM (Hz) FREE SPACE CLOSE TO WALL FACTSBACK NO. ISSUE NUMBER

STATUS

STATUS	PRODUCT	(£)	COMMENTS	SIZE WxHxD (CM)	FLOORSTANDER	SENSITIVITY (db/W)	IMPEDANCE (Ω)	BASS FROM (Hz)	FREE SPACE	CLOSE TO WALL	FACTSBACK NO.	ISSUE NUMBER
P	PMC TB1S	430	Pro-audio version of TB1, cheaper because of black paint finish	20,41,30		87	6	40	●	●	2207	177
P	PMC TB1	482	A classy, laid-back performer that likes going loud and loves the bass guitar	20,40,31		87	8	45	●	●	1830	160
F	PMC LB1	935	Delightful smoothness and transparency, though bass and treble are both limited	18,53,25		89	4	33	●	●		110
	PMC AB1	1,496	Lovely panel-like transparency, slightly shut-in balance, needs a big room	26,79,43		89	6	22	●	●		114
F	Polk LS50	800	No enthusiast tweaks here, but powerful and beautiful balance	27,83,29	●	89	8	25	●	●	1155	138
	Polk RT16	799	Bass rich, lively and powerful, but suspect top end; big and not very pretty	22,105,39	●	91	4	22	●	●	1831	160
	Polk LS70	1,200	High sensitivity, but balance has too much midbass boom; mid-top is laid back	31,94,37	●	90	8	22	●	●	1084	132
	Proac Response 2.5	2,700	For aspirant high-enders looking for seriously good boxes, this speaker should be first port of call	22,107,25	●	86	8	30	●	●	1457	149
	ProAc Studio 125	1,000	Pretty if pricey compact floorstander with a beautifully natural and neutral midband, and some bass thump	20,94,28	●	87	8	28	●	●		192
	QLN Signature	1,000	Attractive pyramidal stand-mount with heavy, laid-back balance but remarkably unboxy sound	27,37,36	●	83	4	25	●	●		167
F	Quad ESL-63	3,450	Classic electrostatic lacks punch, but has strengths some can't live without	66,93,27	●	86	8	34	●	●		60
F	Rega KYTE	198	Has splendid timing and coherence, sounds very explicit and informative	19,31,19		87	8	50	●	●		114
F	Rega EL8	298	KYTE drivers in compact floorstander give more bass but less coherence	17,72,20		86	8	55	●	●		122
F	Rega Jura	450	Beefy sounding, chunky floorstander sounds very 'direct coupled' to the music, if a touch 'boom'n'tizz'	22,5,92,5,26	●	90	5	25	●	●		193
F	Rega ELA MK II	498	Pretty and smooth, the latest incarnation has a superb midband and excellent communicative skills	30,80,20	●	87	8	40	●	●	1578	139
F	Rega XEL	1,040	Looks and sounds great: balance bright but even, with delightful coherence and timing	20,82,30	●	89	6	40	●	●	1083	132
F	Rehdeko RK 115a	1,700	Single-driver system has limited bandwidth and obvious coloration, but wondrous dynamic coherence	34,42,27		95	8	55	●	●	1982	167
F	Revolver Colt	139	A good all-rounder, if a little bland, and excellent value for money	30,19,22		88	6	48	●	●	1407	148
	Revolver 250	250	A nice price for a floorstander, but over-bright sound balance has potentially fatiguing consequences	21,85,5,25	●	87	8	22	●	●	2023	170
	RMS Revelation Series 1	1,299	Innovative metal-box compact with integral port/stand - clean with good timing but very laid-back balance	20,99,24	●	81	8	22	●	●	1983	167
	Roksan ROKone	595	Large stand-mount is musically very communicative if a little coloured	21,45,33		89	6	30	●	●	1834	160
F	Roksan Ojan 3 Black	795	Squat, stylish and black, great bass extension and somewhat uneven balance	28,76,46	●	88	8	20	●	●	1082	132
F	Roksan O13X Black	995	Innovative low-line, 2-way floorstander with decoupled tweeter, great bass and fine dynamic range	28,79,46	●	84	8	20	●	●	1979	167
F	Royd Minstrel	275	Not much wellie or loudness but fine coherence and timing; a bit bright	18,69,12		86	8	30	●	●	1167	135
F	Royd Doublet	485	Great value compact floorstander: lively and very informative, if a little uneven	18,93,19	●	90	4	28	●	●	1835	160
F	Royd The Sorcerer	595	Extremely musical and communicative speaker that's fun to listen to. Aesthetics could be better, though	20,31,18		86	8	35	●	●		139
	Royd Abbot	695	Dynamic and fine transient qualities are hampered by a rather coloured mid-forward balance	20,81,30	●	90	8	43	●	●		118
F	Ruark Epilogue	269	Beautifully finished miniature with a lively balance and plenty of charm; best suited to smaller rooms	17,29,23		87	8	47	●	●		183
	Ruark Sceptre	599	'Traditional' cabinetwork with classy veneer and shiny gilt fixings, hampered by rather wayward sound balance	21,38,31		87	8	40	●	●	2129	174
F	Ruark Talisman II	749	Less ideologically committed than some, strength lies in fine all-round coherence	23,84,32	●	88	8	30	●	●		118
F	Ruark Crusader	1,599	Elegant luxury three-way with wonderfully even-handed, if rather laid-back balance	24,94,31	●	85	6	22	●	●	1990	167
F	Ruark Equinox	1,849	The primary strength of this speaker is its ability to vanish behind the music	25,88,34	●	88	6	45	●	●	1227	140
F	Ruark Excalibur	7,000	A big handsome speaker with a big, laid-back, but open sound, rocking bass and loads of headroom	30,125,53	●	90	4	30	●	●		186
F	Sequence 400	329	Clever hang-on-wall panel is well voiced, though bass isn't too great	25,100,7		86	8	45	●	●	1917	164
	Shahinian Arc	1,875	Occasionally wonderful, small, floorstanding omni directional design: bright but coherent and revealing	35,69,25		88	6	24	●	●		110
	Silverado Raider	695	Beautifully built audiophile compact: neutral if bright, tough work for amps	20,40,25		83	3	30	●	●	1918	164
	Snell K.5	795	Classy AV-ready stand mount is very solidly engineered. Sound is neutral but lacks excitement	22,46,30		87	6	25	●	●		190
	Snell XA75ps	4,500	Active-bass floorstander with marvellous mid coherence, slightly suspect bass integration.	28,117,50	●	91	6	25	●	●		194
	Sonus Faber Concertino	599	A beautifully neutral loudspeaker in a beautiful Italian suit of clothes. Classy, if quite pricey	21,32,29		87	5	30	●	●		193
F	Spendor 2030	599	Discreet slimline floorstander with delicately coherent, laid-back sound	18,89,27	●	87	8	30	●	●	1836	160
F	System Audio 1130	499	Super-slim, super smooth, involving experience, but not ideal if you like your bass deep and loud	3,100,21	●	89	4	43	●	●		183
	System Audio 1150	749	Pricey but persuasive, sonic subtleties sneak up to confound a doggy first impression. Super-slim	16,105,26	●	90	4	30	●	●		190
	Tangent Monitor 5	80	An uneven performer best suited to small rooms and generous volume levels	17,5,27,18		83	8	55	●	●		169
F	Tangent Monitor 9	150	Budget floorstander that motors when the music demands, with a solid bass but occasionally raw treble	19,5,75,5,22,5	●	90	6	45	●	●	1926	165
F	Tannoy Mercury M1	120	Sounds much bigger and expensive than it is. Solid, tuneful bass, wide open soundstage, excellent imaging	17,30,20		87	8	50	●	●	2259	179
F	Tannoy Mercury M2	140	A fine all-rounder with big box and deep bass for the price; could be sweeter and tighter	20,5,38,28		87	8	25	●	●		169
	Tannoy R1	200	Pretty little mini-monitor is smooth, well mannered, and polite to a fault, lacks dynamic expression	17,30,22		86	4	30	●	●		187
F	Tannoy Mercury M3	230	Good-looking floorstander; very neutral and evenhanded, with fine midband but weak dynamics and drive	20,5,87,28	●	87	7	20	●	●	2025	170
F	Tannoy Revolution R2	350	Bargain price real wood floorstander is beautifully voiced and very even-handed, if a tad laid back	17,94,24	●	90	4	20	●	●		193
	Tannoy Precision P20	400	A creative and attractive design with time-aligned drivers, but the sound lacks sufficient excitement	21,80,30	●	88	5	25	●	●	2208	177
F	Tannoy D300	999	Gorgeous-looking compact floorstander. And a fine all-round performer, too!	16,24,85,23	●	87	6	26	●	●		167
	Tannoy D500	1,999	Plenty of muscle and stereo, but short of poise and delicacy. Hard work for amps	31,93,34	●	91	6	20	●	●	1355	143
F	Tannoy Westminster TW	6,600	These awesome horn-loaded speakers are remarkably controlled and impressive	large	●	99	8	38	●	●		C93
F	TDL Nucleus 2	130	A very competent miniature. Could be smoother, but no serious flaws, and hence good basic value	20,29,22		88	4	45	●	●		187
	TDL Nucleus 4	299	Handsome and very inexpensive floorstander with fine bass alignment but a pronounced lack of presence	20,5,92,31	●	92	6	22	●	●		193
F	TDL RTL3SE	450	A touch of boom'n'tizz might be to taste, but this is a lot of box for the money, with floor-shaking bass	20,91,39	●	89	6	22	●	●	2124	174
F	TDL CF100 Chiltern	450	Tiny but classy monitor has a laid-back balance, a fine midband and a surprising bass; but needs space	20,29,23		85	8	50	●	●		183
	TDL CF200 Cotswold	650	Fine midband tonality and dynamic range, but less happy towards the bandwidth extremes	22,5,78,23	●	86	6	40	●	●	2212	177
	TDL T-Line 3	700	Plenty of bass and treble, but broad midband is rather repressed	20,97,38	●	86	8	20	●	●	1921	164
	Technics SB-M20	200	Well-balanced with natural perspectives and fine midband coherence, but bass is a bit boxy and uneven	20,32,23		70	8	50	●	●	1413	148
	Technics SB-M500	450	This model offers a clean, open sound, offset by midbass, heavy balance and low sensitivity	25,78,37	●	85	8	25	●	●	1666	152
	Triangle Cometes	359	Communicative stand-mount has great midband dynamics, but the very bright top end might be intrusive	22,40,29		91	4	42	●	●		193
F	Triangle Zephyr II	599	Loads of fun. Dramatic dynamics and righteous timing will give any hi-fi system a wake-up call	22,94,29	●	91	4	25	●	●		190
F	Totem Model One	1,195	Utterly delightful but exasperatingly expensive luxury miniature sets the benchmark for its size	17,31,23		87	4	28	●	●		122
	Veritas H3	6,000	Loads of fun with wonderful dynamic and temporal integrity from horn-loaded Lowther drivers	30,110,47	●	104	4	50	●	●		191
F	Wilson benesch Bishop	20,000	Deep and even bass sets new standards for cleanliness and clarity; lovely open midband too	23,161,561	●	89	4	S20	●	●		189
	Wharfedale Diamond 7.2	140	A good-hearted, lively and up-front performer that's a little lacking in subtlety and smoothness	19,29,5,23		88	4	45	●	●		169
	Wharfedale Diamond 7.2 Anniversary	200	Lively and exuberant, but a tad untidy with it; can sound a bit cold and hard	19,29,5,24		88	4	40	●	●		187
	Wharfedale Valdis 400	200	Very loud with a minimum of amplification, but the sound is thick and uneven, with a heavy upper bass	25,80,26	●	91	8	30	●	●	1414	148
F	Wharfedale Valdis 500	300	These rock boxes can move plenty of air, albeit not as subtly as alternatives	25,108,26,5	●	91	4	40	●	●	1758	155
F	Wharfedale MFM-3	350	Smooth broad midband gives fine voice rendition; bass could be better	22,89,28	●	87	8	40	●	●	1922	164
<b>SUBWOOFERS</b>												
	Acoustic Energy AE108S	299	Lots of loud subwoofer for your money, though ultimately more film than music oriented	50,42,43				20	●	●	2247	179
	B&W ASW1000	499	(Active) Very competently engineered all round, and goes (unnecessarily) very loud	54,47,48				20	●	●	2248	179
	B&W AS6	500	(Active) Good material value with a fair amount of low bass from 100W design	45,51,45,5	●			30	●	●	1736	154

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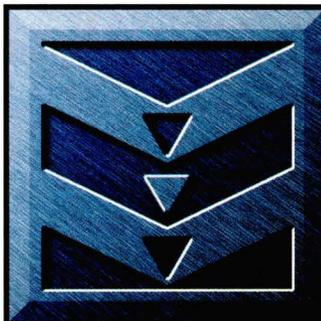
# Hi-Fi Loudspeakers

STATUS

SPECIFICATIONS

SIZE WxHxD (CM) FLOORSTANDER SENSITIVITY (dB/W) IMPEDANCE (Ω) BASS FROM (HZ) FREE SPACE CLOSE TO WALL FACTSBACK NO. ISSUE NUMBER

PRODUCT	(£)	COMMENTS	SIZE WxHxD (CM)	FLOORSTANDER	SENSITIVITY (dB/W)	IMPEDANCE (Ω)	BASS FROM (HZ)	FREE SPACE	CLOSE TO WALL	FACTSBACK NO.	ISSUE NUMBER
Celestion CS135	139	Compact hideaway passive sub lacks deep bass for high sensitivity speakers	52,19,34	●	86	8	45	●	●		128
Jamo SW600	530	(Active) Has some neat styling touches and remote control, but deep bass is limited	38,41,53	●			30			1736	154
JPW SW60	349	A real heavyweight, sounds clean and transparent, if perhaps a little understated. Usefully flexible	55,47,39				20	●	●	2249	179
KEF Model 30B	499	(Active) Commendably discreet with good sense of timing but limited extension	38.5,37,43	●			45			1736	154
KEF AV1	2,499	(Active) Works well, looks great, shakes the windows but costs a lot and is bulky	56,43,50	●			45				128
M&K VX-7B	450	(Active) Baby of a big range; this active design delivers deep, plenteous bass but lacks transparency	35,25,37	●			40			1736	154
M&K MX70	900	(Active) Justifies cost and belies its diminutive size, with an agility that makes sense of the toughest material	25.5,46,35				25	●	●	2250	179
REL Q50	375	(Active) Genuinely deep, clean bass from an attractively compact and cost effective package	40,41,42				20	●	●	2251	179



## Stands & Supports

Hi-fi supports are more important than you might imagine – they can have very subtle effects on the sound of your system! There are two kinds of support: those for equipment and those (stands) for loudspeakers. Equipment supports keep vibrations and resonances from affecting electronic components, while speaker stands hold enclosures stock-still and ensure they are at the correct height for your ears. Equipment supports may be rigid affairs fabricated from steel or more exotic materials; or they may have a form of suspension. Speaker stands come in a variety of sizes and styles to suit different models, and vary between open-frame and solid-pillar types. Always check with speaker and electronics manufacturers to see which supports they recommend.

KEY TO SPECIFICATIONS

- **HEIGHT (cm):** How tall is your support?
- **TOP PLATE SIZE (cm):** Dimensions of top surface on stand or equipment support
- **FILLABLE:** Some speaker stands can be mass-loaded with sand or lead-shot to improve sound.
- **WELDED:** The better stands and supports are welded together rather than just bolted.
- **NUMBER OF SHELVES:** The number of tiers on an equipment rack or support.
- **SHELF TYPE:** The material from which shelves are made. Wood generally means Medium Density Fibreboard (MDF).
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback advert on the penultimate page of the magazine.
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# Stands & Supports

STATUS

SPECIFICATIONS

TOP PLATE SIZE (cm) FILLABLE WELDED NUMBER OF SHELVES SHELF TYPE FACTSBACK NO. ISSUE NUMBER

PRODUCT	(£)	COMMENTS	TOP PLATE SIZE (cm)	FILLABLE	WELDED	NUMBER OF SHELVES	SHELF TYPE	FACTSBACK NO.	ISSUE NUMBER	
<b>EQUIPMENT SUPPORTS</b>										
Avid Isosshelf	1,100	An enthusiasts equipment support stand free from coloration if a little fiddly to set up	87.5	48		5	MDF		193	
Alphason GR 17/17-AS	275	Great looks but sound can be bettered for the money	36	60,39		4	Glass		181	
Apollo Soprano	275	Uninspiring looks and sonic performance that can be beaten at this price	68.5	45.5		4	Glass		193	
Aavik Furniture A4	350	Good sound and stylish Scandinavian looks at an affordable price	80.5	47		4	Wood		193	
Atacama Europa	240	Stylish, expandable modular design with agreeable full-bodied sound – great value	67	48.6		4	Wood		193	
Audiophile Furniture Base	615	Price is justified by its earth-shattering sonic abilities – a worthy upgrade	82	43		4	MDF		193	
Elemental Isotube x 4/Ref	1,199	Blockbusting size and build. Super sound quality	92	45,49	●	4	Marb		181	
Fi-Rax R4	399	Lively, exuberant sound, slightly weak bass				5	Glass	1633	151	
Elemental Audio Isotube X4	849	A hefty stand that demonstrates just how much difference a good support can make	90	49	●	4	Glass		193	
Frameworks H500/H175	404	Two-shelf stand and isolation platform combo in tubular steel – made a spectacular impression on audition	70	52,34	●	3	Glass	1952	166	
Ixos Deadrock 704	250	Looks unassuming but sound is full and inviting		46,39		4	Resin		181	
Kudos Corinthian	599	True heavyweight that doesn't quite manage knockout sound	91	46,38		4	Wood		181	
Mana Acoustics Ref. Table	350	King of its type: angle iron, chipboard and glass combine to make a significant difference to sound quality	56	49,39	●	1	Glass		147	
Mana 5 Tier Sound Table	600	Infinitely upgradeable. Persuasive and thrilling glass and angle-iron design that adds speed and bandwidth	91	49,39	●	5	Glass	1633	151	
Optimum Int 2000 OPT490	299	25kg stand with shelves between variable-height tubular uprights. Sounds smooth and relaxed with sturdy bass	50	60,40		4	Glass	1953	166	
Optimum Int 2000 OPT660	349	Glitzy style isn't reflected in sound, which is wholesome	82	60,52		5	Glass		181	
Projekt Furniture A4	215	An elegant support stand that blends in to any home environment with a laid-back sound	56	48		4	Wood		193	
Quadraspire Q4	250	Easy to live with, tonally neutral	54	40,49		4	MDF	1633	151	
Sound Organisation Z560	160	Welded and bolted members give structural integrity. While performance is not up with the best, it's great value	90	46,36	●	5	Wood	1954	166	
Sound Organisation Z545	160	Budget price and great looks make this a great value stand	73	46	●	4	Glass		193	
Soundstyle X100	230	Looks lovely, sounds lively but slightly bright	64	49,28	●	4	Glass		181	
Soundstyle Radius SR100	280	Stylish looks and a smooth sound	63.5	49.5	●	4	Glass		193	
Soundstyle Select 6105	290	Respectable sonics: structurally solid and smart	78	43,36		5	Glass	1633	151	
Soundstyle Finewoods W105	320	Veneered shelves clamped between tubular uprights. Delivers with classical material	82	48,27		4	Wood	1955	166	
Sound Organisation Z545	150	Budget gem from the stalwarts of sound supports	70	46,36	●	4	Glass		181	
Stands Unique Sound Tower	289	Wooden uprights combine with glass shelves to provide a fresh, forward sound, but bass could be quicker	81	72,42		5	Glass	1633	151	
Standesign Design 4	190	An all-in-one support at a budget price with good sonic performance	88.5	50.8	●	4	Glass		193	
Target B5	175	Free of colorations, fine grip and good value	81	49,36	●	5	Wood	1633	151	
Townshend Seismic Stand	1,245	It's big, it wobbles and it's pricey. But this is the ultimate equipment support	72	58,45		3	Wood		181	
Wilson benesch Asside	590	Sounds even better than it looks. And it looks wonderful	72	37,50		4	Wood		181	
<b>SPEAKER STANDS</b>										
Alphason NC I	45	Filled single-column design without threaded spike holes, that's appropriate for non-critical applications	40-60	16,16	●				1373	146
Alphason NCII	85	Tall, slim and elegant, though sound and value are unexceptional	40-60	17,17	●					159
Alphason HDS	85	A reasonable stand with a smooth but rather bland sound balance. Good finish options	45-60	15.5,15.5	●					189
Alphason Titan	125	Excels in the midband and allows voices to come across in a detailed and expressive fashion	40-60	16,16	●	●			1373	146
Apollo Olympus	75	A popular stand and a decent performer, but unremarkable by today's standards	40-60	15,12.5	●					189
Apollo AZ6	80	Fine engineering value, but sound is unexceptional and top-plate small	66	15,13	●	●				159
Atacama BD21	55	Good-looking and good value, but doesn't match the SE24's sound quality	56	15,17	●					159
Atacama R724	150	Atacama uses its market strength to deliver a superbly appointed product at a very reasonable price	60	15,17	●	●				189
Atacama SE24	70	Stands out from the budget crowd because of the consistency and overall quality of its performance	61	19,17	●	●			1373	146
Black Box Speaker Stand	797	A strange and costly beast. Bass is a touch thick, but performance with synthetic music types is worthy of the price	92-112	40						189
Custom Design R/S 300	70	Combining strong aesthetic and sonic appeal at a popular price point, this is a good stand all-round	40.6-60.9	15,15	●					189
Elemental Isotube SZse	599	Stands of distinction, able to free the speaker's sound from its box in a way budget stands simply can't	61	23,27	●	●				189
JPW HS1	120	A purposeful stand, a touch dry-sounding but particularly strong with bass. Great for rock and dance music	61	19,21	●	●				189
Kudos S50	100	Better sound than the budget stands, particularly in low-frequencies	60	15,21	●					159
Kudos S100	270	The best all-round stand around... Probably...	63	15,21	●					159
Mana Soundframes	125	For use under floorstanders and equipment racks, these make music effortless and natural. Can be stacked	5			●			1373	146

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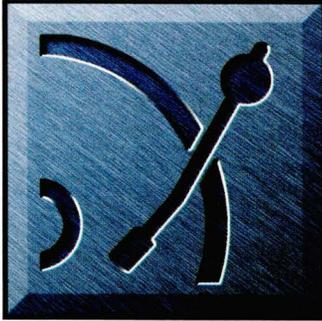
# Stands & Supports

STATUS

SPECIFICATIONS



PRODUCT	(£)	COMMENTS	TOP PLATE SIZE (cm)	FILLABLE HEIGHT	NUMBER OF SHELVES	WELDED SHELF TYPE	FACTSBACK NO.	ISSUE NUMBER
<b>B</b> Partington A-4	119	An odd-ball stand with a sound that's sheer class. More open and focused than almost anything below £150	50-100	19,22	●	●		189
<b>R</b> RMS/Stands Unique Vivus	349	Pricey carbon fibres give ultra-clean sound with exceptional voices	50	N/A				159
Russ Andrews Torlyte	599	Subtle and musical-sounding stands, though a touch more 'pizazz' is need for Recommendation at this price	61	33,5,24				189
Sound Organisation Z524	69	A coherent-sounding stand with particular strengths in the midband, though quality drops at the frequency extremes	61	16,17				189
<b>R</b> Stands Unique HP	220	Real wood disguises high-performance tuned technology	59	22,23				159
<b>R</b> Target R1	280	Truly high-mass four-pillar design with superb weight and speed, giving music delicious attack	53	15,21	●	●		1373 146
<b>R</b> Target TR60	68	Lively, dynamic midrange and detailed treble from a less-than-audiophile-oriented, twin-column design	60	15,15	●	●		1373 146



## Tonearms

Less expensive turntables are usually supplied with a matching tonearm (and often a 'starter' cartridge, too). However, hard-core vinyl fans should invest in a more expensive separate motor unit with specialist tonearm – the only way to make the most of vinyl LPs. It is essential to achieve operational synergy between such components, so this is one area of hi-fi where the skills of a knowledgeable dealer are invaluable. The quality of a tonearm's construction and design affect sound quality significantly. There are three basic arm designs listed in the key, and each has strengths, but pivoted designs are the most popular, being usually the most practical and affordable.

KEY TO SPECIFICATIONS

- **EFFECTIVE MASS:** This relates to cartridge compliance. Generally high mass arms are suitable for low compliance cartridges and vice versa.
- **PARALLEL TRACKING:** An arm which allows the cartridge to track the disc in a linear fashion.
- **PIVOTED:** Arms which allow the cartridge to describe an arc as they traverse the record.
- **UNI-PIVOT:** Pivoted arms with a bearing that allows movement in two planes.
- **EFFECTIVE LENGTH (CM):** Length of the arm from bearing to cartridge mounting.
- **ADJUSTABLE HEIGHT:** Important for accurate cartridge set-up.
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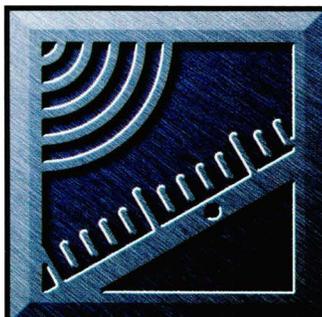
# Tonearms

STATUS

SPECIFICATIONS



PRODUCT	(£)	COMMENTS	PARALLEL TRACKING	PIVOTED	UNI-PIVOT	EFFECTIVE MASS	EFFECTIVE LENGTH (cm)	ADJUSTABLE LENGTH	FACTSBACK NO.	ISSUE NUMBER
<b>R</b> Kuzma Stogi Ref	1,250	Large, solid and well-made arm, gives exceptionally clear sound with just a hint of brightness		●		High				79
<b>R</b> Linn Ekos	1,500	Superb, state-of-the-art design which builds significantly on predecessor's strengths		●		Medium		229		67
<b>B</b> Moth/RB250	109	The ultimate budget arm? Refined, sweet, detailed and natural		●		Low		237		60
<b>B</b> Rega RB300	174	Despite its modest price it sets exceptional standards and could be used on many high-end turntables		●		Low		237		60
<b>R</b> Roksan Tabriz Basic	350	Targeted at the Xerxes, this is a good alternative to the Rega arm in many cases – a touch bright though		●		Low		240		91
<b>R</b> SME Series IV	983	Superb engineering and finish with a finely balanced sound, impressive stereo focus and low coloration		●		Low		233		60
<b>R</b> SME Series V	1,461	Excellent in all respects, this arm arguably sets the standards for pivoted arms, regardless of price		●		Low		233		60



## Tuners

TV has stolen radio's status as the foremost broadcast entertainment medium, but with its Radio Four plays and Radio Three music, the BBC still makes a potent case for audiophile reception equipment. For how much longer, under the cost-conscious Birtist régime, remains to be seen. Another new imponderable is the arrival of digital radio broadcasting, though reception apparatus is currently non-existent outside of the in-car market. These days tuners play second fiddle to hi-fi sources like CD, but in many ways they are a greater engineering challenge than digital equipment, and thus higher price-tags clearly equate to superior performance. High-quality, roof-mounted antennae are essential for audiophile listening, so factor them into your budget.

KEY TO SPECIFICATIONS

- **WAVEBANDS:** FM – (VHF), M – MW, L – LW.
- **PRESETS:** Number of station frequencies that can be stored.
- **RDS:** (Radio Data System) was originally designed for in-car applications. RDS tuners can identify and display the name of the radio station being received, traffic news and other information about broadcasts.
- **REMOTE CONTROL:** Infra-red control handset supplied.
- **SIGNAL STRENGTH METER:** Indicates strength of signal from aerial – useful for aligning your 'twig' during installation.
- **ROTARY TUNING KNOB:** Experience has shown that this analogue throwback is ergonomically far superior to the button-based approach.
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**B** BEST BUY    **R** RECOMMENDED    **E** EDITOR'S CHOICE

# Tuners

STATUS

SPECIFICATIONS



PRODUCT	(£)	COMMENTS	WAVEBANDS	PRESETS	RDS	REMOTE CONTROL	SIG. STRENGTH METER	ROT. TUNING KNOB	FACTSBACK NO.	ISSUE NUMBER
<b>R</b> AMC T7	130	Performance adequate but price is sharp, especially with remote control. Some hum	FM, M	30		●			1945	166
<b>R</b> Arcam Alpha 7	230	Indifferent RF performance but a touch of audiophile sound quality with clean, strong signals	FM, M, L	24					1946	166
<b>B</b> Denon TU-425RD	200	A fine all-rounder with advanced RDS, good RF performance and decent sound. Remote extra	FM, M	40	●				1947	166
<b>R</b> Denon TU-1500RD	250	A well-balanced and clean sound with good bass and treble extension	FM, M	40	●					184
Magnum Dynalab FT11	499	All-analogue tuner: receives weak or tightly packed stations but loses out on noise and sonic neutrality	FM	3		●	●			184
<b>B</b> Harman/Kardon TU950	200	Bulky but effective, delivering fine RF performance and good sound for the price	FM, M, L	30	●				1948	166
<b>R</b> Linn Kremlin	2,600	Controversially good sound at a very high price	FM, M	80		●	●		1254	142
<b>R</b> Magnum Dynalab FT101	825	Although fairly expensive given its minimum set of facilities, its excellent sound provided ample compensation	FM							72
<b>B</b> Marantz ST-48	120	A classic budget model which manages a performance only just behind much more expensive models	FM, M	60	●					184
Mission Cyrus FM7	400	Open, generous soundstaging gives the music plenty of foundation, if a touch shut-in at the top	FM	29		●	●		1254	142
Musical Fidelity E50	300	Sounds involving if coloured and with a subjectively larger-than-life presentation	FM	20					1810	157
Myryad T-10	530	A very smart unit which works well and offers good rhythmic drive and vitality, albeit at a price	FM	20			●	●		184
<b>R</b> Naim NAT01	1,730	There may be better sounding tuners in the world, but we have yet to hear one	FM						1254	142
Pioneer F-504RDS	250	Cable-friendly with advanced RDS and excellent RF performance; slightly disappointing sound	FM, M	40	●				1949	166
<b>R</b> Pioneer F-504RDS Precision	300	Lots of features, plus a sound that's low on noise and high on communication, adds up to a good value package	FM, M	40	●		●	●		184
Roksan Caspian	595	Neat fascia with great ergonomics, but sound is not really any better than models at half the price	FM	50		●	●	●		184

CONTINUED

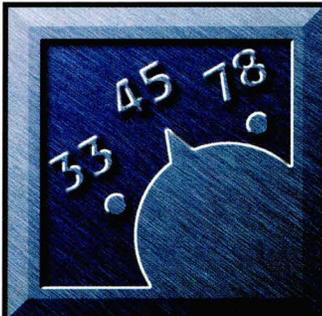
# Tuners

STATUS

SPECIFICATIONS

WAVEBANDS PRESETS REMOTE CONTROL SIG. STRENGTH METER ROT. TUNING METER FACTSBACK NO. ISSUE NUMBER

PRODUCT	(£)	COMMENTS	FM,M	20					1950	166
Rotel RT-935AX	160	Good ergonomics and sound quality at a realistic price, but limited features and RF selectivity	FM,M,L	30	●		●	●	1810	157
Sony ST-SA3ES	250	Clean, lean presentation but needs a quality aerial to perform at its best	FM,M,L	30	●		●	●		184
Sony STS-B920S	180	A little hiss and image compression don't detract from the clean performance of this feature-packed tuner	FM,M,L	30	●		●	●	1254	142
Technics ST-GT350L	130	Decent RF performance is offset by sound quality more typical of a mini/midi system	FM,M	59	●	●	●	●	1810	157
Thorens TRT2000	499	Not exactly neutral sounding, but nonetheless makes listening fun								



## Turtables

Specialist turntables are at the heart of high-fidelity sound. CD players may offer ultra-low noise and a flat frequency response, but they can't match the dynamics and superlative rhythmic timing taken for granted by serious turntable users. Less expensive turntables are usually supplied with a matching tonearm (and often a 'starter' cartridge, too). Still better quality is found at higher prices among the separate motor units and tonearms. Because turntables are mechanical devices, designed to retrieve micron-small modulations engraved into vinyl, engineering quality is of paramount importance. This is also the reason why turntables cost as much as they do, and require the finest equipment support systems.

KEY TO SPECIFICATIONS

- **MANUAL:** You do all the work.
- **AUTO:** The record player does all the work.
- **SEMI-AUTO:** You put the needle on, the turntable lifts it off at the end of the record.
- **SPEEDS:** In RPM to correspond with long-playing records or seven/12-inch singles.
- **SUSPENDED SUBCHASSIS:** Sprung suspension to minimise structural interference.
- **EXTERNAL PSU:** Outboard power supply; generally indicative of higher-quality performance.
- **SUPPLIED WITH ARM:** Many turntables do not come with a tonearm fitted, but if this category is checked, the deck is already thus equipped.
- **SUPPLIED WITH CARTRIDGE:** If a turntable comes complete with arm and cartridge.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback ad on the penultimate page of this issue.
- **ISSUE NUMBER:** The issue of Hi-Fi Choice in which an original review appeared.

**B** BEST BUY    **R** RECOMMENDED    **E** EDITOR'S CHOICE

# Turtables

STATUS

SPECIFICATIONS

MANUAL AUTO SEMI-AUTO SPEEDS SUSP. SUBCHASSIS EXTERNAL PSU SUPPLIED WITH ARM FACTSBACK NO. ISSUE NO.

PRODUCT	(£)	COMMENTS	MANUAL	AUTO	SEMI-AUTO	SPEEDS	SUSP. SUBCHASSIS	EXTERNAL PSU	SUPPLIED WITH ARM	FACTSBACK NO.	ISSUE NO.	
Avid Acutus	4,995	Extremely capable design with no apparent shortcomings, don't sell your vinyl 'til you've heard it on this!	●							33/45	●	194
Clearaudio Reference	3,990	Opulent beast tested with Souther TQ-1 arm. Tends to gloss over detail, but can sound bold	●							33/45		1328 144
R DN M Rota 2	5,600	Tonally slightly bleached, but extracts detail like few others. Works well on its own table	●							33/45	●	1328 144
R Dual 505-4 UK	250	Consistent sounding and well isolated turntable. It is slightly lacking in oomph	●			●				33/45	●	103
R Kuzma Stabi/PS	1,950	(Tested with Stogi Reference) Solid oak plinth; sound is very clear, detailed and extended	●							33/45	●	91
R Linn LP12 Basik	1,100	Trails the full LP12 significantly, but pace, rhythm, timing etc still top rank	●							33	●	103
R Linn LP12 Lingo	1,750	The classic reference is improved by the Lingo, but charming character remains	●							33/45	●	91
R Michell Gyrodec	875	Sweet and natural-sounding player, well matched to Rega RB300 arm	●							33/45	●	55
E Michell Gyro SE	775	A stunningly desirable combination of looks, solidity and sound make this a tempting turntable	●							33/45	●	190
R Michell Orbe 'SE'	1,725	A Superb turntable, able to mix it with the best at virtually any price	●							33/45	●	192
Moth Kanoot	329	Rather coarse-sounding deck that requires decent isolation and comes with a Rega RB300 arm	●							33/45	●	1907 164
R Notts Analogue Spacedeck/Arm	750	No frills, just a first-rate, outstandingly natural-sounding deck that will last forever	●							33/45	●	159
R Pink Triangle Tarantella II	850	A turntable that looks unlike any other, with rare ability too. Quirky, but sound is immensely likeable	●							33/45	●	192
R Pro-ject 2	300	Remarkably effective at the price, with decent timing and a generally well defined sound	●							33/45	●	1907 164
Pro-ject Perspective	750	Flexible facilities and competitive package, but performance of turntable alone is behind the best	●							33/45	●	192
R Pro-ject 6/Sumiko	850	Don't think of this as a deck with a good arm, but as a scaled-down Oracle Delphi – it's that good	●							33/45	●	138
R Rega Planar 2	214	A remarkable product at the price, surprisingly articulate and confident	●							33/45	●	48
R Rega Planar 3	274	Sounds musical in a balanced manner, needs decent isolation and suffers a little pitch instability	●							33/45	●	1907 164
R Reson RS1	600	Supplied set-up and ready-tuned, this unconventional deck is packed with mid-band detail	●							33/45	●	159
R Roksan Radius 3/Tabriz zi	890	Elegant-looking turntable with a tidy, ordered sound. Bright and breezy if a shade lightweight	●							33/45	●	159
E SME Model 20.2A	4,863	Beautifully built, extremely neutral damped and suspended deck with superb sound. Inc V arm	●							33/45/78	●	186
R Thorens TD166 V/UK/RB	400	Refined, solid sound with well-focused imagery; suitable for use with good MM/MC budget cartridges	●							33/45	●	103
Thorens TD2001	700	Balances convenience and sound well, but deck lacks detail and bass could be better controlled	●							33/45	●	159
R Well Tempered Record Player	850	Intriguing and challenging. Musically not ideal, but its limpid quality and lack of artificiality set standards	●							33/45	●	1180 136
R Wilson benesch The Circle	795	A beautiful turntable with a sumptuous sound, all at a very reasonable price – a clear Best Buy	●							33/45	●	192



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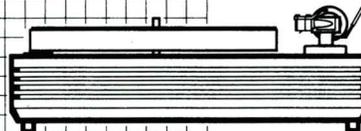
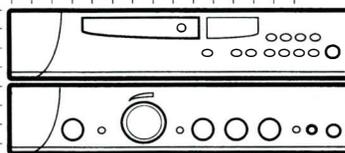
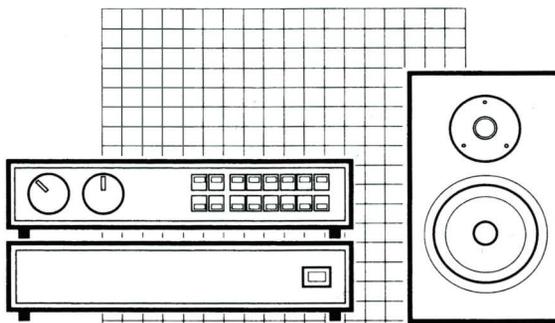
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**PHONOGRAPHY** Star Lane, Market Place, Ringwood. (01425) 461230. See under Hampshire.



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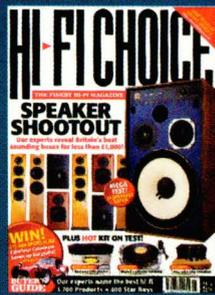
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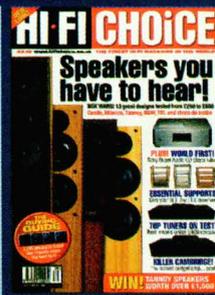
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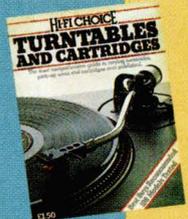
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# JIMMY HUGHES

This month Jimmy finds out whether his ageing but much-loved CD player is going to manage to beat the clock.

**R**e-clocking CD players is a sport that used to be quite popular four or five years back, especially with older machines that were starting to show their age a bit. By replacing the original 'clock' – the quartz crystal oscillator that produces the 44.1kHz sampling frequency at the heart of the machine – with a much more accurate active circuit, you could give your player a new lease of life. The superior clock reduced time-domain sampling errors that cause jitter, resulting in a cleaner, more strongly profiled sound. In fact it was the aftermarket clock makers that first alerted the hi-fi world to the perils of jitter.

Over the years I've had quite a few players re-clocked. Indeed, my current machine, a Pioneer PD-75, has literally had the guts ripped out of it, having been extensively modified and re-clocked something like three times by Trichord. With the most recent update (some three years ago) to Clock 3, it seemed as if clocking had gone about as far as it was possible to go.

So I was intrigued by a call from a firm called Audiocom. Naturally, it claims its own Super Clock is superior to anything else on the market. Would I be interested in having the PD-75 relocked yet again?

Well... yes. The only trouble is, the PD-75 is an old campaigner – it's had more surgery than Michael Jackson. Since the last couple of outings it's been a bit temperamental, so I worried it might not survive the Journey South, metaphorically speaking. I was right to have misgivings. The plan was for the player to be modified and returned the same day it arrived. In the event there were complications, and the player was away for about three weeks.

I mention this for two reasons. First, you should be aware that there's always a chance things may go wrong. And second, the delay inevitably made it harder for me to remember how the player had sounded. I don't blame Audiocom for the delay – it

battled manfully to solve a very puzzling problem, and eventually succeeded.

But what sort of difference should one expect Audiocom's Super Clock to make over Trichord's Clock 3? While the PD-75 was away, I pressed into service an Arcam Alpha 7, using it as a transport with my usual line-up of Meridian 518 digital processor, Cambridge Audio DacMagic 1, and various jitter-busting boxes. The Alpha 7 sounded sharp and lively, with an appealing tactile immediacy. It wasn't quite as refined and subtle as the PD-75, but to be honest I found it very enjoyable.

When the PD-75 finally came home, I hooked it up and listened intently. Would it sound bigger and more effortlessly dynamic? Or sharper and more articulate? Actually, a bit of both. But what struck me most was the smoothness and refinement of the overall presentation. The tonal balance was cultured and warm, yet deceptively sharp and incisive. More like good analogue – with less of the impressive but ultimately tiring brilliance one tends to get with CD. Instead, the tone colours were at once vivid yet 'soft', with a nice velvety texture. Timing seemed crisper, too.

One recording that seemed to highlight the qualities of the player was *Dear Jessie* from Madonna's album *Like a Prayer*. The tonal balance on this track is very treble-emphasised and dominated by high-pitched percussion – a 'busy' production that easily sounds messy and harsh. Playing it on the PD-75 was a revelation: I'd never

◉ Audiocom Super Clock: it's right on time for Jimmy.

heard the music sound so clean or so focused. Every strand was sharply defined, yet free of harshness, allowing you to 'hear' right into the soundstage.

From the same album, *Spanish Eyes* sounded impressively crisp and detailed, with strong, clean, deep bass, and sharp treble. *Like A Prayer* was digitally recorded, and perhaps as a consequence is very difficult to reproduce cleanly – hitherto there's always been a bit of a burr to the sound, a slightly grubby/edgy quality. But this was the best I'd heard it sound – ever.

With the Super Clock, designer John Cheadle (ex-Roksan and one of the founders of Trichord with Tom Evans and Graham Fowler) has married careful attention to circuit board layout with leading edge components including Black Gate capacitors. Super Clock is claimed to have a unique push-pull oscillator that places the crystal at a low-impedance point in the circuit to minimise noise.

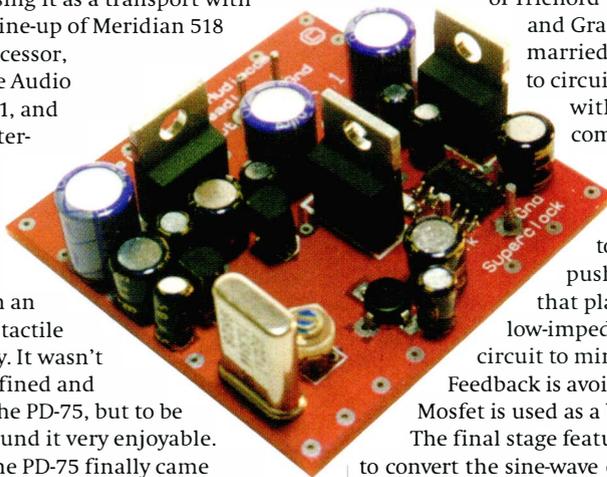
Feedback is avoided, and an RF Mosfet is used as a buffer stage.

The final stage features a super-fast IC to convert the sine-wave output into a fast rise-time square wave for the CD player. Rise time is claimed to be just two nanoseconds, compared with the 200 to 300 nanoseconds of most existing clocks. Black Gate BGNX Hi-Q capacitors efficiently remove RF noise from the circuit, resulting in a cleaner sound with less HF glare.

Super Clock costs £195 fitted (incl return carriage), or £160 supplied as a kit for the user to fit – but only consider the latter option if you're electronically competent. Super Clock is compatible with most CD players, but check with Audiocom before sending yours off. And of course, remember that having a player modified invalidates the manufacturer's warranty. So the ideal candidate for treatment is a good older player that's outside its guarantee period.

But that's not to say you can't Super Clock a player of more recent vintage – in many cases the improvement should be just as worthwhile.

Audiocom (UK) ☎ (01834) 842803



## HIGHLIGHTS OF NEXT MONTH'S ISSUE ...

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from the likes of Pioneer, Sony, Marantz, Denon, Arcam, Creek, Roksan, Cyrus/Mission, Rega and Naim. And we're not promising anything, but who knows – maybe we'll be able to give one of the systems away?

### HEAT SEEKERS

Paul Miller will be taking an exclusive look at – and, no doubt, inside – Musical Fidelity's spankin' new A3 CD player. You'll be delighted to know it's pretty...

### XMAS PREZZIE NIGHTMARES

It's an incredibly scary thought, but the last Christmas of the millennium is approaching fast. And those presents had better be pret-ty damn good. Never fear, *Choice* is here to take the strain and do the hard work for you. Jimmy Hughes will check out the latest audiophile accessories. Which just leaves you to get out into the crush and do the shopping...

■ The December issue will be on sale from Thursday 28 October 1999.

Read all about it (next month): Marantz's hot new £300 CD player.



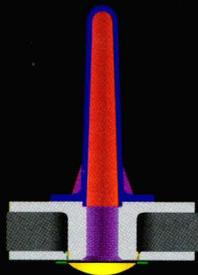
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