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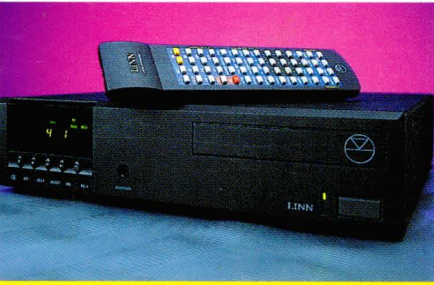


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## EDITORIAL

● Editor-in-Chief ATW "Stan" Vincent  
 ☎ 0171-917 7747 § e-mail: stan.vincent@pobox.com  
 Regrettably we cannot speak with readers or answer queries on the telephone. Please send a letter, fax or e-mail instead.

● Deputy Editor Jason Kennedy

☎ 0171-917 7746 § e-mail: deputy\_ed.hifichoice@dennis.co.uk

● Reviews Editor Alan Sircom

☎ 0171-917 7751 § e-mail: reviews\_ed.hifichoice@dennis.co.uk

● Art Editor Del Gentleman

☎ 0171-917 7748 § e-mail: art.hifichoice@dennis.co.uk

● Production Editor Christina Bunce

☎ 0171-917 7745 § e-mail: edprod.hifichoice@dennis.co.uk

● Editorial Assistant Charlotte Ricca

☎ 0171-917 5523 § e-mail: editorial.hifichoice@dennis.co.uk

Consultant Editor Paul Messenger • Technical Editor Paul Miller •

Contributors Richard Black • Tim Frost • Alvin Gold • Jimmy Hughes •

David Vivian † Photography Chris Foster

## ADVERTISING

● Group Ad Manager Rob Debenham

☎ 0171-917 3834 § e-mail: ads.hifichoice@dennis.co.uk

Sales Executive Clare Smith ☎ 0171-917 3935

• Advertising Fax 0171-917 5555 †

## PRODUCTION

Group Production Manager Simon Maggs ☎ 0171-917 7676 •

Production Controller Robin Ryan ☎ 0171-917 3885 • Production

Manager Lucy Farmer ☎ 0171-917 5664 • Production Fax 0171-580 6430

## CIRCULATION & MARKETING

Director Sean Farmer ☎ 0171-917 7654 • Manager James Burnay ☎

0171-917 7810 • Marketing Director Alison Townsend ☎ 0171-917

7675 • Manager Elizabeth Coles ☎ 0171-917 5589 • Marketing

Executive Ban Mac ☎ 0171-917 5591 § e-mail: leisure\_assistant@den-

nis.co.uk • Circulation & Marketing Fax 0171-917 7677

## MANAGEMENT

Publisher Simon Davies ☎ 0171-917 7718 § e-mail: publisher.hifi-

choice@dennis.co.uk ☎ 0171-917 7718 • Advertising Director Ian

Westwood ☎ 0171-917 7618 • Publishing Director Eric Fuller ☎ 0171-

917 7686 • Managing Director Alistair Ramsay ☎ 0171-917 7661 •

Chairman Felix Dennis † Pre-Press Bureau Elements, London W1. Printing Stives

(Plymouth) Ltd. Distribution USM Distribution Ltd, 86 Newnam

Street, London W1P 3LD ☎ 0171-396 8000 Fax 0171-396 8002

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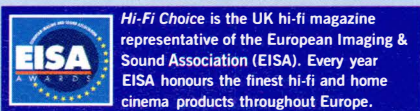
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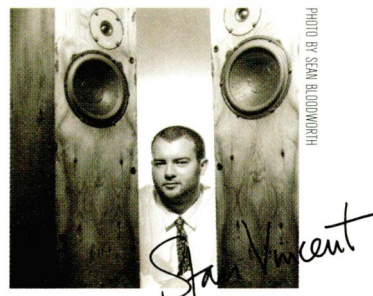
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# Editor's Notebook



Confused about new formats? We'll tell you what and what not to buy. But, as Stan Vincent reveals, there's life in the old CD yet. . .

**N**ot yet familiar with the initials DVD? You will be. By the turn of the Millennium, this acronym, which stands for Digital Versatile Disc, will be as common as others like BBC, ITV — and CD. If you really haven't heard of DVD, read about it on page 28. Ultimately there will be two DVD formats of interest to our readers: audio and video. The DVD audio standard (DVD-A) is on the brink of finalisation, but DVD video players (DVD-V) are on the market already, and all will play ordinary CDs as well as the new DVD video discs. In our test on page 46, we find out whether potential CD player purchasers would be better off with a DVD player. The results make interesting reading.

But that test only scratches the surface of an ever-growing mass of questions about the future shape of digital music storage and replay. Because coming very quickly over the horizon is a new paradigm for music storage promising higher sound quality and multi-channel music. I refer you again to Alvin Gold's feature on page 28 for details of this coming revolution, but also to Jason Kennedy's column (p16), where he investigates a system called DTS, which claims to be a high-quality surround sound system that's also good for music.

But can good sound from all angles beat the simple beauty of *top-quality* sound from just two speakers? Trading on the latter premise is the consortium of high-end hardware makers and the US audiophile record label Classic Records, who are set to be the new Flat Earthers of the digital age. Their Digital Audio Disc (DAD) has jumped the gun on DVD audio, by making use of DVD video's data storage capabilities. It offers still images to accompany the music — though we've also seen a Japanese Pioneer DVD-V with full 24-bit, 96kHz sound and full-motion video, featuring Placido Domingo. Impressive stuff indeed.

## Dawn of DVD audio

However, at the 104th AES convention in Amsterdam, mid May, we caught tantalising glimpses of the nascent DVD audio standard which looks likely to offer three front channels of super-quality audio and two separate rear channels of CD-quality

audio. The only sticking point is running time, currently around the 65 minute mark. Sources indicate they'll squeeze 74 minutes of playback onto DVD-A by using some proprietary form of lossless compression.

Having undertaken our 'DVD for CD' test in this issue, next month our focus will shift to higher sampling rates and greater digital resolution. We'll be making our own recording using professional equipment loaned from dCS of Cambridge, then replaying it both at standard CD resolution and at higher quality to make an accurate and objective judgement of the difference.

But you'll find dCS in this issue as well, since the company is an important part of the story behind Arcam's Alpha 9 CD player, which is our world exclusive review candidate on page 10. Players like this, you will discover, make a very strong case for the CD format as it stands. Can a new music format really sound better? (More Arcam in David Vivian's column, p138.)

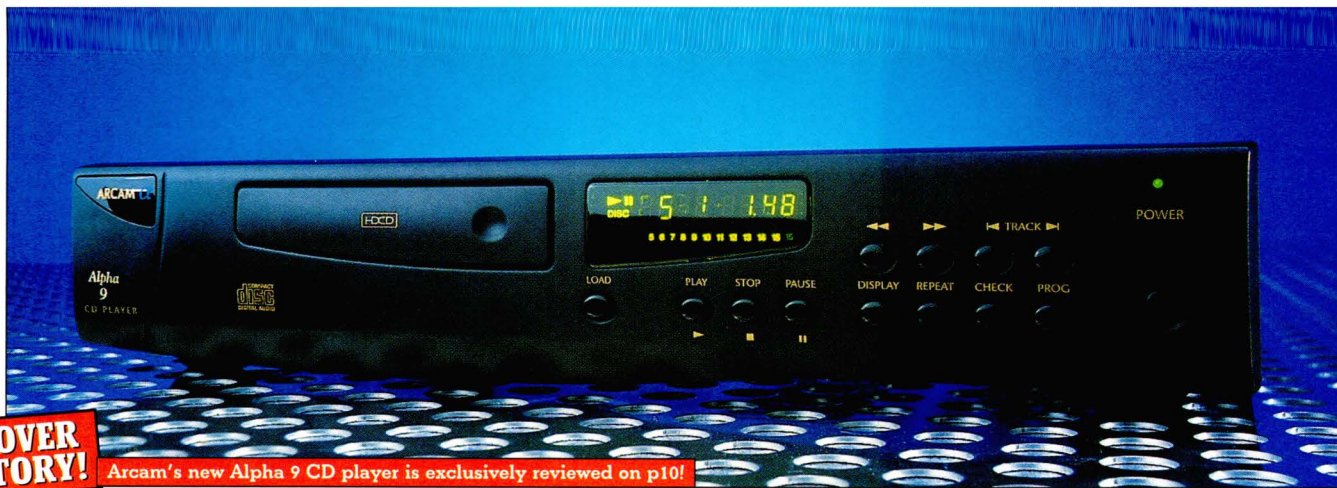
Jimmy Hughes also puts the case for CD on page 21, with a specially remastered Tina Turner disc that sounds terrific. And I still remember an interview with the proprietor of a US record label, who reckoned it was only sloppy mastering and manufacturing which held back CD from its true potential. As chance would have it, our Technical Editor, Paul Miller, is currently investigating evidence from a reader that CD signals are not recorded to their fullest extent on numerous commercially-produced discs. This month, however, he discovers an interesting anomaly in 'backwards compatibility' of the latest MiniDisc (MD) recorders. Are the latest recorders totally compliant with discs of two-to-three years' vintage? Find out on page 22.

## This month's competitions

Please accept my apologies for the fact that we were unable to offer £3,000 worth of prizes this month, as advertised on the front cover. This was due to a last-minute administrative problem which occurred after the cover had been sent to press. However, we still have over £2,200 worth of kit to give away, including a set of Arcam pre/power amps and 23 pairs of superb Sennheiser headphones.

Enjoy your listening this month...



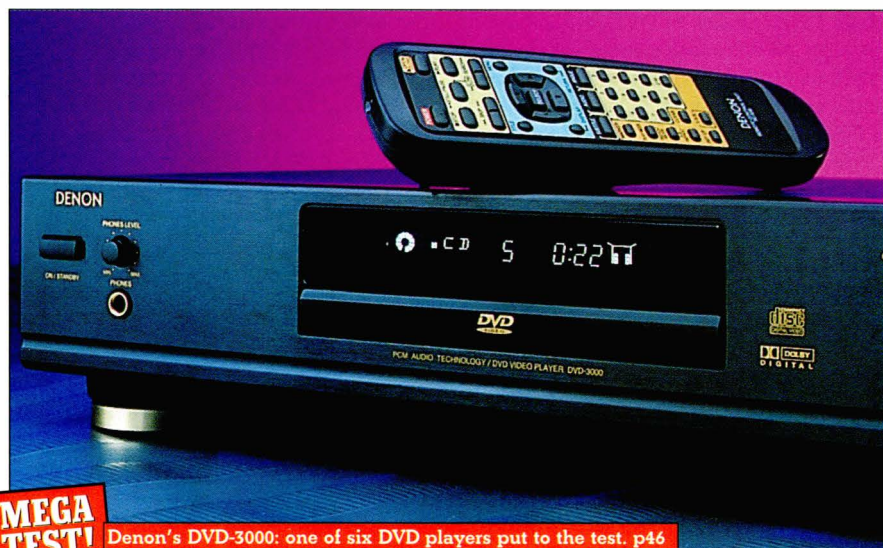


**COVER STORY!**

Arcam's new Alpha 9 CD player is exclusively reviewed on p10!

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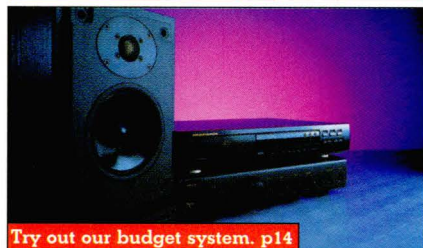


**MEGA TEST!**

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## WIN! WIN! WIN! Arcam Alpha 10/10P and interconnects worth £1,400!



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# Update

THIS MONTH... B&W'S NEW HIGH END SPEAKERS... FRESH MISSION RANGE... HIGH TECH NEW TECHNICS.....

## In brief

NAD's new 319 tops its amplifier range at a price of £499.95. With 125 Watts of remote-controllable power on tap, it has defeatable tone controls, relay switching and may be bridged to give a claimed 400 Watts into eight Ohms. ☎ (01296) 482017



Cornet 195s chill out.

Jamo has revised its Cornet range of loudspeakers, introducing four new models priced at £110 (Cornet 145), £165 (165), £230 (175) and £350 (195), all featuring black ash, mahogany or cherry finishes. Cornet characteristics include low-diffraction curved cabinet edges, a new 25mm fabric-dome tweeter and 22m-thick High Density Fibreboard (HDF) cabinets. ☎ (01327) 301300

A slight error in last month's story on the new GLL 300 Series loudspeakers: its cabinets are made from Medium Density Fibreboard (MDF) not chipboard. ☎ (01705) 470875

Sound Image UK has been appointed UK distributor for Tara Labs cables. Ranging in price from the £1.50/ft Klara to the £2,500/four-foot "The One", the whole cable range is now available. ☎ (0181) 255 6868

## Nautilus reborn

B&W Loudspeakers has dramatically repositioned its prestigious 800 Series loudspeakers, by incorporating technology developed for the range-topping £35,000 Nautilus design. The new Nautilus 800 range replaces the entire Matrix series, including the classic studio-monitor, the 801, which has been supplanted by the substantial new £8,500 Nautilus 801.

The brief for the new range was to make Nautilus sound quality available at a more accessible price-point. The most obvious element from B&W's high-end 'mollusc' is the tweeter module, which uses a 25mm metal dome backed by a tapered tube, which disperses rearward sound radiation and acts as a heat-sink.

The most distinctive feature of both the Nautilus 801 and 802 is a bulbous midrange pod, which is moulded in Marlan (a mineral-filled resin), and utilises a woven Kevlar drive-unit which has been designed to work without a conventional rubber surround.

The horseshoe-section main cabinet is common to the entire range and



Nautilus 801: technological tour de force.

incorporates B&W's Matrix system of bracing and sound-wave reflection control. For the N801 and N802 there is a cast-alloy plinth housing a three-board dividing network, addressed by top-notch WBT terminals. Reflex-loading is performed by a downward-firing gas-flowed port equipped with the golf-ball-style dimpling seen already in B&W's ASW1000 active subwoofer.

From the bottom up, the Nautilus 800 series comprises the N805 stand mount at £1,700 (dedicated stand £400), then the N804 and N803 three-way floorstanders at £2,500 and £3,500 respectively. The £6,000 N802 includes twin custom-designed 200mm bass units, permitting a slimmer profile than required to accommodate the single 380mm bass unit seen in the £8,500 801.

The speakers will become available during August and September. B&W ☎ (01903) 750750 ● [www.bw-speakers.com](http://www.bw-speakers.com)

## Adios Audiolab!

Having revealed TAG Electronics' plans for the imminent F3 range from Audiolab in issue 178, *HFC* can now disclose that the new electronics will dispense with the Audiolab name altogether.

After much consideration TAG Electronics boss Dr Udo Zucker has decided to re-brand the Huntingdon-based company's products right from the start, rather than save the TAG brand for more expensive ranges due in future.

On the latter count, details are emerging: TAG's forthcoming F2 range will be priced at around £2,000 per piece, with a provisional launch date of September next year; while the F1 range, to follow a year later, will be positioned to compete with the most prestigious names in high-end hi-fi anywhere in the world.

The TAG F3 range will hit the market this September and replaces the Audiolab 8000 Series at a premium of approximately £200 over that range — putting the average component price close to the £1,000 mark.

Zucker claims to have a seven-year plan for his hi-fi brand's evolution: the goal is a complete audio and video range including speakers, cables and stands.

In the meantime Audiolab has set-up a Helpdesk and Freephone Helpline for customer enquiries. Lines will be open between 8.30am and 6.00pm, Monday to Friday on ☎ (0800) 783 8007.

## Richer's new Aura

Richer Sounds is bringing in the Aura range of loudspeakers from the US. Ranging in price from £149.95 to £549.95, they include bookshelf and floorstanding models, as well as a centre speaker and an active subwoofer for home cinema applications.

The Auras feature a line-source tweeter, previously seen in designs from Lineaue and Genexxa, and now patented by Aura. This combines an unusual etched voice coil (EVC) with a controlled-flexibility diaphragm (CFD), which, Aura claims, "produces highly accurate and natural high frequencies."

Richer Sounds ☎ (0171) 940 2240



Aura: American speakers at Richer prices.



# Mission's spirit of 77

Mission continues its deluge of new speakers with the 77 series. According to the company, it's been designed to appeal to the "traditional Mission customer" rather than listeners with "more modern musical tastes" who might opt for the complementary 700 series (*Update*, HFC 178).

The 77 series comprises four L-R stereo enclosures and a centre-channel dialogue speaker, and will be built at Mission's Huntingdon base in a range of three real-wood veneers with leatherette facias.

Cabinet construction is enhanced by a 38mm-thick contoured front baffle with radiused edges, and extensive internal routing to help disperse internal reflections. The mid/bass drive units are fashioned from Aerogel, a laminate of carbon fibre and foam that's said to be stiff, light and self damping. The fabric/polymer dome tweeter is built into a cunningly-designed mounting plate that features leaf-spring-style decoupling. A chrome phase plug and curved mounting ring complete the picture.

The 771 (£169.90) and 772 (£229.90) are stand-mounts with internal volumes of 6.5 and 11 litres respectively, while the 773 is a two-way floor-standing design, 85cm tall, which costs £349.90. The floorstanding 774 tops the range at £499.90 and uses twin bass drivers in a 92cm high cabinet.

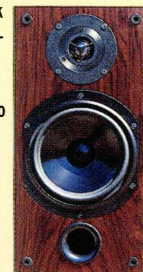
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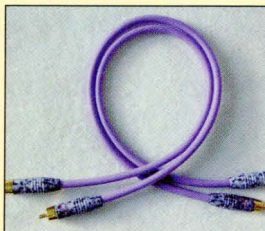
Still life with Mission 77 series.

## In brief

Musical Technology has launched its M-Tech professional speaker range onto the consumer market. There are four models with prices ranging from £450 for the PM15 two-way monitor, to £800 for the PM30, a larger, more powerful two-way. The remaining models are the £750 PMS70 subwoofer and 2U rack mount monitor, which is priced according to spec. ☎ (01656) 842000



Top Audio's Czech Republic exhibition will take place between November 5 and 7 in the Hotel Panorama, Prague. ☎ +42 (602) 374 222



Lilac: one for the ladies

SonicLink is keen to let you know about its new Lilac interconnect cable. Priced at £65 for a terminated metre pair, Lilac uses nickel-plated copper conductors in silicone rubber insulation, and has phono plugs "in a matching marble finish". ☎ (01332) 361390

DPA Digital Ltd has moved to 81 Dobbins Road, Barry, South Glamorgan, CF63 2NP. ☎ (01446) 747288

The Heimkino trade fair, dedicated to home cinema equipment, will take place between October 30 and November 1 in Messe Sinsheim, Germany. Among more than 70 other exhibitors will be Linn, Accurus, Mark Levinson, Proceed and Copland. ☎ +49 (7261) 689 127

South Coast Speakers Ltd now has UK distribution for Visaton loudspeaker drive units, produced in Germany. Visaton, a sustaining member of the AES, claims over 25 years experience this field and a seven-square-metre anechoic chamber. ☎ (01703) 559312

## VRDS to the masses

Teac's new VRDS-8 CD player is the first to employ its latest CMK-4.5 mechanism, featuring the Vibration-free Rigid Disc-clamping System whose acronym forms part of the £599.95 player's name.

The remote-controlled VRDS-8 is a full-width, slim-line model featuring a centre-mounted CD loader, two optical output (one front-mounted) and one electrical digital output, switchable eight-times oversampling filter and sampling point, all concealed behind a 10mm aluminium front panel.

And in a busy month for Teac, another newbie is the £179.95 V-1050 cassette deck, a three-head design with a hard permalloy record/playback head, Dolby B, C and HX Pro, fine bias tuning, optional timer-controlled record and playback, plus an optional remote control. TEAC ☎ (01923) 819630



Teac V-1050: 3-heads for less.

## Sharp's dubwise deck

Sharp's new MD-R3H (£349.99) is a MiniDisc (MD) recorder with a difference: it includes a three-drawer CD changer in the same box! The manufacture of compilation MDs is thus a user-friendly process, claims Sharp. An 'intro scan record' function provides a 10-second preview of each track, permitting users to mark those desired for recording.

The MD-R3H is said to boast the full complement of MD editing facilities, together with a three-frequency sample-rate converter (32, 44.1 and 48kHz).

Other convenience functions include a 24-key remote control, clock-timer-controlled recording, monaural recording, and variable analogue signal input level. There are digital in and outputs, plus line inputs and outputs.

Sharp ☎ (0800) 262 958



MD-R3H: ready and willing to dub.

## AVI's Nu benchmark

AVI's NuNeutron — or New Neutron to the grammatically pedantic — is a five-litre, rear-ported stand-mount loudspeaker, in which the company claims to have virtually eliminated phase anomalies in the crossover — a major source of discomfort to listeners, according to AVI.

The new speaker, priced from £499, is intended to fill the gaping void left by the demise of the original Neutron, and to have applications in both domestic and professional reproduction applications alike.

A five-inch, doped-paper-cone Vifa mid-bass drive unit employs a 'curvilinear' diaphragm; while the Scanspeak tweeter is a hand-made, 28mm-diameter fabric-diaphragm device with viscous damping.

The crossover has a second-order Linkwitz-Riley characteristic and deploys 'massive' ferrite inductors, polystyrene capacitors and two-ounce copper PCB. It is not bi-wirable.

The rated sensitivity is 86dB/W/m, while rated power handling is 150 Watts maximum. At the quoted price Black Ash or Cherry real-wood veneers may be selected; for £749 there is an ebony option. AVI ☎ (01453) 752777



It's an AVI Neutron, but not as we knew it!



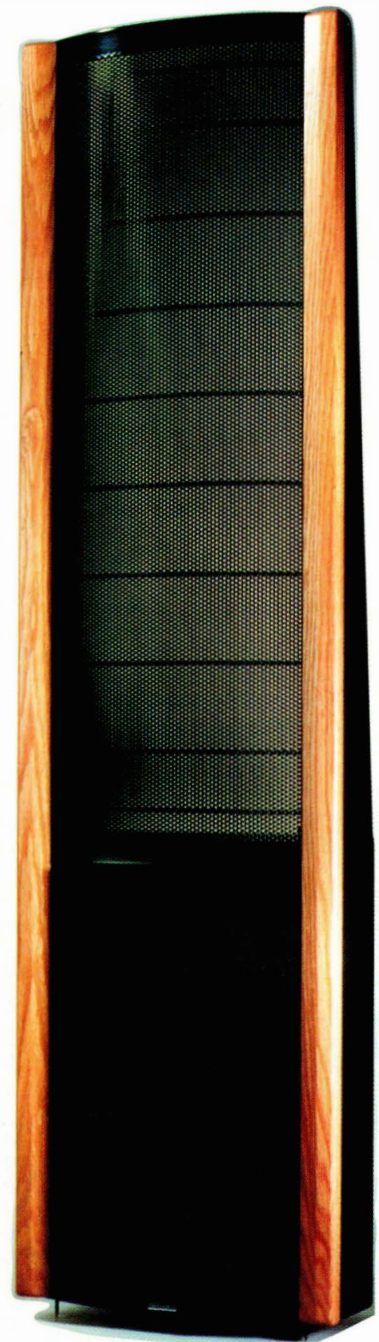
MARTIN  
LOGAN

# Martin Logan the name in electrostatics

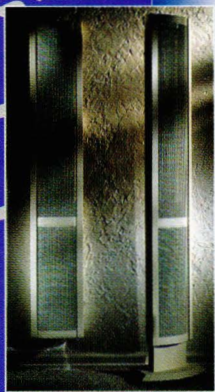
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Aerius i

SL3



Aerius — Best Loudspeaker Value  
AAHEA Golden Note Award 1996



Stylos

**MARTIN LOGAN** electrostatic/moving coil hybrid loudspeakers successfully combine the 'slam' of moving coil bass with the transparency and precise detail of an electrostatic. Martin Logan Ltd—the electrostatic loudspeaker technology company—offers a range that incorporates the classic CLS Hz full-range, full-height electrostatic, the flagship hybrids re:Quest and Monolith and the massively popular SL3 and Aerius i hybrids. The Aerius i is the culmination of a decade of advances in hybrid loudspeaker technology. Compact enough for the smaller room, this revealing speaker sacrifices nothing in performance. Recent cosmetic and electronic changes including a new woofer and crossover topology has created a speaker that has been awarded the accolade 'Best Loudspeaker Value' in the prestigious AAHEA Awards for 1996. Reviewers' opinions of Martin Logan products are remarkably positive—(What Hi-Fi? June 1996): 'It's the natural sound of every instrument that makes this speaker so appealing.' Alvin Gold (Hi-Fi Choice January 1996) also wrote of the SL3: 'more capable of assuming the persona of the music than almost any box speaker you care to name'. Ken Kessler (Hi-Fi News August 1995) found the SL3 to be: 'one of the sweetest, smoothest mid-price electrostatic hybrids I've ever heard regardless of maker.' He continued: 'The SL3 can produce images that don't impress: they convince.' Contact Absolute Sounds for a dealer list where you can audition these remarkable loudspeakers. And now Martin Logan Home Cinema speakers. Stylos surround speakers are in/on wall full-range electrostatic dipoles that can be painted to match any room; the Logos is a centre-channel wide dispersion electrostatic/dynamic tweeter hybrid. Martin Logan—the name in electrostatics



Absolute Sounds  
58 Durham Road  
London SW20 0DE

Tel 0181-947 5047  
Fax 0181-879 7962  
Email 73064.1710@compuserve.com



# Technics looks to the future



Above: SU-C3000 preamp claims 120 dB S/N ratio.

Technics is preparing for new music disc formats' high sampling frequencies and large binary word lengths with a new two-box 'variable gain control amplifier', the SU-C3000. This has been designed to be so electronically quiet that it will truly showcase the superior performance promised by DVD Audio discs mastered with 24-bit words and 192kHz sampling.

Technics engineers claim to have achieved a 120dB signal to noise ratio (S/N), using a feedback circuit to control the top part of gain between 0 and 20dB; and a volume control after the amplifier to attenuate from 0dB to minus infinity. A conventional amp can manage only 106dB S/N due to limitations in its volume control, Technics claims.

The SU-C3000 is due at the end of this year and will be complemented by the SE-A3000 power amp. The price for the combination is estimated at around £2,000.

Also at Technics' recent European Editor's Seminar, in a low-key but significant presentation, executives from

Warner Music Group and Technics' parent company (Matsushita Electric Industrial Co) suggested that DVD Audio hardware could be a commercial reality by Spring 1999, and that DVD Audio discs will play on existing Red Book CD players, solving a crucial backwards compatibility issue, though as yet with unconfirmed implications for retail cost. Speakers suggested that there will be ultimately three genres of DVD players: video, audio and universal, the latter equipped for both types of disc.

More prosaic new products from Technics include three new CD players, all featuring MASH one-bit DACS. The £89.95 SL-PG390 is the entry-level model, the £99.95 SL-PG490 is remote controllable and has a headphone output, while the £119.95 SL-PG590 also boasts the Technics Hybrid Construction Base (THCB) to reduce structure-borne vibration.

Technics ☎ (0990) 357357



SE-A3000 matching power amp.

## ProAc's enhanced Response

The Response 3.5 is dead. Long live the Response 3.8! The new ProAc speaker from Celef Audio undercuts its forbar by £260 at a price of £3,990.

The Response 3.8 is a 49-inch-tall floorstander with "critically-calculated cabinet proportions", according to ProAc, plus twin reflex ports and a three-way driver configuration. The latter includes twin seven-inch, carbon-fibre-coned woofers, of which one rolls off early leaving the other to cover upper bass and midband.

A new air-cooled, one-inch soft-dome tweeter, with a unique frontplate and copper ring, is mounted offset from the centre line in ProAc house style. "Treble sweetness and clarity akin to that of an electrostatic," promises the maker.

With a nominal impedance of eight Ohms, the enclosure has a rated sensitivity of 88dB/W/m, and a quoted maximum power handling of 250 Watts. The crossover is split for bi-amping and bi-wiring.

Available real-wood-veneer finishes at the quoted price are black ash, mahogany, walnut, natural oak and cherry; rosewood and yew command a premium of £400, while bird's-eye maple and ebony cost £800 over the base price. Burr oak will be an option in future.

Separate spike plinths support the Response 3.8's 170lb weight. DNA Marketing ☎ (01798) 343414



ProAc Response 3.8: "extravagantly specified."

## Verdier's heavy requiem

Thanks to the ministrations of GT Audio, the mighty Platine Verdier turntable has finally reached British shores, even though its maker, Frenchman JC Verdier, has been constructing this high-mass record player for over twenty years.

The Platine Verdier uses a 16kg solid stainless-steel platter with a magnetic support system. The plinth pneumatically decouples the turntable from its support, and the deck has two arm-boards as standard. The separate motor unit drives the platter via a belt or thread drive. This heavy deck carries an equally substantial price-tag: £3,850.

The importer has commissioned SME of Steyning to produce a special version of its 12-inch 3012R tonearm, specifically for the Platine Verdier, at a cost of £798.

GT Audio ☎ (01895) 833099



Man-size analogue hardware pour l'audiophile.

## Brooklands' best

Sony's Brooklands UK Sound Project, which since 1992 has developed UK-tweaked versions of Sony hi-fi separates components, has announced seven new 'Brooklands' models. These include two new CD players (the CDP-XB920E and the CDP-XB720E); a new amplifier (TAF-B920); a cassette deck (TCK-B820); a tuner (STS-B920S); an AV receiver (STRD-B925); and a MiniDisc player (MDS-JB920). Prices range from £179.99 to £599.99.

Sony claims to have taken many hours of listening and fine-tuning to refine the sound of these components, which also benefit from slanted circuit boards and heavier chassis to resist vibration interference.

To complement its presence in audiophile hi-fi, Sony has also announced the UK's first 'ES' centre, owned and operated by award-winning dealership Musical Images. Based in Covent Garden, it demonstrates the full Sony ES range. Sony UK ☎ (0990) 111 999 ● Musical Images ☎ (0171) 497 1346

## In brief

Harman/Kardon has a new Signature range of AV amplification. Top of the range is the £1,750 Signature 2.0 processor/tuner, a Dolby Digital six channel decoder and RDS tuner with RS232 socketry and on-screen menus. The Signature 2.1 is a five channel, 100 Watt power amp, while the Signature 1.5 is an "audiophile class" stereo power amp with 200 Watts a side. Both amps cost £1,250. ☎ (01908) 317707

STOP PRESS: Dealer Design Audio Classics of Glasgow claims to be the "first and only" dealership in the country to have a Signature 2.1 and 2.0 five-channel amp on demonstration. ☎ (0141) 353 7474

Sovtek has designed a new series of vacuum tubes, claimed to be the "finest 6550s ever produced". The 6650WD and 6550WE have thicker plates, improved heat dissipation, higher transconductance and increased linearity. ☎ +1 (212) 529 0466



Wharfedale is celebrating its Diamond speaker's 16th birthday with the Anniversary Diamond, based on the latest Diamond 7.2 model and priced at £199.95. It comes in real-wood veneer and has been re-engineered for bi-wirability. The midbass cone features the company's homopolymer sand-wich construction while the tweeter is a 25mm silk dome. ☎ (01480) 447 700



Diamond: still mad for it at 16.

Special packs of Scotch Video Head Cleaner Plus (priced £12.99) contain free Video Label Strips (worth £1.99) and a 30p money-off coupon for subsequent purchases.



# LORD OF THE RING

Another World Exclusive from Hi-Fi Choice! Arcam's brand-new Alpha 9 CD player contains 24-bit digital circuits and a special 'Ring DAC', sets new standards for high-end CD replay, and does it all at the affordable price of £799. **Paul Miller** reckons it'll be a hard act for other CD players to follow...



**A**t the end of 1991, John Dawson, Managing Director of Arcam, was attending an Institution of Electronic Engineers conference. Papers were being presented on Analogue to Digital Converter (ADC) and Digital to Analogue Converter (DAC) technology.

One contribution — from a company called dCS — proved prophetic. In the days before bitstream technology was widely adopted in CD players as it is today, dCS was proposing a novel alternative form of conversion: the Ring DAC.

However, though the seeds for a CD player based on the dCS Ring DAC were sown at the time (and fear not, we will explain the workings of the Ring DAC in greater detail), it has taken Arcam seven years of refinement, resources and range-building to see any further consequence of that epochal conference. On the basis of our first test, however, Arcam's dogged pursuit of an often elusive goal, and the long-anti-

ipated, much talked-about £799.90 Alpha 9 CD player, have been well worth the wait. Better still, existing Arcam CD owners are not left out in the cold.

The ability to upgrade through the Alpha range is a core part of Arcam's product strategy. Thus the Alpha 9 is built into the same chassis, and offers the same range of features, as Arcam's Alpha 7, 8 and 8SE CD players. Owners of the Alpha 7 may hop, step or jump straight up to the Alpha 8, 8SE or 9 specification for £150, £300 or £500 respectively.

This will have no effect on the practical operation of the player, as all models are equipped with Sony's reliable CDM14 transport mechanism, and offer standard track-skip, search, program and repeat-mode facilities. However, both the Alpha 8SE and Alpha 9 use Pacific Microsonics' PMD-100 digital filter, which confers the ability to decode the growing number of HDCD recordings.

## The long and winding road

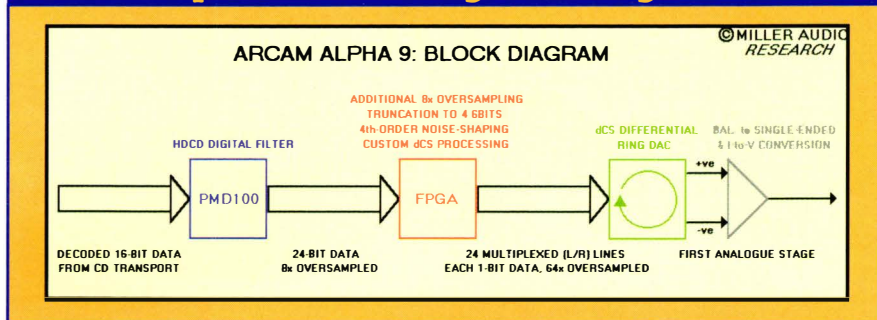
The similar appearance of Arcam's Alpha 8 and 9 CD players disguises the frustrated evolution and final novelty of the Alpha 9. At an earlier stage in its development, Arcam experimented with a custom DSP filter, but eventually this was abandoned in favour of the PMD-100, for reasons of power-supply consumption and the latter's backwards compatibility with the Alpha 7 and 8 CD players.

Another plan was to condense the noise-shaping, D/A conversion and analogue stages onto a single silicon substrate, but this was rejected in favour of an FPGA (Field-Programmable Gate Array), which allows on-board software from Arcam and dCS to be updated in future, should the need arise. Commercially, this is a much safer strategy than to opt for a custom chip where the software code is carved in stone — or rather, etched in silicon.

Besides the transport and decoder ele-



## Arcam Alpha 9: block diagram of digital circuits.



ments, the new Alpha 9 has three core components: the HDCD digital filter, the FPGA and the Ring DAC itself. The digital filter increases the sample rate eightfold and provides a 24-bit data stream for the FPGA, where it's increased by another factor of eight to a total of 64-times oversampling. Now the clever stuff begins. At this point, the 24-bit data is reduced into smaller five-bit chunks (actually 4.585 bits); while noise-shaping is employed to push the resulting noise and distortion out to higher (inaudible) frequencies and recover the audio-band's full dynamic range.

A total of 24 parallel binary lines, each either '1' or '0', are derived from every one of the 4.585 bits of serial data (two to the power of 4.585 = 24). In practice, these 24 lines must be multiplexed to carry both left and right channel data into the dCS Ring DAC. Here the 24 lines address 24 equally-sized current sources (we'll cover this in more detail later); and all lines flagged '1' will switch their requisite current sources 'on' while those flagged '0' will ensure their current sources are muted. The sum total output of all 'on' current sources defines the amplitude of the musical waveform during that oversample period.

Naturally, Arcam has developed a new analogue filter stage to deal with the balanced *current* output of the Ring DAC; which, in this respect, bears comparison with traditional multi-bit DAC technology. On the other hand, the wide 64x bandwidth of the emerging signal is akin to that of a bitstream device, and demands a high-speed, precision current-to-voltage conversion/filter

op-amp. It's not surprising, then, to find low-noise *video* op-amps in Arcam's final analogue circuit!

### A short history of digital audio

To comprehend why Arcam is so excited about the dCS Ring DAC, we first need to understand a little about the digital data used for audio. CD's 16-bit code represents the musical waveform using one 16-digit 'word' (for example, 1100010110100011) for every sample. The sampling rate for CD is 44.1kHz (44,100 samples per second); and for every sample, or snapshot in time, there are two to the power of 16 (that's two times itself 16 times, or 65,536) different steps in level available, to describe the amplitude of the musical waveform. Ideally, to generate a smooth analogue output waveform, each change in level is only by one 65,536th step, which is known as the LSB (Least Significant Bit).

Different D/A converter technologies employ different techniques to 'translate' this code into a practical signal. A traditional multi-bit DAC, for example, uses what's called a 'resistor ladder' to provide a total current that describes specific positions on the musical waveform at each sampling point. In a 16-bit DAC there are 16 different current sources, each responding to a digit along the 16-bit word. Reading back our example 16-bit word, above, from right to left, the multi-bit DAC will add the total of its first and second current sources with the contribution of its sixth, eighth, ninth, 11th, 15th and 16th current sources. Where a current source 'sees' a '0' it remains switched off.

These 16 current sources are not identical but double in output – or significance – as we step from right to left. Hence the third current source has twice the output of the second current source which, in turn, is twice the size of the first current source — or Least Significant Bit (LSB). For truly accurate conversion the final, 16th current source (or Most Significant Bit) should be exactly 32,768 larger than the LSB. In practice, these ratios are not precise, resulting in an error in the 'shape' of the musical waveform during conversion, and an increase in distortion.

In this case, the conversion is said to be 'non-monotonic', while the differences between the LSBs accumulate to cause rough-sounding modulation noise. This type of distortion is most destructive at low signal levels, where there are less LSBs available to describe the signal, and so the errors are proportionally more significant, causing even higher distortion.

### The bitstream bonus

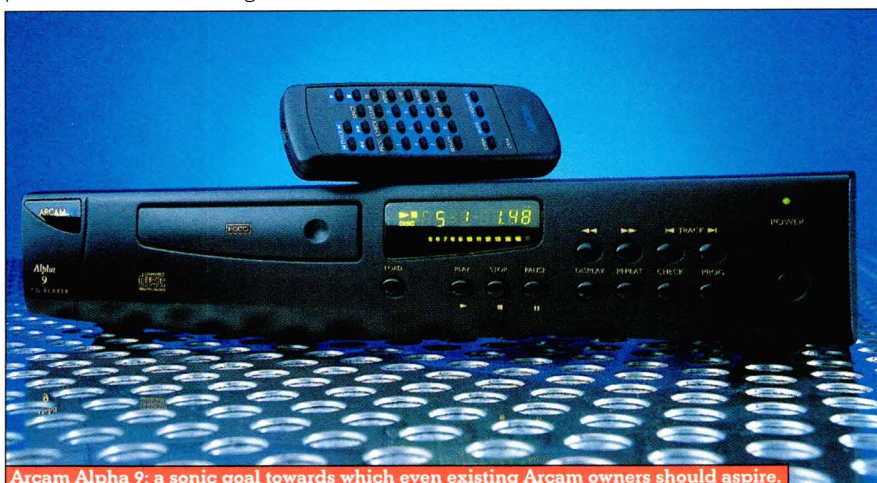
Bitstream converters seek to overcome this problem by using just one LSB (current source) but a proportionally higher oversampling rate. Using just one 'step' over and over again ensures a uniform scale, but reducing the 16-bit words into a one-bit bitstream creates a huge amount of noise and distortion in its own right. This is tackled by massively oversampling the data to 64 times (or greater) its original rate, while using a technique called noise-shaping to squeeze all the erroneous noise and distortion from the audio-band out to higher, inaudible frequencies. For more detail on noise-shaping, I'd recommend you turn back to our exclusive review of the TACT Millennium digital amplifier (HFC 178).

Modern bitstream converters typically reduce the 16-bit words down to, say, five bits; then they use this to control the length of *time* the current source (or pulse) stays switched on for every oversample period. A single five-bit word can describe one of 32 possible different pulse widths per oversample period (two to the power of five = 32). This is the basis of the PWM (Pulse Width Modulation) DACs used by Technics, Sony and JVC, for example.

Monotonic conversion is guaranteed by this method, and low-level linearity is improved. However, because of the proportionally higher clock rates needed to accurately 'time' these pulse widths, the PWM technology is arguably more sensitive to jitter — an alternative form of distortion.

### Reasons for the Ring DAC

On paper at least, the dCS Ring DAC attempts to hybridise the two technologies — multi-bit and bitstream — while avoiding their drawbacks. Sure enough, the incoming data is reduced down to 4.6-bits while noise-shaping is employed to recover the signal's original dynamic range, just like the archetypal bitstream device. But



Arcam Alpha 9: a sonic goal towards which even existing Arcam owners should aspire.



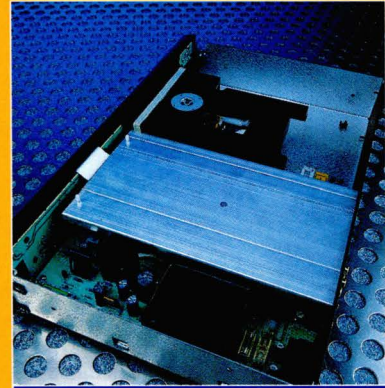
# ARCAM ALPHA 9 CD - LAB REPORT

**D**espite being an early 'engineering sample', this Alpha 9 suffers only two relatively minor blots on its copybook. First, near to its peak 2.4V output, distortion tends to increase slightly, reaching a constant 0.01 per cent across the audioband. I would suggest the high-speed I-to-V converters might be showing signs of stress here, particularly as at lower signal levels, distortion tails off very impressively.

Just look at the 3D plot below, fig 1. This is an incredible result, since in response to a full 0-22kHz sweep at -30dBfs (1), there are no tracks of distortion or sampling images — just innocuous noise both in (2) and outside (3) of the audioband. The excellent suppression of this ultrasonic re-quantisation noise (3) is testament to the quality both of dCS's noise-shaping algorithm and Arcam's analogue filtering. The remaining HF tones (4) are of unknown origin but are

unlikely to be of great significance.

The second shortcoming lies in the unit's 96-97dB A-wtd S/N ratio which, though perfectly acceptable for a 16-bit system, is hardly the realisation of a true 24-bit converter. Nevertheless, the minute errors in low-level linearity of just +0.0/-0.3dB over a full 100dB range, suggest the true resolution of the dCS Ring DAC is far greater than this S/N figure might suggest. With regard to jitter and the distortion caused by timing errors in the conversion of digital data (fig 2), the 279psec total is low but could be lower still as evidenced by the low-rate components (5) situated very close-in to the main peak. Without this (innocuous) cluster, the Alpha 9 would be left with just 137psec of data-induced jitter — a fabulous result in anyone's book.



Under the hood - Sony's reliable CDM14 mechanism visible top centre.

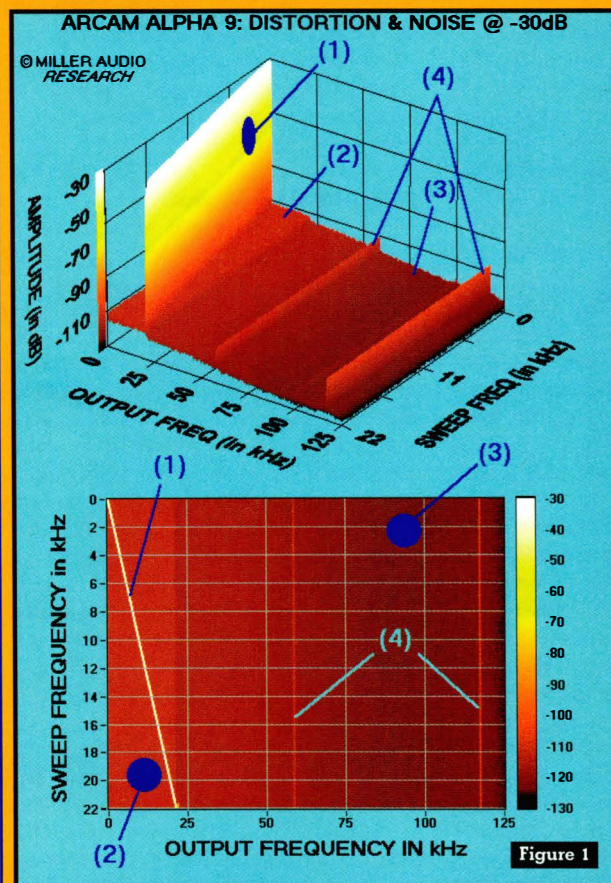


Figure 1

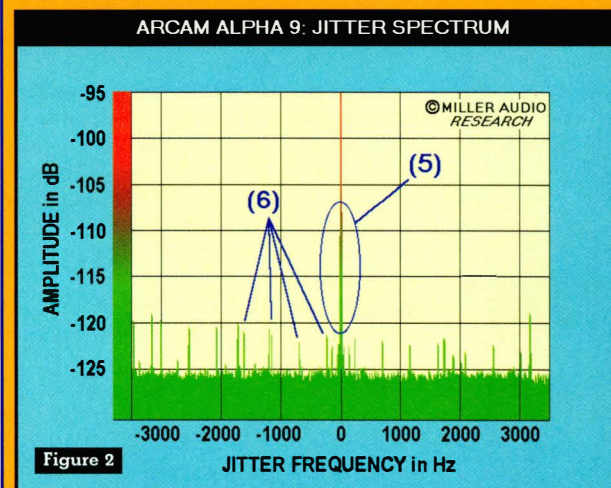


Figure 2

## TEST RESULTS

PARAMETERS	SIGNAL FREQUENCIES		
	20Hz	1kHz	20kHz
Channel Balance	0.0dB	0.0dB	0.0dB
Channel Separation	99dB	99dB	98dB
Frequency Response	0.0dB	0.0dB	-0.1dB
THD vs Level, 0dB	-80dB	-81dB	-79dB
THD vs Level, -30dB	-91dB	-88dB	-81dB
THD vs Level, -60dB	-61dB	-57dB	-60dB
THD vs Level, -80dB	-29dB	-30dB	-35dB
Dithered, -90dB	-19dB	-20dB	-25dB
Dithered, -100dB		-12dB	
Dithered, -110dB		-7dB	
Resolution @ -60dB		0.0dB	0.0dB
Resolution @ -80dB		-0.1dB	0.0dB
Resolution @ -90dB		-0.3dB	-0.3dB
Resolution @ -100dB		-0.1dB	-0.1dB
Peak Output Level, L	2.374V		
Peak Output Level, R	2.373V		
Relative Output Level	+1.5dB		
Output Impedance	470hms		
CCIR IMD, 0dB	-78dB		
Suppression of stop-band images	> 105dB		
1Hz Noise Modulation	(in protection)		
S/N Ratio (A-wtd), with emp, 0LSB	96.7dB		
S/N Ratio (A-wtd), w/o emp, 0LSB	96.5dB		
S/N Ratio (A-wtd), w/o emp, 1LSB	96.4dB		
De-emphasis Accuracy, 1kHz	0.0dB		
De-emphasis Accuracy, 5kHz	0.0dB		
De-emphasis Accuracy, 16kHz	0.0dB		
Total Correlated Jitter	279psec		
Digital Output(s)	coaxial		
Crystal Clock Accuracy	-8ppm		
Track Access Time (99)	2.5secs		
Typical Retail Price	£799.90		



dCS's use of this 4.6-bit code is different. Instead of varying the on/off timing of a single current source, the 4.6-bit code controls 24 equally-sized current sources to realise a single, summed output. Obviously, it's easier to match these 24 current elements than the theoretical 65,536 LSBs employed by a 16-bit multi-bit DAC, but unavoidable variations in their size would surely give rise to distortion.

dCS is cagey about the precise nature of its solution, but it seems likely that because not all 24 current sources are used in every oversample period, those in use are addressed in an irregular or random fashion. This would have the effect of averaging out any fixed errors as noise, rather than har-

monic distortion. It's clever stuff indeed, and judging by the results we obtained here, equally impressive in practice.

**What's all this 24-bit, 96kHz business?**

It is important to appreciate that, as far as the dCS Ring DAC is concerned, any talk of '24-bit' refers to the maximum input word length it will accommodate, and the mathematical accuracy of its processing. It is not a promise of a practical 144dB dynamic range (24-bit's theoretical maximum), because other hardware issues, beyond dCS's control, will hold sway.

Other semiconductor manufacturers, for example Crystal Semiconductor and Burr-Brown, also have a so-called '24-bit' DAC on their books. These are the CS4390 and PCM1716E ICs respectively, which adopt a bitstream-type technology and are currently utilised in CD players from Meridian (508.24), Talk Electronics (Crystal); and forthcoming players from Creek and Musical Fidelity (Burr-Brown).

Crucially, however, only the Burr-Brown and dCS Ring DACs are specified to operate at an elevated 96kHz sample rate. Crystal's CS4390 carries a maximum 24-bit/48kHz specification, though a future version, called the CS4334, should be compatible with any up-and-coming 24-bit/96kHz audio format.

As things stand, however, Arcam will already be one step ahead if the move to 24-bit/96kHz DVD-Audio becomes a commercial reality.

**Listening to the Alpha 9**

To assess the Arcam's sonic performance we spared no effort to appraise it in our classic unsighted listening test conditions, comparing it with Meridian 508.24 (£1,995) and Talk Electronics Thunder 3 (£999.95) players, currently the only other '24-bit' CD offerings on the market. Sounding confident but not pushy, the Alpha 9 quickly emerged as an artfully-balanced player in our blind listening comparison. There was a suggestion of it sounding faintly shut-in at the extreme top of its range, but nevertheless it was able to tease out subtle musical details regularly overlooked by its competitors.

Bonnie Raitt's album *Nick of Time* was not quite as full-blooded as it might have been, but still possessed enough drive and conviction behind the voice and accompanying guitar to paint a very believable, live-sounding picture. Allowing for a slight loss of extreme treble, the Arcam's music-making was bolstered by a good sense of space, and sharp, focused stereo images that contributed to a solid and assured performance.

The pin-sharp positioning and realistic sense of movement conveyed by this player was exemplified by the violin and cello from Bach's *Two-part inventions*. The music was unfamiliar, but the panel members remained on the edge of their seats, not with apprehension but with eagerness as the duelling performers successfully developed

a marvellous sense of occasion. Strings cut the air with an attack and bite that seemed wholly appropriate, free from any harsh or edgy colour and creating the illusion of an instrument with little or no sense of artifice.

This player's lack of musical 'engineering' was also reflected in the transparent projection of Lyle Lovett's voice throughout *Love Everybody*. In this instance, guitar strings punctuated a charged acoustic, a gentle-sounding but positive kick-drum brought up the rear, and the man's voice retained its characteristic edge without lapsing into sibilance. As a whole, the ensemble sounded lucid and natural, free of any restraint or plodding tendencies.

On the latter count there was no holding back the frenetic bass-line of Prefab Sprout's *Looking for Atlantis* as Arcam's player conveyed a large and busy soundstage without moving a hair out of place. All the crazy panning of detail, the vocals and harmonies, guitars and synth were handled without confusion. Indeed, the Alpha 9 deals with the most complex mixes with a great sense of order and control, yet without imposing any shackles of its own. In truth, the Alpha 9 grips but does not squeeze.

**Conclusion**

Readers must bear in mind that the Alpha 9 provided for this exclusive appraisal was an 'engineering sample' and, judging by the 00001 serial number, an early one at that! Nevertheless, and despite one or two trivial questions concerning technicalities, the '9 has more than whetted our appetite for the finished production model which, incidentally, should be in the shops about now.

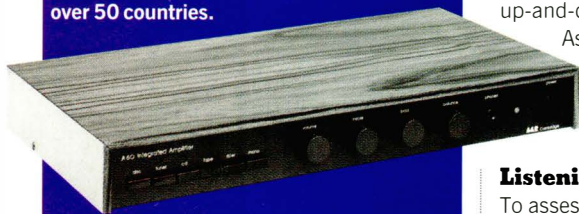
The Alpha 9 is undoubtedly the most ambitious and inspired digital product ever to emerge from Arcam's factory in Waterbeach, Cambridgeshire. This CD player not only challenges the very best integrated machines below £1,000 but also takes a considerable pop at those costing much more. The player sounds mightily impressive; and with HDCD software compatibility, plus its use of dCS's 24-bit/96kHz Ring DAC, it is effectively future-proofed. Commercially at least, Arcam is steaming towards a home run.

And whether or not you are already an Arcam owner, you'd be barmy to pass up an opportunity to audition the Alpha 9 at your nearest dealer. Just tell them the guys and gals at *Hi-Fi Choice* sent you!

Arcam ☎ (01223) 203203 ● www.arcam.co.uk

**MORE ABOUT ARCAM**

Arcam's history dates back to 1972, when youthful John Dawson and associates, students at Cambridge University, started building sound reproduction equipment. Their first hi-fi amp was the A60 (below), released in 1976 and awarded Recommended status in *HFC* 6, when it cost the princely sum of £125. Arcam claims that 30,000 of these amps were sold worldwide and that it can still — just — service them today. Today the company employs 130 people and exports to over 50 countries.



**MORE ABOUT dCS**

dCS was formed in 1987 by a group of consulting electronic engineers, and specialises in analogue-to-digital converters (ADCs) and digital-to-analogue converters plus associated systems, for supply to a number of industries including professional and domestic audio. Its dCS 900 is an industry-standard ADC for 24-bit classical recording. The £8,500 dCS Elgar (below), meanwhile, launched in June 1996, was the world's first 24-bit, 96kHz DAC for hi-fi. The latter (which will feature in a special *Statements* review in next month's *HFC*) also uses the Ring DAC implemented in Arcam's Alpha 9, together with custom digital filters and gate arrays. It is distributed in the UK by RT Services ☎ (01235) 810455. dCS ☎ (01799) 531999 ● www.dcsLtd.demon.co.uk



**What Music Did We Use?**

- Bonnie Raitt *Nick of Time* — Capitol CDEST2095
- Lyle Lovett *Love Everybody* — MCA MCD10808
- JS Bach: *Two-part inventions on Music for a Glass Bead Game* — John Marks Records JMR15
- Prefab Sprout *Looking for Atlantis from Jordan: The Comeback* — CBS KWCD14



# Marriage of convenience

**MS**  
MUSIC SERIES

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POWER

ARCAM  $\alpha$

LISTEN



This month's £750 starter system is the kind of hi-fi partnership you can buy all over the land. An ideal impulse purchase, reckons Alan Sircom...

**L**ast month's system was a £2,000, CD-based outfit recommended by the London dealership, Grahams. This month, rather than relying on a single stockist's hi-fi suggestion, here's a rig you should be able to find in the majority of specialist shops. With a budget of £750 for the core components of CD, amp and speaker, what kind of system could you buy if you walked into a shop tomorrow?

This might sound a like a simple exercise, but since there are so many CD players, amplifiers and speakers at any given

budget, it is all too easy for the unwary system permutator to be snared in numerous traps along the way. For example, while magazines are always keen to investigate the hottest new products, more conservative dealers prefer to stick with the tried and trusted. In a worst-case scenario, we will discover a winning combination of components that are impossible to audition within a single dealership.

**Friendly firepower**

These caveats aside, this month's trio of components are all old friends. At the helm is the ubiquitous Marantz CD-67mkII CD player, Recommended in *HFC* 179 and priced at £250. Our amplifier is another favourite, the £260 Arcam Alpha 7 integrated amplifier (*HFC* 167). The Marantz and Arcam go together like Rugby League and traction. We could substitute either product for any one of six or seven Japanese and British offerings from the likes of Creek, Rotel and Pioneer, for example, but this would divert us from our avowed 'ease of purchase' objective.

In this most instant of instant systems, our speakers had to be the £200 Mordaunt-Short MS20i Pearl. This highly popular enclosure doesn't always get the magazine

THE SYSTEM	
Marantz CD-67mk11	£249.90
Arcam Alpha 7	£259.90
Mordaunt-Short MS20i Pearl	£199.99
<b>Total</b>	<b>£709.79</b>

exposure it deserves, but it is no less readily available than either the Marantz CD or Arcam amp. We have yet to test this design formally, though it has featured well in a recent review performed by *HFC's* sister title, *Home Entertainment* (issue 53).

To give a brief background, the Pearl edition of the MS20i, minted to celebrate Mordaunt-Short's 20th year in the business, claims to feature an improved crossover, slightly redesigned cabinet and a handful of small but significant improvements to its drive units. Sure, we could swap these speakers for any one of 10 popular, widely-available models at the price, and the results would differ slightly — but the essential character of the sound would remain fundamentally intact.

**Core blimey**

What is that core sound? It combines the Marantz CD player's briskness with the warm yet effusive sound of the Arcam amp. The Mordaunt-Short factor in this equation adds a healthy dose of bass oomph, yet settles down sensibly on more restrained musical styles. There's no doubt this system leans towards modern material like the Propellerheads, but at the same time it still plays lyrically with John Coltrane's sax and Glenn Gould's old joanna.

I cannot conceal the fact that the sound gets a bit lost and muddy when sailing through big orchestral swells, and the imagery, though competent, would not give cause for alarm to the average Quad ESL-63. But performance is credible when you consider the price; and it is easy to forget the price when a system sounds this good!

**Conclusion**

For the same amount of money you could buy an integrated system crammed with features such as an MD recorder, Dolby Pro-Logic processor, funky graphical displays and the like. None will sound as good as this rig. Best of all, it can play loud with style. Not non-stop-wake-the-street-slammin'-Techno loud, I grant you; but for those after-the-pub-impress-your-mates-with-The-Prodigy blasts, it's a killer.

Arcam ☎ (01223) 203203  
 Marantz ☎ (01753) 680868  
 Mordaunt-Short ☎ (01705) 498866

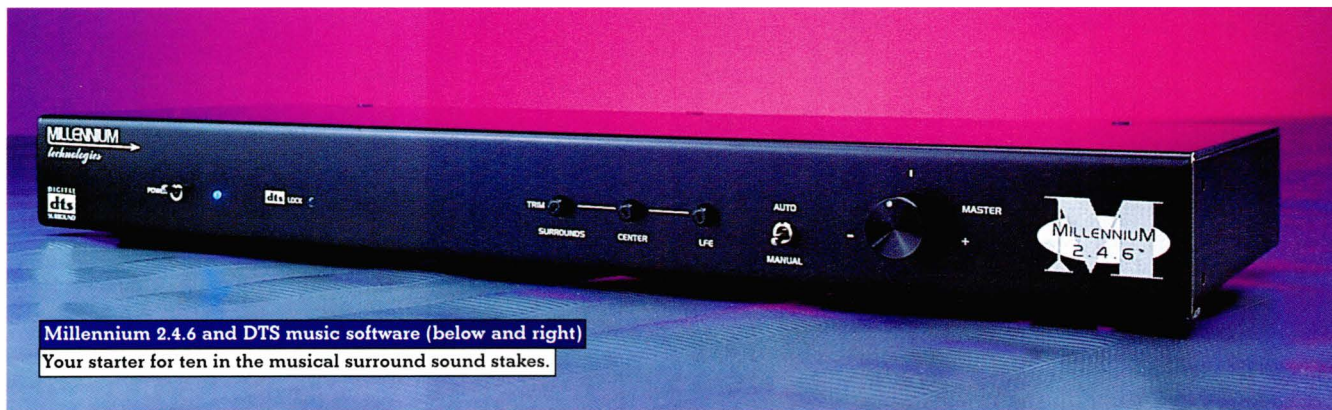






# Ear Waxings

Jason Kennedy becomes an advocate for surround-sound music, and reports exclusively on Mission's first NXT flat-panel speaker.



Millennium 2.4.6 and DTS music software (below and right)  
Your starter for ten in the musical surround sound stakes.

**H**ave you ever heard music played through a surround-sound system optimised for the purpose? Unless you remember Quadraphonic from the '70s, the answer's likely to be "no". Since then only the late Michael Gerzon's Ambisonics system has held out any promise in this field.

More recently, Dolby Digital has been poised to expand into music from its movie soundtrack stronghold, but there has been little or no backing from music software producers. Instead, the breakthrough has come from Dolby's big competitor on the professional cinema front: DTS (Digital Theater Systems). And DTS offers a multi-channel music format that works.

It was only after I'd spent a morning setting up and listening to a DTS system that I realised it represented a breakthrough for multi-channel music. Having spent time with both Pro-Logic and Dolby Digital surround systems for film I'd become rather nonchalant about a surround system for music. Possibly this is because previous demonstrations had always been made on overblown home cinema systems, and equally because the few discs I had heard resorted to home cinema-esque novelty when it came to using so many channels. But once installed and set up at home it became clear that the DTS format has hi-fi potential.

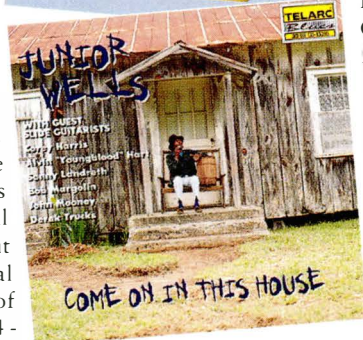
Like all new formats, the problem for DTS lies with software: for potential customers to splash out on the relevant hardware there needs to be some back catalogue to play on it. Even the least expensive decoders cost in the region of £500 and if you don't have a 5.1 channel home-surround system already, you'll

need three channels of amplification and speakers. You see the problem. However, home cinema is rumoured to be making inroads in this part of the world, so there are some for whom the changeover won't be so painful.

The DTS 5.1 Surround format provides for five channels of sound plus subwoofer (the 0.1 part). It uses a proprietary 20-bit digital format encoded onto special CD software, which will be recognised by ordinary CD players. To play, though, it needs a special outboard decoder/converter like the Millennium 2.4.6 (\$599) pictured on this page.

Home cinema buffs will be wondering when I'm going to discuss DVD (Digital Versatile Disc). This format's audio specification is still awaiting finalisation, but holds out the potential for 5.1 channels of uncompressed 24-bit/96kHz music, though as yet it's unclear for how long such a high-quality disc would play.

Another proposal on the table is the



Philips/Sony-developed Super Audio CD (SACD), which was previewed in HFC 175 and has been demonstrated in five channels to tremendous effect. And while the Millennium unit is not available in the UK, DTS decoders are being included as an option in an increasing number of home cinema processors such as the Lexicon DC-1 and Yamaha DSP-A1.

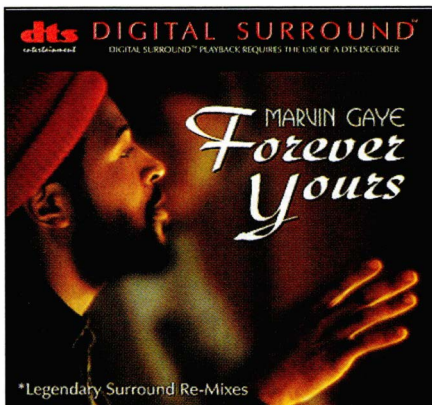
### Surrounded by music

To check out DTS I borrowed 10 titles from the 40-strong catalogue. At present these are priced at \$25 and need to be purchased in the style of US LaserDiscs, via the Internet. One dealer we know of is Brad Miller, who can be contacted by email at [bmiller51@aol.com](mailto:bmiller51@aol.com) or on +1 (888) 551 0123.

Quite quickly I realised that one or two albums alone cannot give a good impression of DTS's music replay abilities. The quality of its effect is determined by each recording's style of

production and mixing: some simulate for the listener the experience of sitting in the middle of the band; while others operate more subtly creating only a sense of ambi-





ence or a larger acoustic space.

Of the discs I tried, half were reissues of old albums while half encompassed new material. In the former camp were classics like Steely Dan's *Gaucho*; in the latter the latest offering from Belinda Carlisle. While the back-catalogue material was sometimes enhanced by a creative sonic and spatial remix, the new recordings were the most impressive exponents of surround for music.

One of the best results was from Junior Wells's Telarc recording *Come On In This House*. This is a contemporary blues album that's been very nicely recorded. Others, such as Bonnie Raitt's live cut *Road Tested*, suffer from rather severe compression.

**Parsons knows**

Some producers and engineers are learning faster than others the art of an effective music surround mix. During B&W's recent press launch of the Nautilus 800 Series (see *Update*, p6), hi-fi journalists first listened to the new speakers in a 5.1-channel mixing suite, within the Abbey Road recording studio complex in North West London.

There, veteran record producer Alan Parsons played us a multi-channel mix from a little engineering job he did in 1973, called *Dark Side Of The Moon*. That was quite convincing, as one might expect from over £40k's worth of speakers alone, but much more stark was the contrast between two- and multi-channel versions of Parsons' latest album, *On Air*. Interestingly, producer Parsons prefers not to use any centre channel speakers, in the aim of achieving a more even 360-degree dispersion of sound.

DTS is certainly more than just another movie surround format: it is viable for music too. There are 40 DTS titles currently available, and according to the DTS web site ([www.dtstech.com](http://www.dtstech.com)) another 20 are in the pipeline. We have yet to see what DVD Audio will offer by way of music in surround; and while we know the capabilities of SACD in this regard, we have yet to be convinced it will ever see the light of day in the High Street. Our advice, then, is to track down your nearest dealer who's prepared to give you a DTS dem using hi-fi speakers — if sonic knaves like the Orb and Coldcut get around to creating software that really does justice to the format, I'll be in there like a shot!

Read more about multi-channel music from p28

**NXT YEAR'S MODEL**

**Hi-Fi Choice was the first to break the story of Mission's NXT flat panel speaker technology. Now we lead again with an exclusive review of the first commercial NXT audio product!**

In *HFC 160* we reported how gentlemen and women of the press were stunned by the world's first demonstration of the NXT flat speaker. The latter, developed by an offshoot of the Mission and Cyrus brands, was made from a sheet of material that produces sound by being flapped around or wobbled in extremely small amplitudes.

Mission has just launched its own first commercial implementation of the NXT technology. The x-Space is a £499.90 speaker system including a compact sub-woofer with built-in amplification, and a pair of satellite NXT speakers each measuring just 310mm wide — and, including the novel multi-purpose base/wall/ceiling bracket, only 82mm thick.

The amp claims to deliver 30 Watts per channel RMS for the satellites, plus 45 Watts RMS for the low frequencies. This is available via Mission's new EU-compliant 'BFA' speaker connectors. Being fitted with phono jack inputs, the system claims to be compatible with anything from a Walkman to a regular hi-fi system — though the discreet grey styling and shape of the sub must indicate clear aspirations towards the computer market as well.

In early May *Hi-Fi Choice* had an exclusive brief audition of the x-Space. And on the basis of this informal but illuminating session, the technology seems to be fulfilling some of its many claims. Perhaps the most dramatic effect of all is NXT's extraordinary sound dispersion characteristics. Stand anywhere in the room and the volume level seems the same. Principally this is due to NXT's almost total lack of directivity at most frequencies; by contrast, conventional speakers tend to give their full frequency response only over a very narrow angle in front of their drive units.

In a conventional speaker, higher frequencies are more directional than bass ones. NXT panels seem to have the opposite character, since according to the maker's own polar response plots, their bass is more directional. And while normal speakers' sound outputs obey they inverse square law, under which loudness halves as distance from the speaker doubles, the sound from NXT panels suffers virtually no power reduction over distance.

Some claims for NXT are extraordinary: impedance flat to 10kHz, then rising; freedom from amplifier-aggravating back EMF problems; panel movement that is measured in microns (midband frequencies); reduced harmonic distortion; and minimal sensitivity to positioning within the room. (For more details see the New Transducers Web site at [www.nxt.co.uk](http://www.nxt.co.uk).)

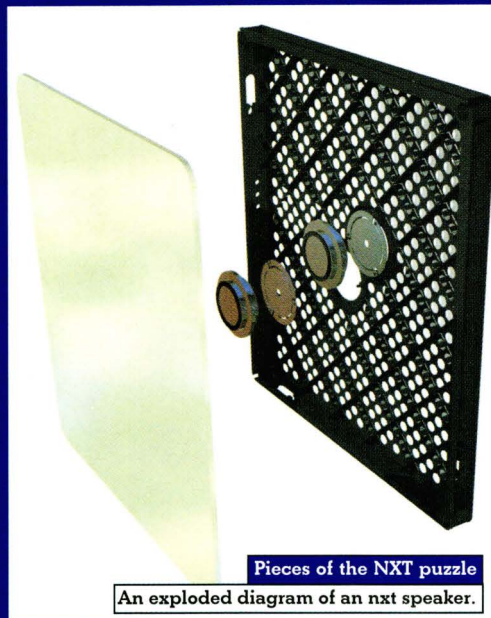
While the x-Space system is designed for use with real-world audio equipment, it has been designed to bring otherworldly sound into the home.

However, there are amazing plans to produce a whole range of NXT products for in-car, sound reinforcement and cinema applications among others. NXT claims that the sound-generating panels can be built into ceiling tiles or car dashboards, for example, and hopefully by this time next year, the company may have had time to develop an audiophile implementation of this intriguing technology.

Remember where you read about it first! JK

Mission ☎ (01480) 451777

www.mission-cyrus.com



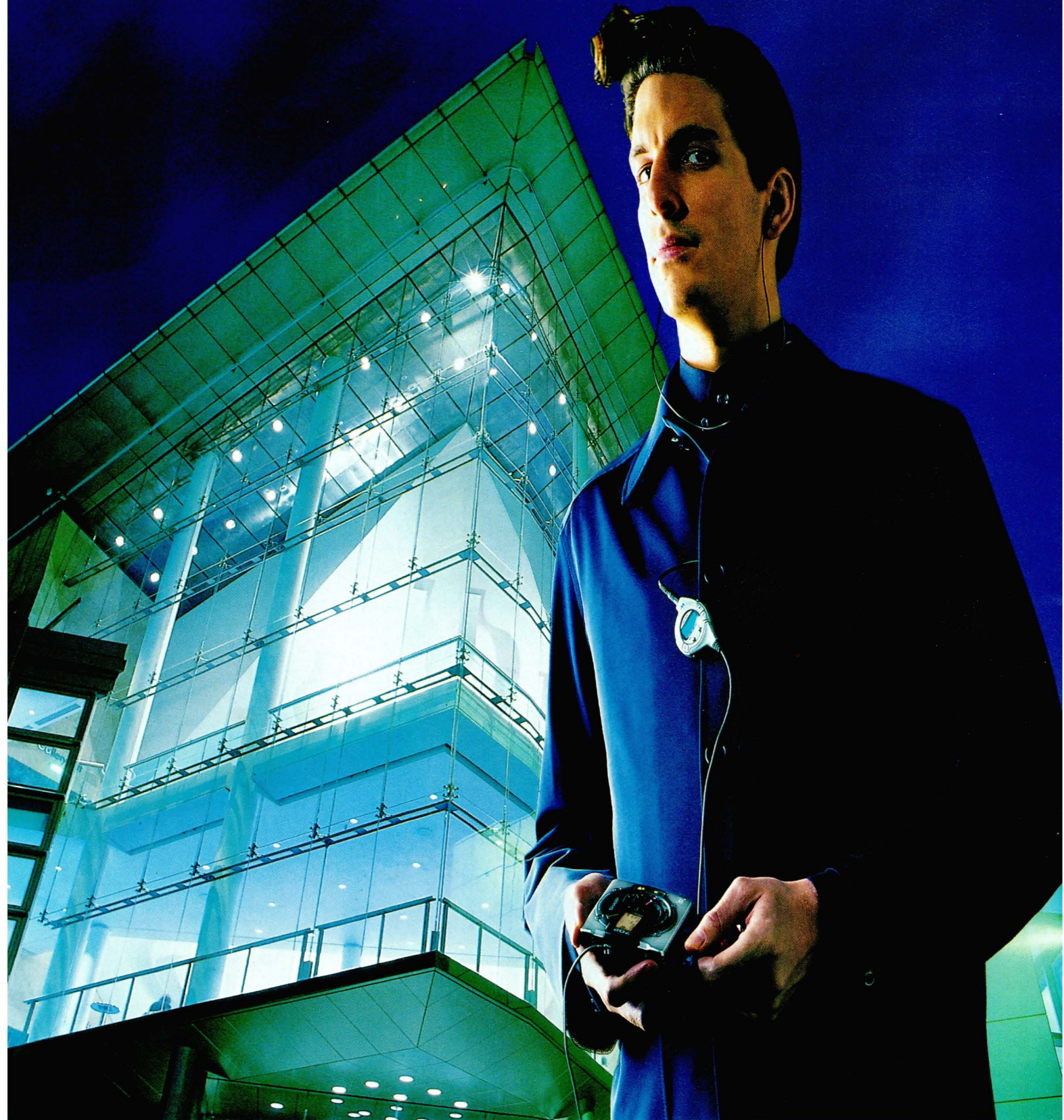
Pieces of the NXT puzzle  
An exploded diagram of an nxt speaker.



Mission's first implementation of NXT is the active x-Space sat/sub combo.



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MD-X5H MD/CD  
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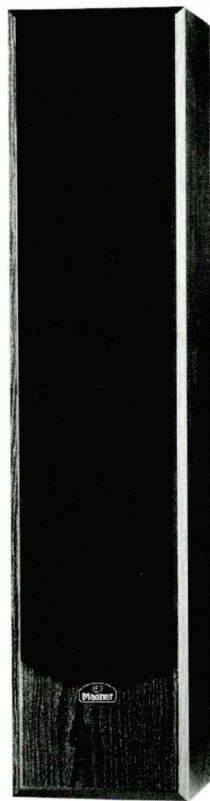
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# The Jimmy Hughes Experience

Jimmy Hughes laments the passing of CD... but is it really on the wane or could it be resurrected?

**T**he prospect of a replacement for CD (see p28) is both exciting and worrying. It's exciting because it promises higher standards, bringing us closer to the goal of perfect sound. And it might even rekindle interest in hi-fi as people flock to hear the latest advance in technology. It's an opportunity for the record companies to re-release back catalogue material in improved sound, and make technically better new recordings.

However, if like me, you've made a sizeable investment in CD software, the idea of it being superceded by something better one day is enough to cause sleepless nights. If the new system really is better, I know I'll eventually want to replace my entire music collection. Yet are the 'limited' CD specifications really as limited as we think? Of course CD has restrictions on paper: 16-bit 44.1kHz technology, state of the art in 1983, looks distinctly circumscribed today.

But if this is the case, CD at best is able to recreate the source with impressive accuracy. I agree there often seems to be something missing with CD. And I know many put this down to CD's limited specification. But is it possible that CD's limitations aren't with its 16-bit/44.1kHz technology, but other things? Let me explain further.

## Digital vinyl

Recently I listened to an LP recorded in April 1980, of Weber's Clarinet quintet on the American Nonesuch label — a thoroughly enjoyable experience. The music was lovely, and not having played LPs for a week or two, I reflected that analogue still has a certain magic which CD lacks. Then it dawned on me that the LP in question was taken from digital master tapes recorded on a first generation JVC DAS-90 system, with specifications possibly even less advanced than CD. Yet the sound was pure, natural, very subtle and detailed. Not at all what you'd expect from an early digital recording.

Certainly, I'd settle for a sound as natural from CD. At present my CD player, although good, hasn't got the same purity and subtle detail; in visual terms, it's as though the picture has a slight colour cast, lacking the wide distinct contrasts available with LP. Of course it helps to use a superlative moving-coil pickup cartridge — in this case

ers? Perhaps a bit of both. Certainly, if I play this CD today I'm less disappointed with it than I used to be — now it sounds pretty good, though there's still something missing.

So I was intrigued to talk to Steven Carr of Vivante Records, who sent me a special JVC XRCD audiophile remastered copy. What an improvement! It sounded louder and sharper, with greater brilliance and sparkle. The improvement stems almost entirely from the care taken during the digital transfer of the original analogue tape.

Remastering starts by digitising the analogue master tape using JVC's 20-bit K2 encoder. K2 uses 128 times oversampling and allows the 20-bit signal to be converted down to 16-bit for CD, as well as claiming to eliminate timebase jitter. The 20-bit digital signal is stored on an optical disc, rather than Sony U-Matic PCM-1630 tape, and masters the CD using another circuit called K2 Laser.

But does it result in improved sound? Definitely. Even without comparisons you'd know this disc was special. There's a freshness and vitality rare for CD: instruments like cymbals shimmer and decay deep into the mix, rather than being thrust at the listener en masse. My original copy sounds grey and washed out by comparison. It's less dynamic, and detail is not so crisply focused.

Certainly, this JVC CD demonstrates the kind of performance possible with CD when extra care is taken during mastering. And while the same process applied to a higher specification CD would result in even better sound, I wonder how many people would worry about the difference. Where audio is concerned, it seems to me that the benefit of improved technology has less effect on people's spending patterns than once it did.

For every sad trainspotter like me who buys a second copy of a CD because it's been remastered and promises better sound, there are thousands of even sadder trainspotters who couldn't care less and wouldn't hear any difference in any case. Cynical, moi?

Vivante London ☎ (0181) 977 6600 ▲



the Transfiguration Spirit, which produces magical sounds from vinyl.

Logic suggests that if a digital recording from LP, made using a recorder with similar (or inferior) specifications to CD, can sound subtle and natural, so should CD given similar source material. If it doesn't, either there's something wrong with the CD player, or losses are occurring in the CD mastering and pressing process. In HFC 168, I wrote about the problems encountered by Pink Floyd's producer while mastering the album *Pulse* — it seems much can go wrong when recordings are being transferred to CD.

One of EMI's earliest pop CDs was Tina Turner's 1984 album *Private Dancer* — CDP 746041-2. I bought a copy as soon as it came out and was disappointed with the sound: it lacked body and depth, being rather 'flat' dynamically. Was it the disc, or the limitations of first and second-generation CD play-



# Paul Miller's Oasis of Sanity

Paul Miller investigates the latest version of the MiniDisc perceptual coding system, and discovers that it may not be 100 per cent backwards-compatible.

**I**n Eindhoven, they are watching. The continuing success of Sony's MiniDisc (MD) format has not gone unnoticed by the bigwigs at Philips. Inevitably, the need to compete with MD has, at least in part, driven Philips' efforts to develop a budget CD-R/RW recorder. Particularly since Philips' original MD competitor, the tape-based DCC system, has been left to die a quiet death. In response, Sony has improved the electronic heart of its own MD recorders, and those of its licensees. This evolution, we'll discover, is ATRAC 4.5.

There is a big difference between CD-R/RW and MD, not only in the composition and size of the disc media, but also in the way that data is stored. The CD-based format holds its digital data in a linear, 16-bit form, with a capacity of around 650Mb per disc. The smaller MD disc, however, has room for just 130Mb of data but still manages to squeeze in the same amount (an hour or so) of music. This is achieved by MD recorders' ATRAC (Adaptive TRansform Acoustic Coding) processor, which employs a mixture of data reduction and data compression techniques to 'represent' original 16-bit data in just one-fifth of its original space.

ATRAC increases recording efficiency



Denon's new DMD-1000 incorporates the latest version of ATRAC and a unique disk defragmentation system.

using well-understood psycho-acoustic principles to decide which signals are audible and which may be safely discarded, thereby reducing the 'density' of the digital data. For example, individual sounds are only audible

if they persist above our threshold of hearing; and, furthermore, if they're not 'masked' by the presence of louder, adjacent sounds.

The latest ATRAC 4.5 algorithm is obviously based on older versions employed in earlier MD recorders — which, for the sake of argument, we'll call ATRAC 2.0. All ATRAC processors begin by filtering the audio signal and representing it using one or more of the 52 so-called Critical Bands. These Critical Bands are spread non-uniformly across the audio range and are defined by human ability to discriminate between several sounds of a similar frequency. Through the bass, a Critical Band might only be 100Hz wide, through the midrange it may expand to 200Hz while, at high treble frequencies, a Critical Band may cover 2-3kHz.

### The bit pool's run dry

Using ATRAC, the MD recorder will combine different musical signals occurring

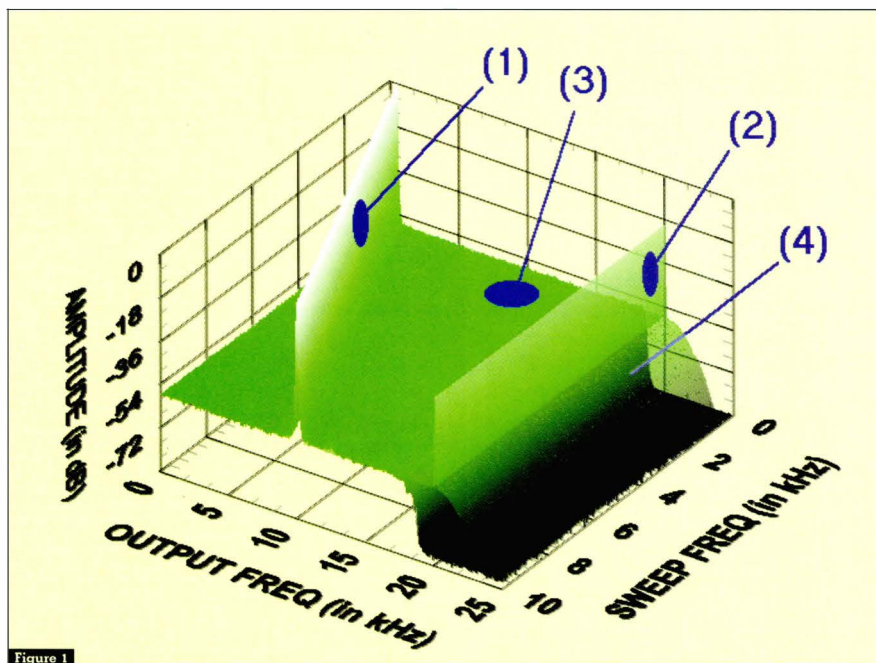


Figure 1



Sony's latest MD decks, like the MDS-JE520, use ATRAC 4.5 — but will they reproduce old MDs as they were recorded?



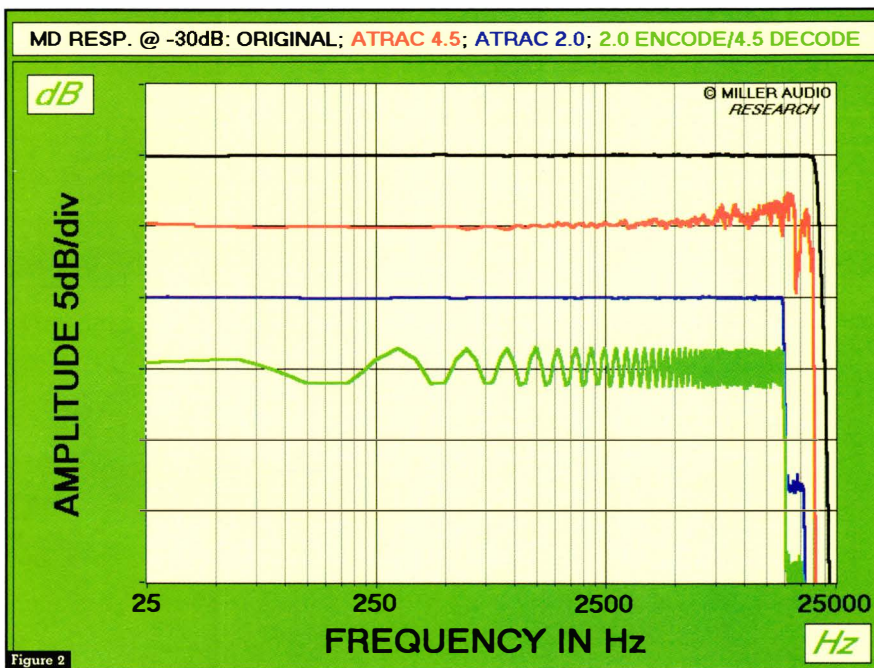


Figure 2

within one Critical Band as a single signal. Its resolution, however, is decided on a dynamic basis according to the nature of the music at hand. ATRAC is placed under greatest stress when saturated with high-level, rapidly changing signals, causing its available 'bit-pool' to run dry and musical information to be selectively discarded.

This can be demonstrated graphically (Fig.1) by feeding the MD recorder a complex pattern of signals, a mix that contains a 500Hz-10kHz sweep (1), a continuous 20kHz tone (2) and a low-level 'surface' of broad band detail (3). My graph shows this 'input' pattern as a semi-transparent overlay on the recording decided upon by Sony's original ATRAC 2.0 algorithm (fitted to players of two-three years' vintage).

In this case, the depletion of bits available to describe this complex 'music' results in a

universal loss of all high frequencies (HF) above 17-18kHz (4). The 20kHz tone has completely disappeared. Importantly, if this pattern were recorded on CD-R/RW, then the original and copied images would be indistinguishable.

**Important decisions**

Remember, this represents the performance of MD two generations ago. ATRAC 4.5 is the latest version of the encode/decode algorithm used by MD recorders like Sony's MDS-JE520 and Denon's chunky DMD-1000, and here we see important differences in the 'decisions' made. For example, where the music is uncomplicated and largely unchanging in content and dynamics, both versions of ATRAC will process successive samples across the widest 11.6msec time block, achieving a frequency resolution

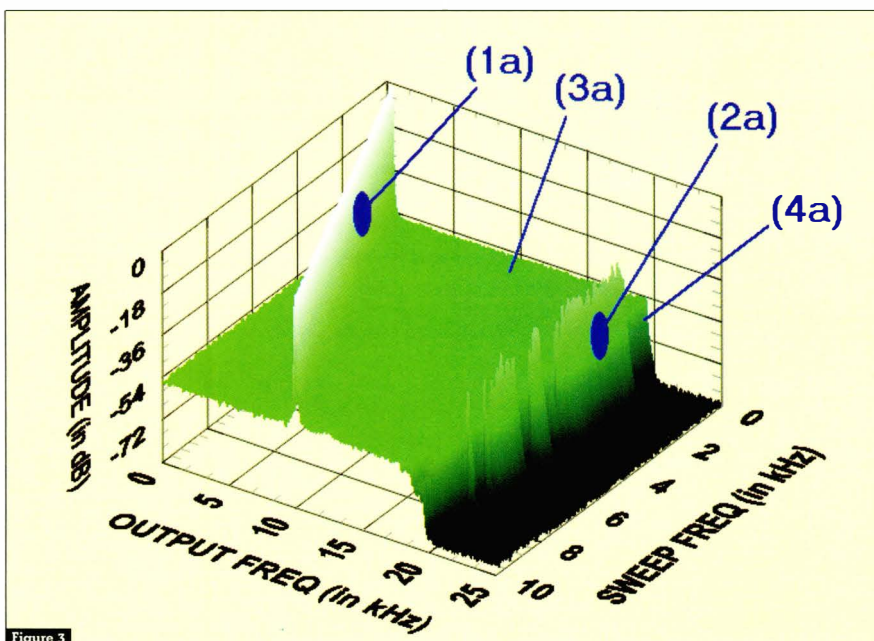


Figure 3

within the narrowest Critical Band. These are optimum conditions for the MD recorder where its flat 20Hz-20kHz frequency response might seem to offer a comparable performance to CD (Fig.2, black trace).

Where the music signal is changing rapidly, time blocks as short as 2.9msec or 1.45msec would have been selected by ATRAC 2.0 to 'keep up' with those dynamic variations. Its frequency resolution suffers as a result, leading to a flat but restricted response that stops short at 15kHz (blue trace).

ATRAC 4.5, however, also brings what Sony describes as 'adaptive high frequency control' into the equation. This extra bit of maths controls the HF content of the incoming music prior to recording and mimics, I am told, "the behaviour of the human ear". ATRAC 4.5 attempts to reduce the distortion associated with the impaired coding accuracy of sustained HF signals even if, in practice, there seems to be some modification of both frequency and phase.

This is reflected in the red (ATRAC 4.5) response trace which, although recorded under identical conditions as the blue (ATRAC 2.0) trace, has evidently stretched out closer to the HF limit of the input (black) trace. And yet the response has taken on a more erratic, noisier appearance by way of playback. This is partially a measurement phenomenon, caused by a corruption of the signal's original phase.

Just as interesting is the behaviour of an old MD recording replayed on today's generation of machine. Both the new Sony and Denon MD recorders produce the inexplicably rippled, green response (+/-1.5dB at 313Hz) when replaying the -30dB response disc recorded on an earlier (ATRAC 2.0) generation machine. This evidence, though restricted in scope, suggests that today's MD recorders may not enjoy 100 per cent backwards compatibility with recordings made on earlier units. Before going to press there was insufficient time to solicit Sony's response to these findings, but we will print it in the next available issue.

**A noisy surface**

Finally, let's look at how ATRAC 4.5 deals with the same complex pattern of signals seen on the first 3D plot (figure 3). Again, the original 500Hz-10kHz sweep (1a) is returned intact but now the 'surface' of broad band detail (3a) is evidently noisier, rather like the red response in the previous plot. By way of recompense, this surface now extends close to the original 20kHz limit (4a) instead of being cut short as it was with ATRAC 2.0 (4). Nevertheless, the somewhat inconsistent nature of ATRAC's additional code is also revealed in the erratic appearance/disappearance of the 20kHz tone (2a). Quite how all this effects the sound quality of players like the Sony MDS-JE520 and Denon DMD-1000 will be determined in *Hi-Fi Choice's* next group test of MD recorders. ▲

Do you have a subject matter for the Oasis? Please contact P.Miller via e-mail on 100576.3021@compuserve.com



# UNLIKE MOST SPEAKER COMPANIES, WE BUILD SPEAKERS. WE DON'T BUY THEM.

My, my. Things nowadays are not always what they're

cracked up to be. We're almost positive

it all started with the egg-free egg. Yum.

Then came caffeine-free coffee, with the

taste gone, too. In a matter of days, the

conscience-free politician followed, who

within moments was justly run over by his

own badge-engineered car. And now, here

comes the ultimate horror: The Dynaudio-

free Dynaudio speaker.

No way! Just kidding! In fact, it's just the

other way around; 90% of all other high-

end manufacturers do not painstakingly

develop and build their own speakers at

all. Instead, their designers tend to use

our justly famous Esotar and Esotec

tweeters, only to sell them to you, the

truth-loving English public, as their own

most expensive creations. We, being true

Danes, still believe in a 100% in-house production.

Every single part of our beloved Contour 1.8 (the one

our works raccoon Knudsen is just checking

for alien intruders) is still meticulously hand

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craftsmen.

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# Personal

When is a high-end cartridge not a high-end cartridge?

When, **Paul Messenger**

reckons, it costs only £550 like the Clearaudio Sigma . . .

# Messages

**T**hose who read my recent group test of high-end pickup cartridges (*HFC* 175), might recall I developed quite a soft spot for a pricey model called the Signature, from German manufacturer Clearaudio. The guys over in Erlangen-Buckenhof obviously noticed, because now I've just got my hands on the company's new Sigma.

I guess Clearaudio considers it a budget model. And I suppose it is when you note that Clearaudio's next most expensive design is the £745 Gamma, and the flagship is the £4,900 Insider. For many British hi-fi consumers, however, £550 is a pretty price to pay for a needle.

It's a sad fact of life that top-quality vinyl replay is an increasingly expensive business these days, in view of the fact that a cartridge wears out after a few years' use. (Perhaps it's not so different for CD enthusiasts, who are constantly tempted to upgrade for the latest technical refinements.)

## Sigmatic transmission

The Sigma looks like every other Clearaudio I've encountered. That's a polite way of saying it's a pretty weird affair: its shape reminds me of nothing so much as the business end of a hammer-head shark. And just like those other Clearaudios, it's a pain in the proverbial to install! At least it spares installers the nerve-jangling experience of handling an unbodied 'nude' cartridge.

The stylus and cantilever are pretty well shielded from accidental damage, so long as you can remove the stylus guard successfully. I did achieve this, but not without some anxious moments, as this rather poorly-designed protector grips too hard and doesn't fit too well. It might seem picky to mention this, but when you're handling a fixed-stylus moving-coil cartridge costing over £500, you need all the help you can get.

At least the guard can stay in place while the cartridge is fixed in the headshell, though again, separate nuts and bolts don't make life easier. Many other designs build the screw threads into the cartridge body. However, the four signal connection pins are easily accessible, and clear markings on the hammerhead help to achieve accurate alignment.



## Armed and primed

Like all other Clearaudios, the cartridge is significantly taller (from stylus to headshell) than most, so a partnering tonearm's bearings will need to be higher than usual to keep the arm parallel with the record surface.

The Sigma comes with full calibration data, including recommended tracking downforce specific to every individual unit. Our sample was quoted at 2.6g, which sounds like a slightly higher mass than normal, especially as another leaflet quotes a 2g target and warns against exceeding 3g. There is no information concerning the stylus tip, but a line-contact type should certainly be happy at 2.6g, and the Sigma's tracking was reassuringly secure throughout my listening.

For all its high tracking weight, I was surprised to find the Sigma a much lighter design than the Signature. For the latter I had to dig out the heavy (140g) counterweight for my Naim ARO tonearm; for the Sigma it was back to 110g plus a bit of headshell ballast to achieve the requisite 2.6g.

## Hone that tune

Having finished my preparations I dropped the cartridge into an LP's lead-in groove, and was struck immediately by the wonderful top-end detail, focus and clarity. Perhaps because of the 'brand new' factor, or perhaps because of a tonal balance on the bright side of neutral, I started picking up new details

from all sorts of familiar records, and the imaging was beautifully etched.

My usual Linn Arkiv 2 has exceptional top-end control, but certainly didn't match the Sigma for sweetness, sonority or sheer detail retrieval. (To be fair, it's seen pretty heavy use for at least nine months.) Clearaudio's Signature didn't hang around after the group test was finished, but I suspect the Sigma's top end would give its own sibling a run for the money.

Sadly I can't raise the same enthusiasm for the Sigma's bass, which is lightweight and vague compared to those models mentioned above. When I say lightweight, I am describing its character as much as criticising. It doesn't suit my loudspeakers, which have an exceptionally dry bass, but they are the exception. Most larger speakers tend to be a bit fruity at the bottom end, and with such designs the Sigma should make a good match.

## The price of bass?

The vagueness is the real problem as far as I'm concerned. Bass superiority, in terms of power, drive and authority, is probably the main reason why I've stayed loyal to Linn cartridges over the past couple of decades. This quality also distinguished Clearaudio's Signature; the Sigma simply doesn't belong to the same club. It has bass, to be sure, but it plays a subordinate role to the midband.

Perhaps it's something to do with the high level of internal damping, or maybe there are clues in the measurements of vertical and lateral crosstalk, which show some uncertainty around the 50Hz mark. Measurements also show that the Sigma's top end doesn't have quite the extension of the Signature; the high frequency resonance shows up at 12kHz rather than 14kHz.

Still, when you consider the Sigma is only a third the price of a Signature, you wouldn't expect it to offer the same level of performance. It's a very likable cartridge indeed, especially through the mid and treble, and if your system favours its tight, dry bass character. I don't have enough recent experience of other cartridges around the £500 mark to comment on absolute value for money, but Sigma certainly has enough of the Clearaudio midrange magic to secure it a place alongside the frontrunners. ▲

*Absolute Analogue* ☎ (01425) 654488



# Write on!

HERE'S YOUR CHANCE TO STAND ON THE SONIC SOAP-BOX, COURTESY OF YOUR PALS AT HI-FI CHOICE!

## LETTER OF THE MONTH

### Nature cannot be fooled

Your April edition was the first hi-fi magazine I have read for years, and although I am obviously out of touch with the latest developments in the world of sound, one thing does not seem to have changed. And that is the audiophiles' perpetual dissatisfaction with the equipment they own already.

A great deal of hype over new products appears to leave many listeners discontented with their systems, and obliged to buy the latest upgrade in order to secure a marginal, or perhaps imagined, improvement. Such upgrading will normally incur a substantial financial outlay; and in no time at all the new gear, just like the latest computer, will be superseded. The vicious circle begins again, particularly for those with more money than sense.

At what point does one ignore these reviews and start listening to music? After all, this is what hi-fi is purchased for. For most people with reasonably good or first-class apparatus, the advantages of upgrading are probably minimal, if indeed there are any advantages over and above aesthetics or status. Very nice indeed for dealers and manufacturers, but often quite unnecessary from the buyer's point of view.

It's just another example of artificially stimulating demand, using methods no different from any other industry.

*P H Stones, Ipswich, Suffolk*



Cash in the dealer's hand: is hi-fi upgrading an unnecessary expense?

### Definitely, maybe

Last week, going through your Best Buy '97 issue, I read the comments about the Acoustic Precision Eikos CD player. After reading the summarising sentence, "this is definitely a can't-live-without-it product", I had to hear it in action for myself.

I arranged a demo with a shop that also stocked Dynaudio Contour 1.3 speakers

and Bryston pre/power amps, which I have also always wanted to hear. Luckily the shop also had a Teac transport which I use, so I took my Audio Alchemy V.3 DAC and van den Hul interconnect cables.

All I can say is: what a load of rubbish. No detail, no depth! What I heard was the biggest disappointment — I can't

understand how you can recommend this piece of equipment as "best ever". My son's Rotel 855 was more musical and the Teac and Audio Alchemist combination walks all over it. No contest!

I think you should be a bit more honest to your readers, or have your ears checked and try to listen to some decent equipment. Why not read the reviews in *Stereophile* and choose what's available? Or you're always welcome to come and listen to my system.

Also, Alvin Gold's comments on the Magnum Class A amp (*HFC 175*) were disgraceful. A friend of mine has this amp, with Rogers LS1 speakers, and the sound is wonderful. Alvin should stick to testing toasters and kettles — I don't think he likes anything unless it comes from the Absolute Sounds stable. Why doesn't he try locking himself in a room with Densen and see how long he can put up with that sound? With a Magnum Class A you could listen to anything for days, and it wouldn't offend your ears.  
*W Kayacan, Bristol*

*Alvin Gold replies... I could try reasoning with you on the basis of my track record, which should tell you I don't give a toss about names and reputations, only about how products perform on test. I might also draw your attention to the fact that my reviews have generally been favourable to Magnum products, with two Recommendeds in three outings.*

*You might like to know that I know nothing about toasters, though I admit to being a bit of*

### INTERNET USERS

Why not catch up with the latest gossip on our Web site? Point your browser at [www.hifichoice.co.uk](http://www.hifichoice.co.uk).

### OUR ADDRESS

The Editor-in-Chief, *Hi-Fi Choice*,  
19 Bolsover Street, LONDON W1P 7HJ.  
☎ 0171-917 5512.

✉ [editorial.hifichoice@dennis.co.uk](mailto:editorial.hifichoice@dennis.co.uk)  
We reserve the right to edit all letters. Concise correspondence preferred! All letters must include address and daytime phone numbers.

## Green piece!

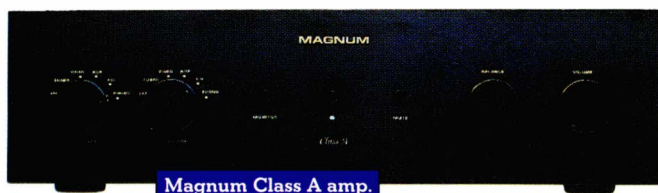
The best letter every month wins a stylish *Hi-Fi Choice* polo-shirt. This fine example of 'audio couture' is offered in attractive green with a discreet logo. One 'large' size fits all. A definite talking point at the local hostelry!



*a whizz on kettles. I have re-read the offending review carefully and can find nothing to suggest that you shouldn't enjoy what you hear. And regarding your comment that I only like products from the Absolute Sounds stable, this is demonstrably misplaced. Everyone knows I can't stand horses.*

### Phased and confused

Regarding the great 'phase linear' versus 'linear phase' controversy (*Write On*, 178), you may be interested in an advertisement in the USA's *High Fidelity* magazine of July 1972. The company in question was called



Magnum Class A amp.



The experience of sound.

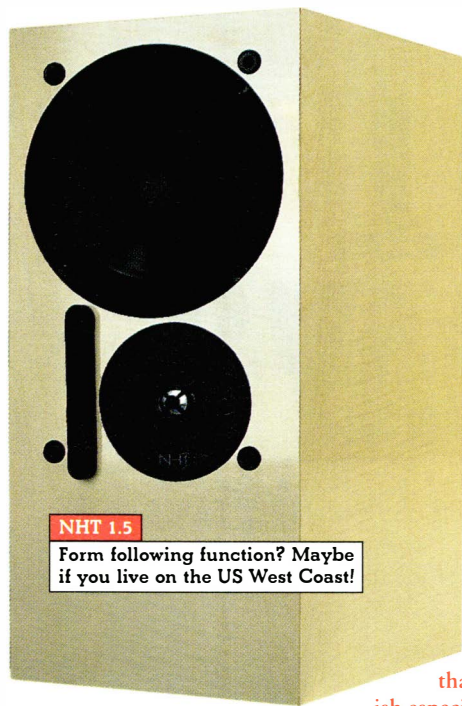
☎ 01622 672261

✉ Freepost ME15 6BR

Ⓜ <http://www.kef.com>







NHT 1.5

Form following function? Maybe if you live on the US West Coast!

bookshelf speaker in HFC 177. I'm glad that Paul and the listening panel liked the speaker despite the odd shape and finish. The shape is based on 'form following function' and the reviewed sycamore finish, or mahogany high-gloss laminate, is available only for the angled line of products, ie, audiophile series. I agree with Paul that the sycamore finish especially needs some getting used to, but 80 per cent or more of our business is with the high-gloss black laminate finish. Artsy folks tend to like the former. Plus, population near the coastal region in the US prefer this type of finish and most new houses built in the US tend to have white-wash wood finish trims and décors.

Eric Sub, Director of International Sales & Marketing, NHT, USA

Phase Linear Corporation, which promoted an amp called the Phase Linear 400. Still, at 700 Watts per channel, I suppose I wouldn't really have cared how linear the phase was! Stephen Smith, California, USA

We decided to nip this disagreement in the audio bud and call in the experts, in this case Dr J H Marshall, Associate Editor of Oxford English Dictionaries, who replied: "The construction 'linear phase' and 'phase linear' are both perfectly possible, but have different implications. 'Linear phase' is the ordinary collocation of linear as an adjective and phase as the noun which it modifies: it denotes a phase which is linear. It would in principle be possible to reverse these, using linear as a postpositive adjective, but this construction is almost entirely restricted to formal and archaic contents.

"The alternative possibility is that the adjective is not modifying the noun, but that the noun is modifying the adjective. In this case, 'phase linear' would be quite regular, but would mean 'linear with respect to phase.'

"If the use of 'phase linear' is in fact a formal reversal designed merely to make a particular product range sound exciting, and linear phase is in fact what is being described, then your correspondent (HFC 178) has a point."

**Arty farty**  
Thank you and Paul Messenger for the review of NHT's 1.5

Mr Trevor Griffiths' letter (Help, HFC 177) and your reply to it, have great resonance with the hi-fi situation of my wife and I. We have had a life-long interest in music and owned a system which comprised a Naim Audio NAC72 Hi-Cap and Ruark Crusader 2 speakers, together with a Meridian 200/263 CD player.

I was recently loaned a 211 valved Gamma Acoustics Rhythm integrated amplifier, which I tried out with my Crusader speakers. What a jaw dropping experience! The sound and imagery were sensational. Acoustically, the speakers disappeared, leaving the impression of real musicians. Riveting stuff. What really surprised me was how good rock music sounded. The bass was solid and deep and it was so much easier to understand the singers. My wife and I sat up into the wee hours playing CD after CD.

Now the Naim gear is gone and the Rhythm is a permanent fixture. True, we have not got

the absolute loudness that we had from the Naim rig, but the gains more than compensate for this. So my advice to Mr Griffiths is to give valves a try.

Another problem with audiophiles is that we forget exactly what we are striving to achieve. We recently attended a church concert in Piccadilly, London and were enchanted by the performance of music of Haydn, Schubert and Granados. The sound was crisp, powerful and alive. Hi-fi equipment has quite some way to go before it can recreate the sound of a concert grand in your living room! T Fox, Co. Westmeath, Ireland

**Stand by your stand**

I have long been interested in hi-fi and find it a rewarding and interesting hobby. Informative magazines like yours more than help to maintain this interest and do a wonderful job for new and old enthusiasts alike.

I recently became inquisitive about the advantages of equipment supports — in particular the Townshend support. I will, I suspect, be eternally grateful to magazines like yours for bringing this stunning hi-fi-enhancing accessory to my attention.

Place any piece of hi-fi kit upon it and the difference is clear. There is an incredible openness and realism about the stand. In addition everything seems so much more stable.

Equipment supports have the ability to make cheap hi-fi look expensive and expensive hi-fi look even better. But it's what they do to the sound that will have the true listener enthusiastic and eager to purchase.

So keep up the good work — informative comments on established and innovative products are greatly appreciated. Colin Whiteley, West Yorkshire

We shall indeed endeavour to keep up our good work. As chance would have it, there will be a group test of equipment supports in the next issue of Hi-Fi Choice!

**Boy power**

I am writing in response to the article (HFC 179), written by Charlotte Ricca. Before I even started to read it, I knew that one of the first things I would read would be the word testosterone. What is the female fasci-

nation with this word, and what has it got to do with hi-fi? I have built up my system over a number of years, and every upgrade has been in the quest for an improvement in the sound. Also, I don't have a fixation with spinning vinyl.

And no, my wife will never buy hi-fi in our house, because of the "I can't tell the difference" syndrome. If I left it to her, I would be forced to listen to dreadful mini systems.

As for your statement about outdated images, when are women going to relinquish their outdated images of men? No, we are not all the same. I do not like football, or boozing in pubs, or beating up women, or making my wife's life a misery. I also cook, as can many other men, and we don't all go around calling women bimbos.

When women buy hi-fi it's for its looks, smallness and cuteness and not for its music. If you are going to have a woman writing in your magazine, could it be about music and hi-fi? Tell her to keep her opinions to herself. Mr G Barker, Sheffield

Charlotte Ricca responds... I'm wondering if in fact I have an alter-ego who coincidentally wrote an article in another hi-fi magazine which spoke of the connection between hi-fanatics and chauvinism. Maybe it is this feature that you are referring to, as I was simply questioning, as you point out, why women are more concerned with the aesthetics of hi-fi than with sound quality. However, I'm glad you make such a wonderful husband, and hold women in such high esteem — just as long as we keep our noses out of your hi-fi, eh?

**It's A Man's World**

Charlotte Ricca investigates why there is such a difference in the way men and women view hi-fi. Because the sexes.

The purpose of advertising... Charlotte Ricca investigates why there is such a difference in the way men and women view hi-fi. Because the sexes. The purpose of advertising... Charlotte Ricca investigates why there is such a difference in the way men and women view hi-fi. Because the sexes.



# WHAT SHALL WE PLAY TODAY?

Don't worry if you're confused by HDCD, DVD and SACD. As numerous new music formats arise to challenge CD, **Alvin Gold** and **Tim Frost** are here to explain what all the fuss is about.



DJ David Freeman and his collection of Quadraphonic albums and equipment — spiritual ancestors of today's new digital surround sound formats like DVD and SACD.

**W**hen Compact Disc (CD) was launched in 1983, it was promoted by Philips under the slogan of “perfect sound, forever”. Of course it wasn’t perfect, and never could be, but that has not prevented the sales of 500 million players and 10 billion discs.

Designed as a standard just within the technological grasp of its launch era, CD samples sound 44,100 times a second (ie at a frequency of 44.1kHz), and each sample is allocated one of 65,536 possible levels (this figure, which is two to the power of 16, equates to 16-bit resolution). These specifications are sufficient to capture sounds up to just over 22kHz, over a 96dB volume range.

These figures were not plucked from the ether, but determined according to prevailing (if simple-minded) models of the human hearing process. The formal specification was encapsulated in what is known as the Red Book standard, and although improvements have always been possible, the fundamentals were effectively written in stone.

## The pursuit of happiness

Over the years, almost every stage of the CD record/replay process has been enhanced. Dedicated transports extract a cleaner, less error-prone datastream, and digital filter algorithms have improved greatly. Some are designed to emulate the gentle slopes of analogue systems by ‘inferring’ information above the 22kHz upper limit from the music waveform below. (For example, Pioneer’s Legato Link digital filter.)

At all times, though, the Red Book has remained inviolate, and compact disc has become accepted as a world standard. Not just for audio, either: in the guise of CD-ROM the five-inch disc has made its mark on the computer world.

One of the most radical enhancements to CD has been developed by the US-based company Pacific Microsonics, Inc. Its proposition, High Definition Compatible Digital (HDCD), is a package of companders, limiters and filters which are invoked according to a real-time analysis of the music signal dur-



ing recording. Any actions taken by the system while recording are fully restored on playback through a system equipped with an HDCD decoder. There is a large and growing number of HDCD-encoded recordings, and players like the new Arcam Alpha 9 (reviewed on page 10) are equipped to play them. See the Web site at [www.hdc.com](http://www.hdc.com) for more information.

**A bit on the side**

There has always been unease about the ultimate sonic potential of compact disc, but it was in the professional studio world that the 16 bit/44.1kHz paradigm first came under real pressure. CD's 16-bit arithmetic has always been inadequate during mixdown, yielding aurally unsatisfactory results by the time feeds from several microphones have been positioned between two channels, and their levels adjusted as required.

In fact, it quickly became normal for mixing desks to operate at 24-bit resolution or greater, and to truncate the digital word lengths to 16 bits only when mastering, for example. The latest master tapes commonly use 20-bit word lengths, and many studios are now gearing up for full 24-bit resolution and 96kHz sampling frequency. (This means the sound signal is sampled 96,000 times per second, and each sample can be assigned one of 16,777,216 values.)

Probably the first product to raise awareness of improved resolution was Pioneer's D-07 DAT recorder (*HFC* 133). Its sampling rate was doubled to 96kHz for an audio bandwidth approaching 48kHz — when recording from an analogue source. DAT's 16-bit quantisation was retained, and the system became very popular in Japan.

**Dawn of the new disc**

Around the time Pioneer unveiled the D-07, in the mid '90s, the first foundations of the Digital Versatile Disc (DVD) were being laid. From two competing proposals (one Toshiba/Time Warner's, the other Sony/Philips's), emerged a 'next generation' digital storage medium which would have the ability to handle multimedia data — sound and vision. The DVD standard turns out to be a family of standards within one.

To the world at large, DVD is a high-quality replacement for LaserDisc or even VHS tape, with enhanced picture quality, interactive control system, alternative languages



**Pioneer's D-07 was the first domestic hi-fi component to offer a 96kHz sampling rate.**

**DVD'S FOUR DATA STORAGE OPTIONS**

**A:** The single-sided, single-layer DVD holds 4.7 Gigabytes (4,700 Mb).  
**B:** The single-sided, dual-layer DVD holds 8.5 Gb, as read by two differently-focussed lenses.  
**C:** The double-sided, single-layer DVD holds 9.4 Gb.  
**D:** The double-sided, dual-layer DVD holds a whopping 17 Gb of digital data.

and subtitles, even various camera angles. The options of double-sided discs and multiple information layers increase data capacity and playing times (see box above).

Perhaps surprisingly, potentially very high quality, 24-bit/96kHz two-channel audio has been written into the specifications. DVD-Video is already equipped for a minimum of two and a maximum of 7.1 channels. (The '0.1' refers to a dedicated low-frequency effects channel, for use in home cinema.) Multi-channel sound is available via systems of 'data-reduced codecs' such as MPEG2 Audio, Dolby Digital and DTS, which are explained below. (A 'data-reduced codec' is a system of encoding and decoding a multi-channel signal which takes up less storage space than all the channels together.)

Another option within the DVD spec is sound stored as a 'linear Pulse-Code Modulation (PCM)' data stream, like that of ordinary CDs. There is a choice of 16, 20 and 24-bit word lengths and 44.1, 48 and 96kHz quantisation. As you can see, DVD deserves its soubriquet as a 'versatile' disc.

**Reduced for quick sale**

Data reduction is anathema to audiophiles, who can't stand the thought of throwing away sound information. The boffins can assure us that discarded information is inaudible, but it counts for nothing: the same was once said about audio information above 20kHz, not considered important for the good old-fashioned CD. Now there's a consensus that the lost frequencies above 20kHz do detract from audio performance.

Of the data-reduced codecs, DTS sounds best, mainly because it throws away the least amount of data. (Dolby Digital, MPEG2 Audio and DTS data rates on DVD are typically 384, 640 and 1,536 thousand bits-per-second respectively). While DTS might appear to challenge any DVD Audio format that emerges, the most recent auditions show that the most natural role for DTS is as a multi-channel home-cinema process.

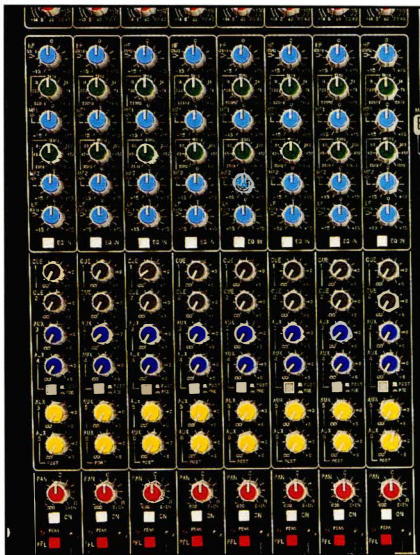
In addition to being available as a movie soundtrack option on DVD, DTS is also available on some LaserDiscs and from CD-

**WHICH DIGITAL DISC PLAYS WHERE?**

Disc Format	Will discs operate in today's CD players?	Will today's CDs operate in players for this format?
CD, CD-Text, CD-Extra	Y	-
DVD-Video (aka DVD)	N	Y *
CD-R	Y	Y
Super Audio CD	Y (2 channel mode only)	Y **
DTS music discs	Y (via digital output)	Y
DTS DVD (proposed standard, not yet finalised)	DVD-Video **	Y **
DVD-Audio (proposed standard, not yet finalised)	N **	Not known; perhaps in decimated (eg 2-channel) form
Video CD	N	Y & DVD-Video players

\* Dual pickup DVD players will play CD-Rs  
 \*\* Not confirmed





Recording studios are already gearing up for the 24/96 revolution. More knobs to twiddle...

like discs which will play on any CD player — provided they have a digital output to feed an external DTS decoder. DTS surround sound graces a respectable catalogue of encoded films, which have been produced in largenumbers since *Jurassic Park* introduced the DTS system to the cinema world.

Music is less well served by DTS. Most early music discs were made from poor-quality, four-track masters dating from the '60s and '70s, often with each track pan-potted into one corner of the room, which made them sound ridiculous. Even recent recordings, such as the Eagles' *Hell Freezes Over* (available on 12cm CD-compatible and 30cm LD discs) are dogged by peculiar mixes.

**Music for the Millennium**

The first true high-resolution sound-system on the market is known as Digital Audio Disc (DAD). It is based on the 24-bit/96kHz DVD Video standard, and was unveiled in our news pages of *HFC 176*. A token range of DAD discs is already available on the label of Classic Records, a US specialist in audiophile recordings. The discs themselves are drawn from the catalogues of various US audiophile labels. In the UK they are available from Vivante London — ☎ (0181) 977 6600.

Other high resolution discs, not yet on sale in this country, hail from Pioneer. These are true 24-bit/96kHz digital recordings made using banks of 96kHz DAT recorders, linked together to generate the required word lengths, and fed by dCS 24/96 analogue-to-digital converters. They are known as Advanced Audio Discs (AAD), and like DAD will play on any DVD player. However, most DVD players released to date don't offer digital-to-analogue converters (DACs) of 24-bit/96kHz quality, and when faced with a 24/96 disc, such a player will reduce resolution to its own highest level.

Proposals for dedicated DVD Audio discs will be published shortly (see box overleaf). The current betting is that it will offer the same maximum resolution as DVD Video, but with an option of multiple channels,

some possibly coded with a reduced word length. Like DAD/AAD it probably won't be backwards-compatible with CD players.

As with all DVD discs, DVD Audio will be constructed from two 0.6mm discs (half the thickness of CD) stuck back-to-back, to allow double-sided, extended playback. However, the laser optics specified for CD are designed for discs 1.2mm thick. There are two possible technical fixes: a disc substrate (manufacturing material) with a different refractive index, to bend the laser's light more; or a disc in which one half-thickness-disc is reversed. More about this below.

If neither fix is implemented we will be stuck with two very different types of disc: CD and DVD-A. As a consequence, record shops and music buyers will have to cope with two sets — or 'inventories' — of prerecorded music discs.

**Superaudiofragilisticism**

Enter stage right another 12cm-diameter disc proposal, aimed at the same 'CD replace-

ment' market. This is the Super Audio Compact Disc (SACD) from the Sony/Philips stable, which is positioned as a competitor for DVD-Audio, and was previewed for readers in *HFC 175*. SACD is not a DVD variant, but a completely new music storage format using Sony's DSD (DirectStream Digital) coding. This process uses a one-bit data stream and was originally designed for archiving of master tapes.

SACD employs one-bit processing with 64-times oversampling, to deliver a claimed 120dB dynamic range (lower than DVD-A or AAD/DAD), but a frequency response of over 100kHz (better than the opposition). This applies to a two-channel signal recorded without data reduction, but the same specs are available for a six-channel signal stored via lossless compression.

On the back of the disc there is a fully-reflective data layer which should be readable by any ordinary CD player. This is covered by a semi-transmissive layer containing the high-density, high-resolution data. An SACD

**CAN SURROUND SOUND WORK FOR MUSIC?**

**I**n a live concert, we hear not only sound waves radiated from the instrument of performance, but also delayed ambient reflections from all directions, which have characteristic timbral and other variations. Combined, these weave the rich tapestry of sound that a live performance can provide. Reproducing this "all around sound" through two speakers inevitably diminishes the effect, adding muddle and constraint.

Quadraphonic audio was a four-speaker system introduced in the '70s, with high hopes of enlivening recorded performances. It failed ignominiously, thanks to its engineers' incomplete understanding of the psychoacoustics involved, and the limitations of existing reproduction technology, in particular vinyl LPs. That said, some of the core ideas from quadraphonic systems were reprised in the Dolby Surround home cinema system. Ambisonics was a much more sophisticated system, invented by the late Michael Gerzon, a distinguished recording engineer and mathematician. By use of a special microphone called the Calrec Soundfield microphone, Ambisonics aimed to reproduce any point in an original soundfield — in three dimensions if so desired!

Now multi-channel audio has made a strong comeback in the various 5.1 and 7.1 channel surround-sound systems developed primarily for home cinema but holding out the promise of a new approach to music.

There is no consensus view on whether multi-channel operation is desirable for audio, but my personal view is that it is a necessity, and that so much reproduced audio sounds artificial precisely because two-channel stereo is so at odds with what we hear in real life. When sound is recorded effectively in multiple channels, and reproduced with equal aplomb, it embodies a presence, vitality and complexity not available otherwise. Above all, it makes life easier for the listener — perhaps because it presents sounds the brain instinctively recognises as real. AG

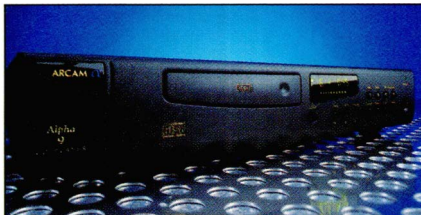


1970s music, 1970s surround sound (above); 1970s music, 1990s DTS surround sound (left).



Millennium's 2.4.6 decoder brings DTS music surround to the living room. (See p16.)





**Arcam's Alpha 9 CD player (p10) is HDCD compatible and, in theory, 24/96 ready.**

player can focus on the semi-transmissive layer to read the 'full specification' code.

If the technology works, SACD will be a powerful contender, since existing CD users need not buy new hardware to enjoy the discs. Furthermore, the digital datastream closely emulates an analogue waveform, greatly reducing the amount of processing required to turn digits into music.

However, though SACD proposals include powerful new anti-piracy measures, on the minus side recording studios will have to spend substantial amounts re-equipping for recording and mastering. Also, compatibility with DVD players is largely unknown.

**What's going on?**

At the time of writing, SACD and DVD-Audio remain just good ideas, but DAD/AAD discs exist along with the DVD-Video hardware. The latter, as reviewed on page 46 of this issue, are mainstream models constructed from low-cost components, to be priced comparably with the better mass-production CD players. Will it be feasible to use them in high-quality audio systems, either as sold, or with a quality bolt-on DAC?

It seems like an innocent question, but



**DVD PLAYERS ON TEST**

Turn to page 46 to see how the latest DVD players compare for CD sound quality!

what a can of worms awaits those who seek to give an answer. The problem is that the digital outputs on most DVD players (be they optical or electrical) reduce an output datastream to 20-bit resolution, and downsample to 48kHz maximum, limiting the sound enhancements an outboard DAC can bring.

Worse still, this is not because of any failing in the S/PDIF digital interface standard, but rather as a sop to the music industries, to frustrate those who would copy high-quality 24-bit recordings. Indeed, Pioneer produces integrated circuits with the full-quality S/PDIF receiver and transmitter hardware, and two of their players (tested this issue on pages 49 and 50) output the full 24-bit/96kHz from their digital outputs. Why can't every player do the same?

DVD and SACD, like CD before them, employ all the technological resources available. Much of the technology was developed originally for the computer industry. The new formats have been driven by the availability of higher-density, more powerful, yet cheaper integrated circuits (ICs), and by comparable advances in disc manufacturing and laser optics, DSP and digital filter technologies, as well as conceptual improvements in the understanding of human hearing.

**Revolution song**

Will DAD play the Moses role? Is it destined to lead the recorded sound industry towards a new, revitalised age, without partaking of the spoils of victory? We cannot know at present. However, a bright future now looks assured for the kind of recorded sound for which most audiophiles and music lovers would gladly remortgage their homes.

Future issues of HFC will investigate the potential impact of music software stored at 24-bit resolution and sampled at 96kHz. However, the question remains: is a present-day DVD player an appropriate purchase, given the current state of the art? For many videophiles, this will be a non-issue, as the range of native DVD titles is still limited. The main criterion for audiophiles, on the other hand, must be a DVD player's performance with CD — a genre of software which is most abundant. Turn to p46, where our DVD group test aims to provide the answers. ▲

**THE PAINFUL BIRTH OF DVD AUDIO BY TIM FROST**

The draft specification for DVD-Audio should be emerging this summer and the early indications are that DVD-Audio's specifications will follow in the footsteps of DVD-Video, with a few important variations.

DVD-Audio will take on the basic principles of the DVD-Video format, which means: high capacity; the ability to store music, video and PC software on the same disc; and ensured full interchangeability between all types of DVD discs and all types of DVD player.

To this will be added some new features demanded by the music industry. Perhaps the most talked-about feature, likely to be included as an option, is the dual-layer disc with separate CD and DVD layers.

Thus one disc can be played on any CD player as normal, or on a DVD player to get higher-quality stereo and multi-channel sound, plus access to any additional video and data features available.

The CD/DVD compatible disc has been the main plank of the Sony/Philips Super-Audio proposal, to allow record labels to produce a single version of an album rather than separate CD and DVD versions.

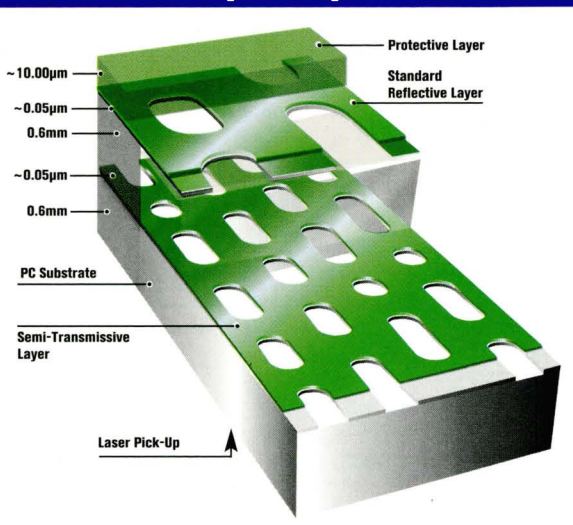
Dual-layer won't be compulsory though, and the CD/DVD option is unlikely to be taken up by many record labels in the early stages of DVD-Audio. Mastering and pressing a combined CD/DVD disc costs around 10 times more than for CD, and that is too much additional cost for a mainstream album where nearly all the buyers will be using CD players. So for that purely economic reason, record labels will still be majoring on CD albums and releasing separate DVD versions.

Another key difference in the DVD-Audio specification is that it standardises audio in multiples of CD's 44.1kHz sampling rate (44.1kHz, 88.2kHz and 192.4kHz). DVD-Video, meanwhile, offers only 48kHz and 96kHz sampling rates. An album mastered for CD must have its sample rate converted, in order to be released on the DVD-Video format. This process is not absolutely transparent, so DVD-Audio makes for better-sounding discs.

While the differences between DVD-Video and DVD-Audio may be minor, the latter's advantages over CD are dramatic. Not only does it break the 16-bit barrier, it also extends sampling frequencies up to 192kHz. It adds multi-channel sound (love it or loathe it) and stores video, data and hyperlinks to Web sites — truly catapulting albums into the digital age.

*Tim Frost edits the newsletter DVD & Future CD*

**Will DVD-Audio adopt dual-layer discs, like SACD?**





# Help!

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(Don't forget your postal address!)

**Jason Kennedy is here to answer your hi-fi queries!**

## Query of the month

### Round the clock

I have a Nottingham Analogue Spacedeck turntable, Space Arm, Tracer II cartridge, Marantz CD-63SE CD player, Audiolab 8000A and Mission 751 speakers connected by Audioquest Indigo II speaker cables.

I acquired the Spacedeck on the strength of your review back in 1996, and have not regretted my investment. Since then I have spent many hours going through my record collection and I am in need of some advice about the cartridge.

I have estimated that the Tracer II has done about 1,000 hours. I approached a number of dealers in Sydney and they gave conflicting advice regarding the need for a replacement.

I was happy with the sound from Spacedeck but as you may well appreciate a Notts Analogue cartridge is not available locally in Australia; and with the current exchange rates and import duties it is very expensive to have one sent from the UK at this stage.

I have shortlisted the Denon DL-304, Sumiko BPS, and Ortofon MC10 Super as they are readily available in Sydney. I would be very grateful if you could advise me on the number of hours a cartridge should be used for, and the compatibility of the cartridges I have shortlisted for my Spacedeck.

Alan Olan, Sydney, Australia

*Here's advice straight from the "horse's mouth": Tom Fletcher, the proprietor of Notts Analogue, to be more precise. A cartridge needs to be checked for wear at around the 500-700 hour point. This would suggest your replacement is well overdue. He also says that he can supply you with a cartridge "direct" at a price that will offset the costs at your end. Can't say fairer than that, guv!*

*As an alternative, the Denon DL-304 cartridge is known to work very well with the Spacedeck, which itself recently won the coveted Component of the Year award from Japanese magazine Stereosound. The only question left to ask is whether you might consider a more exalted m-c phono stage — the best ones aren't usually found inside real-world integrated designs like the 8000A.*

Nottingham Analogue Spacedeck



Kimber Hero

### Wire ways

My sources include a Michell Gyrodec/RB300 arm/Audio Technica AT-OC10 cartridge, Meridian 508 CD (not 20 bit) with Monster Interlink, Hitachi FT-5500 tuner with Tandy Gold Patch interconnects, and an Aiwa AD-WX929 cassette deck. My amp is an Audio Analogue Puccini SE, while my speakers are Castle Chesters. Speaker cable is Cable Talk 3.

I wish to purchase a good quality interconnect for my CD player, up to around £100, and I want to replace my speaker cable. I have tried some DNM Reson and was quite impressed. However, is there any other cable you would recommend costing up to around £15 per metre? I require around 15 metres bi-wired. *Chay Carle, Peterhead, Scotland*

*Where would today's enthusiast be without good-quality cables? In the world of professional recording studios balanced connections are the norm, where both sides of a signal path 'float' within a shielded 'screen' conductor. Studios seem to get away with basic wire because of balanced mode's immunity to noise, and its standardised source and output impedances resulting from the transformer coupling of signals. In hi-fi, where the norm is for single-ended connections (one side of the signal chain doubles as the screen), we have to deal with unpredictable input and output impedances which keep us running around in circles.*

*When making recommendations we prefer to stick to brands that have proved their worth with a variety of different components, and thereby to reduce the chances of potential cable mismatch. To this end consider Kimber Hero, van den Hul D102III and Eikos interconnect with Ortofon SPK300, Hitachi OFC or Goertz M1 speaker cables. DNM Reson is also good but its resistance might be a little high over a 15-metre run.*



**Complete revamp**

My current system blends old and very old components: Marantz 2226B Receiver (about 18 years old), Pioneer PL-516 turntable, Tangent TM1 speakers, Aiwa AD-F770 tape deck and Rotel RCD865 CD player.

After purchasing your magazine for the past few months, I've decided that a complete revamp is long overdue. I've decided to replace all components apart from the tape deck (that can wait until later). By the same token I'm not too fussed about replacing the turntable.

My budget is approximately £3,500. My current thoughts are to listen to the Audiolab 8000S/8000T combination. Any other suggestions? Does a pre/power amp combination have any advantages over an integrated amp? I'm not sure where to start with speakers although my listening room is quite large, so I would prefer floorstanding speakers. As far as CD players go, I've been considering the Arcam Alpha 8SE.

Edwin Elder, Hornchurch, Essex

*A revamp does seem appropriate and with your budget you should be able to get something pretty serious. As chance would have it we reviewed what might be an ideal complete system in HFC*

**Qualified questions**

My system comprises a Sony CDP-397 CD player, Sony STR-D311 receiver and Sony TCK-611S cassette deck. I purchased these items second-hand 18 months ago, and I have no knowledge of their worth. My newest component is a Technics SL-1200LTD turntable which has a Stanton DJ PRO 500AL cartridge.

I also have on loan a pair of Mission 734s with Bandridge Superflex LP7251X speaker cable. Although these sound good I think the Mission 752 Freedom and Linn Keilidh were the best floorstanding speakers in that price range. The chosen speakers must work close to a wall. I would also like to change the CD player and amp, if necessary, along with the interconnects.

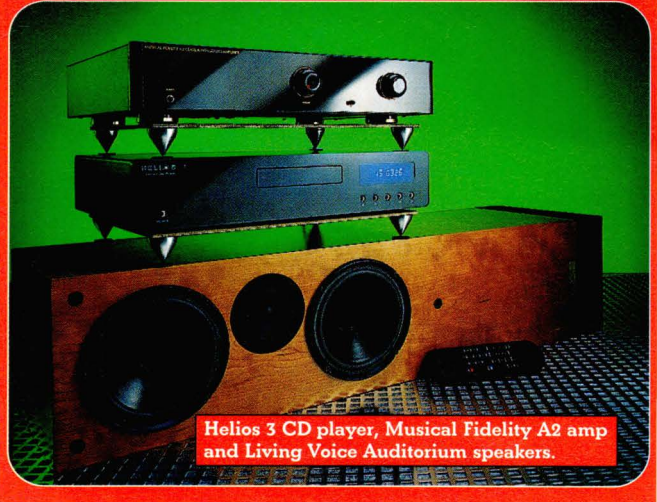
A J Good, Calverley, Leeds

Mission 752 Freedom



*You would do well to replace the CD and amp at the same time as selecting new speakers, since then you will hear the complete system and this will make auditioning much easier. As you don't indicate a budget, use our Directory (p114) in conjunction with a dealer's suggestions, and listen to a variety of options that suit your pocket. Try to listen at the same sort of volume level that you would use at home. Most systems sound impressive when played loud, albeit usually only initially. Don't consider cables and supports mere accessories: they are an intrinsic part of the package, and while there are fine products available at bargain prices, wires should be chosen en masse with the rest of the system.*

177, which comprised Helios 3 CD player, Musical Fidelity A2 amp and Living Voice Auditorium speakers (reviewed this month on page 85). This synergetic combination was lashed together with cables and supports from Definitive Audio, Nottingham, and it blew away our reviewer Alan Sircom. If you purchased it with less ambitious mains and interconnect cables than the ones we used, there should be enough left in your budget for a decent tuner such as the Arcam Alpha 7.



Helios 3 CD player, Musical Fidelity A2 amp and Living Voice Auditorium speakers.

**Take Five**

I have Quad 34/405II pre/power amps, Sony CDP-X3000ES CD player and a pair of Mission 764 floorstanders. The CD player was added recently and made a big difference to the overall sound. My problem is not knowing what to change next.

Both amp and speakers are due for a change, but which first? I like a solid, weighty sound with clarity and detail. I've considered Mission 752F, KEF Q55, B&W CDM1 and AE120 speakers, with Quad 77 or 707 power amps, 77 integrated and Marantz PM-17 amps. Any suggestions?

David McLeish, Dundonald, Ayrshire

*You are correct that to get the best from the new CD player, both speaker and amp need to be upgraded. Instinct suggests the speakers, but further reflection counsels an amp designed to take the relatively high output of modern CD players. To this end we'd suggest your first step should be a new preamp: Quad's 77 would probably fit the bill well.*

*There are plenty of speakers to choose from, but from your shortlist the Mission and B&W have proved themselves the most impressive in our tests.*



Quad 77 pre/power amp





### Regular upgrades

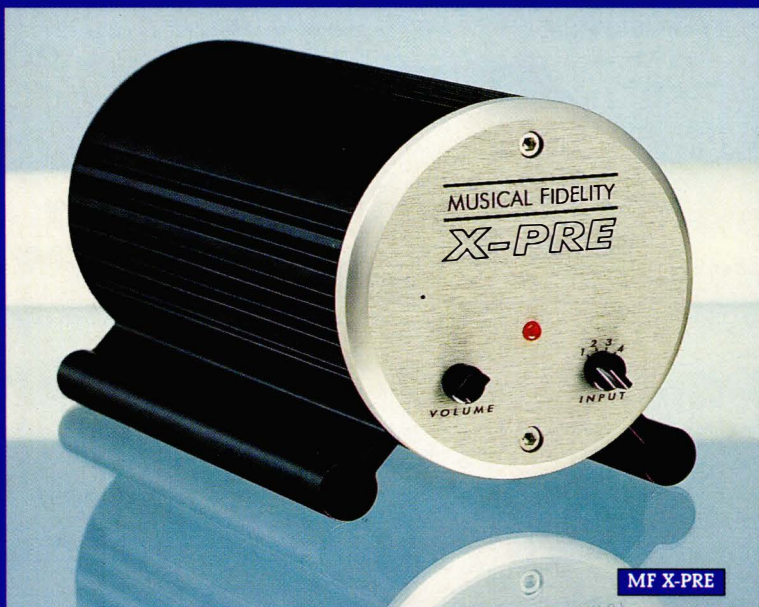
I have a Sony CDP-470 CD player (Cable Talk Monitor 2.1 interconnect), Sony ST-361 tuner (Cable Talk 2 interconnect), Onkyo A-8200 amplifier. For private use I use Acoustic Energy AE109 speakers and Cable Talk Talk 3.1 speaker cable, with Sennheiser HD 560 Ovation II headphones.

I'm extremely happy with my system but I like to upgrade part of it about once a year. Recently I bought the AE109 speakers, but now I would like your advice as to which part of the rig — CD player or amp — I should upgrade next. I am thinking of spending about £200-300 per unit.

Ron Huisman, The Netherlands

*We haven't tested your present CD player and amp, so it's difficult to know which should be supplanted first. In general, however, a source upgrade is always the first logical step. The best options in your price bracket are the Arcam Alpha 7, Cambridge Audio CD6, Denon DCD-1015, Marantz CD-67SE and the Sony CDP-XE900E. The availability (or rather, lack) of these products in Holland may form the first level of selection criteria and thereby make the buying process more manageable.*

*When you come to upgrade your amp, the tricky matter of speaker matching becomes an issue, and when choosing this component we would recommend you always audition with your own speakers. Our shortlist would include the harman/kardon HK620, Magnum IA170, NAD 314 and the Sony TAF-448BE. If you can stretch the budget a little, your efforts would be well rewarded by a Pioneer A-300R Precision or Cyrus SL.*



### The right connections

My system comprises Marantz PM-66SE amp, Technics SL-PG480A CD player, Yamaha DSP-E492 surround amp, Sony CD player, Panasonic LaserDisc player, Mission 732i (front speakers), Mission 73C (dialogue), and JPW ML310 (rear).

I am thinking of upgrading my speaker cables and interconnects. My budget for speaker cables is around £6 and interconnect around £30. Which products can you recommend that will give a very good bass, treble, detail and open expression? My taste in music includes modern jazz, slow rock, pop music and classical.

Suhaimee Mahdar, Milton Keynes

*Our sister publication, Home Entertainment, specialises in surround sound systems and concurs with us that QED Qnect 2 is among the best interconnects at the price-point you mention. As for speaker cable, where we assume your budget is per metre, the models that are rated by both publications include Gale XL315 and Cable Talk Talk 3.1. Given the lengths of wire needed for the average surround sound system, inexpensive cables such as these are presumably welcome news.*



### Guitar based jazz. Nice...

My current system consists of a Marantz CD-63 KI Signature, Musical Fidelity X10-D, a pair of Musical Fidelity P140 dual mono power amplifiers, a QED SDR passive preamp, Mission 733i speakers, Cable Talk Monitor 2 interconnects and 3.1 bi-wire cable.

I would guess that the weak links in my system are the preamp and speakers, and therefore I would be grateful for your advice on potential upgrade routes. I am looking for excellent sound-staging, clarity and timing. Because I have a young family, I also need my system to work well at relatively low volume levels. My room measures 15ft by 11ft, with the speakers firing across the narrower dimension. I have a budget of £500 and would not mind buying second-hand.

My musical tastes are baroque classical, pop and guitar-based jazz.

Richard Hall, Norwich

*We would agree with your analysis of the limiting components in the system, but it may be difficult to replace both preamp and speakers with genuine upgrades, within the budget you specify. We suggest you try a Musical Fidelity X-PRE or a second-hand Audio Innovations L2 to replace the QED, and then save up a little more for a distinctly better speaker such as a B&W DM603, Royd Doublet or Dali 104B. In the meantime you could try a set of Electrofluidics or Goertz speaker cable to add clarity and depth to the proceedings.*



### The grand plan

My Rega Planet CD player runs through a Cyrus One mkII into Royd Minstrel speakers. LFD Spirolink 1 interconnects and QED Profile cables link these components. I enjoy the clear musical quality of the system and the detail it provides.

Upon approaching my hi-fi dealer for advice on upgrading the amp, he recommended that I spend at least £800 to gain a noticeable improvement in sound quality and detail. This would take me into the league of Naim Nait 3Rs and the like. However, I could spend up to £1,200.

The prospect of a pre/power amp combination is intriguing, yet what benefits should I expect from a pre/power combo over an integrated amp of similar value? And what amps would you recommend, in either pre/power or integrated forms? I plan to upgrade the speakers in about one to two years, but would it be wiser to look at upgrading now?

Ross Bennie, Christchurch, New Zealand

*We believe your proposal will give a tighter, more detailed sound with more power on tap but fundamentally the same type of sound. We agree with your dealer's advice to set aside money for a speaker upgrade sooner rather than later. However, make sure you assess the alternative strategies now: you may be inclined to get a better amp and live with the system imbalance until you can afford bigger speakers.*

*The difference between pre/power and integrated amps depends on the type of sound you seek. If you desire something in the Naim or Rega vein then pre/power is the only upmarket option, but if your tastes are more Continental European, other interesting options include the Electrocompaniet ECI-2 or Copland CSA-14. Yet again, you might consider investing in an integrated amp which can be upgraded with a power amp at a later date. An ideal example of such a beast is the new Arcam Alpha 10/10P reviewed on page 138 of this issue.*



### California searching

I have been to several dealers and have listened to several CD players. So far, I have been quite impressed by the Marantz CD-63 KI Sig. But recently I was introduced to a California Audio Labs DX-3, which sounded at least as good as the Marantz, and here in Barcelona it is a bit cheaper, too.

What worries me is that I have found no reference to this marque in several specialist journals, including French, Italian, British and of course local publications. Who is this company? Are its products trustworthy? To go by my ear and wallet, the DX-3 should most certainly be short-listed. But should I take one home and cross my fingers that it will last?

Vilanova-Karlsson, Barcelona, Spain

*California Audio Labs is an American company that has been making CD players for over 10 years. It has a web site at [www.calaudio.com](http://www.calaudio.com). The brand has not featured in HFC of late due to a lack of UK distribution, but in former issues we commented favourably on CAL's pricier transport/DAC combos.*

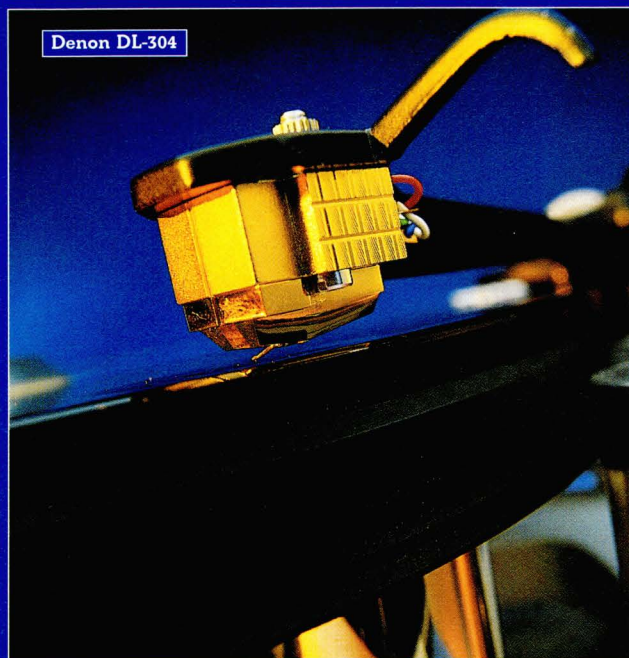
*CAL's web site makes no reference to the DX-3, but does give specs on the DX-2 which possibly has replaced the DX-3.*



California Audio Labs DX-2

*Certainly as far as reputation is concerned, you can buy CAL with confidence.*

Denon DL-304



### The famous four

I mostly listen to LPs and own four turntables to use with a Rogers E-20a amp and LS3/5a speaker combination. Most of the time I use a Thorens TD-150mk2/Decca London International/Grado Platinum Wood, or a Transrotor Classic/SME 3009mkII/Linn K5, connected via the Creek OBH 8 phono stage. To complete the picture I have an Accuphase T-101 FM tuner, Revox B-77 open-reel tape recorder and T+A CD-player.

I love this system very much and I am convinced that it serves me best in my little dedicated listening room. I would like your advice concerning the choice of a moving-coil cartridge for the use in the Transrotor/SME combination. Should I go for a high-output m-c or try a low-output design with another phono preamp or a step-up transformer? Is the latter available for a budget of around £500?

Holger Trass, Ruesselsheim, Germany

*We'll resist wondering why you have four turntables and applaud one of the more interesting systems to appear in Help for some time. You'll need a high-compliance cartridge to match the arm, which means most of your options are moving-magnet designs — there is a small selection of m-cs. The choice that comes to mind is Denon's DL-304, a lovely high-compliance m-c at a very reasonable £200. Alternatives for a deeper pocket include the van den Hul Frog, a very sophisticated m-c that ignores surface noise and gets to the music every time.*

### Global equality?

I brought a Marantz PM-63 amplifier in February, and have just bought a *Hi-Fi Choice* of the same month here in Mauritius. However, your Directory does not list the PM-63. Does that mean it is unavailable in the UK, or is it sold as a different model? Also I was wondering why equalisers are not listed in the Directory.

Arjun Sarup, Quatre Bornes, Mauritius

*According to our information, Marantz does not sell the PM-63 in the UK. We have PM-47, PM-57, PM-66 and variants thereof, PM-17 and variants thereof. You could try the Marantz Web site ([www.marantz.com](http://www.marantz.com)) for more info.*

*The reasons we do not list graphic equaliser separates components are twofold: we consider them deleterious to sound in an audiophile hi-fi context; and there are very few models available or actively promoted in the UK.*



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## ◀ Look Mother, I'm skipping!

I wonder if you can clear up a point for me. I refer to your excellent write up (HFC 179) on the new Philips CDR. You mention that the CDR870 had a problem with 'jitter'. What do you mean? The problem is that I am now on to my second CDR870, as the first had problems (in a word — skipping); but is this what you describe as 'jitter'? Also, if I read your article correctly, and Philips has released the '880 to iron out problems with the '870, is it offering an upgrade that you know of?  
Ray Wagstaff, via e-mail

*Jitter is not the same as the problem you describe, for which the technical term is probably 'skipping'. Jitter is a problem within a CD player's digital circuits, whereby the edges of digital signals*



*become blurred, having an adverse effect on the accuracy of digital-to-analogue conversion. Skipping is a problem with the CD player's transport mechanism, where the laser pickup has trouble reading information from the disc.*

*We are not aware of Philips offering an upgrade from the CDR870 to the CDR880, but for clarification we suggest you call the Philips Consumer Information Centre on ☎ (0181) 665 6350.*

# HINTS AND TIPS

## WE GOT THE POWER

### JIMMY HUGHES REPORTS ON A MAINS POWER CONDITIONER WHICH IMPROVES CLARITY AND REDUCES NOISE.

**C**leaning up the mains supply with a power conditioner should make your hi-fi sound better, and improve the picture quality of home cinema systems, making both more consistent from day to day. The appeal for the enthusiast wanting top-class results is obvious. Yet power conditioners I've tried in the past have been a mixed blessing. You may get cleaner treble and reduced high-frequency 'hash', but often at the expense of clarity and dynamics — in the process of cleaning up the sound, there's a loss of immediacy and separation that makes the music seem slightly damped and constrained.

So I was intrigued to try the Power Wedge 216p, second from top of a range of mains conditioners from California-based Audio Power Industries. It aims to cleanse the mains voltage of spurious noise, individually isolate each component from its companions so that self-created mains noise does not interfere with performance, provide surge protection against mains spikes, and protect low-level source components from the adverse effects of large amplifiers drawing heavy current that distorts the mains waveform.

The 216p has three paired transformer-isolated sockets (six total) for low level components, plus four heavy-duty sockets intended for current-hungry items like power amplifiers. One of the six isolated mains sockets has reversed polarity, and it's intended for you to experiment with digital products here to see if any audible difference occurs. Non-reversible US 3-pin sockets are used for all high-power outputs, while the mains input is via

a 3-pin IEC socket. Each pair of low-level outputs is separately fused, and the high level outputs are protected by a circuit breaker that shuts off power in the event of a serious problem.

Audio Power Industries claims the various Power Wedge models give identical performance, the only difference being the number of sockets offered. The 216p is probably sufficient for most, but for owners of big A/V systems the

massive 2118 with 18 outlets is recommended. Incidentally, each

pair of low-level outlets can deal with components having a maximum combined power consumption of 120 Watts, so the majority of CD players, DACs, VCRs, preamps, tuners, and cassette decks present no problem. If desired, it's

possible to use more than one Power Wedge. Subjectively, the Power Wedge cleaned up the sound, removing glare and edge so the

music sounded cleaner and more detailed, smoother and more refined. There seemed to be no adverse effect on dynamics; indeed, the sound was more dynamic, with loud passages projecting cleanly from an inky-black background. Overall the sound seemed much more natural.

The 216p costs around £750, so it's not exactly cheap. But it does produce worthwhile sonic gains, protecting your equipment from dangerous mains spikes as well as improving consistency. Mains pollution is a serious problem, limiting the performance standard of any system. Power Wedge is an excellent investment, enabling your equipment to deliver its full potential

*Audiofreaks* ☎ (0181) 948 4153.



Amplifier input tweaks, outed by JH.





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WIN!

COMPETITION

# FORCE 10 FROM WATERBEACH

PRIZES WORTH £1,400!

## WIN SUPERB ARCAM PRE/POWER AMPS AND AUDIOQUEST INTERCONNECTS WORTH £1,400!



**A**rcam's new Alpha 10 amplifier scales new heights of sound quality, user-friendliness and upgradability. The Alpha 10 delivers 100 Watts per channel of power (RMS). Read all about it on page 138 of this issue!

At the heart of the amp is a new microprocessor circuit, which monitors output to avoid overload. And it keeps the user up to date with a dot-matrix display revealing sources playing and being recorded, volume level, and the latest remote-control command. The front panel features a smart rotary selector, which can adjust volume, balance and other parameters.

The 10 is fully upgradable, with an optional m-m/m-c phono stage, and there will be a series of plug-in modules. The first two are a multi-room distribution card and a home cinema processor which adds Dolby Digital AC-3 compatibility.\*

The 10P 2x100 Watts power amp is the ideal partner for the 10. For home cinema it can provide a third channel to yield a five-channel 500 Watts surround system – or for hi-fi it promises a top-notch 400 Watts bi-amped system for appropriate speakers.

Add in vibration-dampening feet, a custom aluminium chassis and die-stamped aluminium covers, and you have the consummate British amplifier. Supplied with a one-metre pair of AudioQuest Jade interconnects worth £30, our prize will be ready from the word go!

\* Modules and phono stage not included.

### CONGRATULATIONS TO THE WINNER OF OUR APRIL COMPETITION!

The correct answer in the Vestax competition was: d) Active Audio.  
The winner is: J MacLauchlan of Somerset.

## HOW TO ENTER

Answer the question below by circling the correct answer, then fill in your name, address and daytime telephone number in the spaces given below. Please remember to tell us whether you are over 18 years of age.

### POST THIS ENTRY FORM TO:

Hi-Fi Choice Competition (CHFC807A)  
Bradley Pavilions,  
Bradley Stoke North,  
Bristol BS12 0BQ

All entries must arrive by First Post, Thursday August 6th, 1998.

## THE QUESTION

What is the new feature of the Alpha 10's front panel?

- a) Smart dressed man
- b) Smart rotary selector
- c) Smart rotary trimmer
- d) Rotating Smartie selector

## YOUR DETAILS

Name \_\_\_\_\_  
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## COMPETITION RULES

- The Closing Date for this competition is Thursday August 6th, 1998.
- Winners of the Arcam Competition will be judged from all correct entries submitted, and drawn at random after the Closing Date.
- Winners will be notified by post.
- The Editor's decision is final and no correspondence will be entered into.
- The Arcam Competition is not open to employees of Dennis Publishing Ltd, A&R Cambridge Ltd, nor their suppliers, agents or associates.
- We regret this competition is open to UK residents only.
- No cash alternatives will be offered.
- We reserve the right to substitute alternative prizes with equivalent value to those shown, in the unlikely event of stock being temporarily unavailable.
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CHFC 807A



# Spirit of radio!

Alan Sircom investigates high-tech FM radio solutions from Magnum Dynalab – and finds both price and sound most attractive!

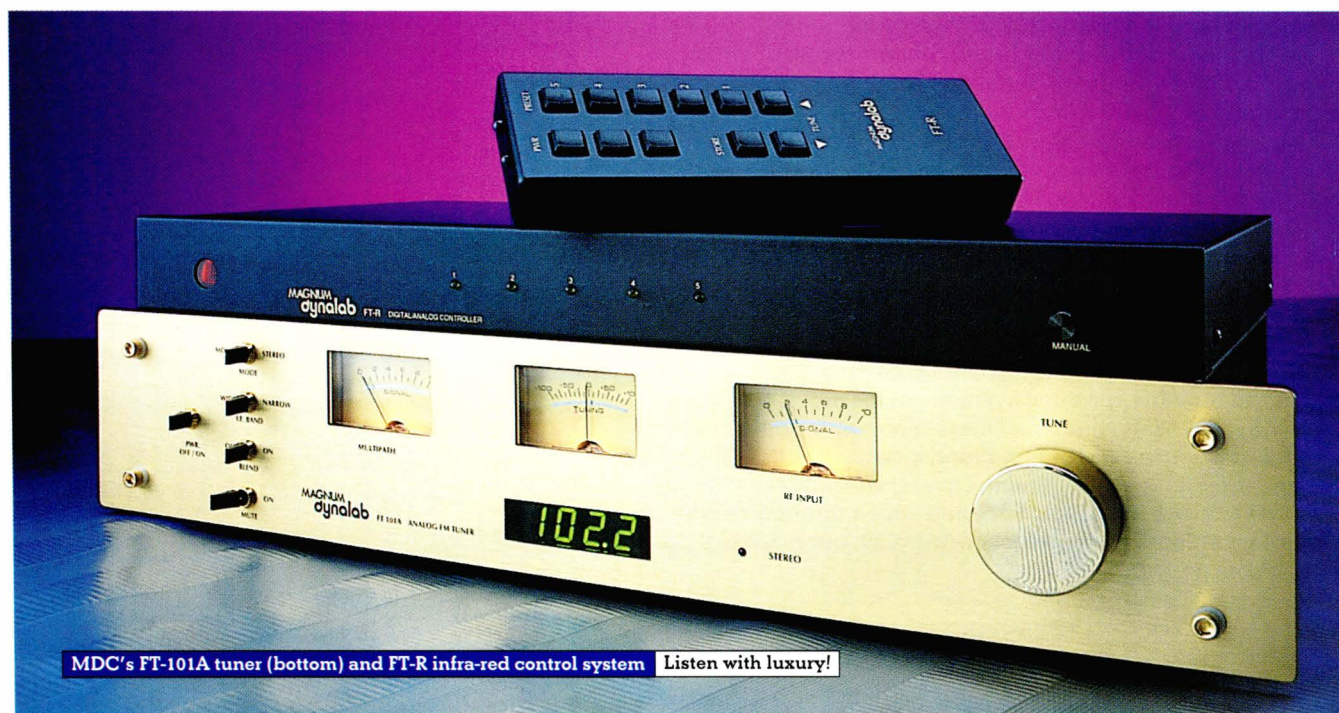
**H**i-fi has forgotten its roots. In the golden days of audio, rare was the enthusiast who didn't have a state-of-the-art tuner in the hi-fi system. Today, that component has been largely overlooked: the most popular UK model is a £120 product that would have been discontinued long ago if it were not so popular.

A few specialist tuner companies survive to buck the trend. One of them is Magnum Dynalab of Canada, which produces high-quality FM kit to a standard that's rare these days. The £795 FT-101A is a perfect example: it has no presets, and definitely no Radio Data System (RDS). Instead, it's a basic FM-only tuner that looks (and behaves) like a

piece of lab gear. There is a profusion of buttons and VU meters on the front panel, which is supplied in a shade of black as standard, though for £100 more it can be silver or, as illustrated here, gold-coloured. To the left of the panel is a power toggle switch, and then a vertical array of four more big paddle-toggle switches. These control the tuner's mode (either stereo or noise-busting mono), IF band (to control the selectivity, removing any nearby pirate stations if needed), blend and a muting function. The blend function allows the tuner to sample the signal strength and reduce the stereo separation to help eliminate noise. Mute, in this case, is not simply an attenuation of the signal, but serves as a noise threshold, to keep the tuner quiet while

changing channels. Add to this a nice old-fashioned big tuning dial and all the hardcore tuner fanatic bases are covered.

This tuner has no less than five forms of display or tell-tale. Apart from the regular green frequency-LED readout, and red LED stereo beacon, a trio of illuminated VU meters tell you what is happening to the signal. To the left is a multipath meter, on which the aim is to achieve a zero reading. Multipath distortion is when parts of the FM signal bounce off buildings and other large structures, causing distortion in the process. The rightmost meter measures signal strength, although formally it is said to measure RF Input. Spinal Tap fans will be disappointed that this meter never exceeds 10,



MDC's FT-101A tuner (bottom) and FT-R infra-red control system Listen with luxury!





MDC's ST-2 antenna & F-205 "Super Sleuth" The ultimate indoor aerial solution?

let alone 11, as the meter is buffered to prevent damage from extremely strong signals. In the middle is a finely-calibrated VU meter, which allows very precise adjustment of tuning frequencies. According to the manufacturer this permits much greater accuracy than any automatic fine-tuning system.

### The refreshing wind of anachronism

As we stand on the precipice of digital radio, this tuner comes as a refreshing blast of anachronism. It's among a handful of tuners on the market which do not employ FM synthesis, which uses a microprocessor chip to lock up with a radio station's signal. The Dynalab lays all responsibility for tuning decisions with the user: either hit a broadcast signal spot on for maximum stereo, at the expense of the noise floor; or detune slightly for less noise, but decreased stereo.

It's the ideal solution for control freaks, but there are prices to pay: analogue tuning systems take at least 15 minutes to settle down after being powered up, and there is never an option for labour-saving remote controls, preset stations or other such ephemera of convenient modern living.

The lack of presets can be a real inconvenience, especially when your favourite stations are at opposite ends of the tuning dial. But to include them in such a system would entail an FM synthesis front end, and would thus sacrifice the entire *raison d'être* of the FT-101A. Instead, with an ingenious stroke of lateral thinking, Magnum Dynalab has devised the £395 FT-R infra-red remote-control system, which comprises a stand-alone mains-powered box (connected to the FT-101A via DIN cable), and a chunky remote handset. This unit holds details of five preset stations in memory; switching from one to another has the proxy effect of your hand on the tuning dial. The remote also

### E'GAD, HOLMES!

The FT-101A is a sensitive device, but still needs a good aerial to give it its best. Traditionally a quality 'twig' such as this has been a roof-mounted antenna, consisting of seven or more elements, and directed at the nearest broadcast transmitter.

To install an aerial is not problematic unless you are a tenant or leaseholder in a block of flats. Regrettably, in this situation, users discover that most indoor aerials are useless. One exception is MDC's £80 ST-2 whip aerial. It comes complete with almost eight metres of coaxial cable, and is packaged within the most impenetrable tubular packaging ever designed. It may take an hour or so of careful positioning to get the best signal, and even then it's no match for serious roof alloy, but it works and can permit stereo listening in some surprisingly inclement places.

For optimum results it should be partnered with the excellent £225 F-205 Super Sleuth FM Antenna Amplifier. Normally, such devices do little more than boost noise as well as signal, but this one has a different spin. Not only does it provide up to 30dB of amplification, it is fully adjustable right down to -30dB of attenuation. The Sleuth is also tuneable across the FM bandwidth, allowing the selection of the best signal for a station and boosting or cutting that portion of the FM bandwidth. It does this by acting as a pre-tuner, with a trio of RF stages acting as a tuner in their own right. Such devices are not new in the world of the radio ham, but to us hi-fi types, this is Space Shuttle stuff.

While the FT-101A deserves recognition as a high-quality tuner, the Super Sleuth should have a far wider audience among all those who must optimise aerial signals.

allows free tuning; and, best of all, none of this affects the sound of the FT-101A one jot.

The word 'analogue', liberally used throughout the FT-101A's technical literature, also befits the sound quality. Although a good tuner is effectively transparent, an open window into the broadcast studio, Magnum Dynalab's model also accentuates the smooth sound of radio. It's a very friendly sound: not rosy or over-warm, but rich and inviting. It can even make Zoë Ball sound acceptable, which is praise indeed.

The FT-101A delivers a wealth of detail but not in the eviscerating, harsh manner often characteristic of today's tuners. It is easy to define the difference between broadcast LP, CD, live and prerecorded material when usually these are blurred. Unfortunately, the dreaded compression of so many stations is also all too noticeable at times — a fault of the broadcasters, but this unit does throw it into sharp relief.

Also, compared to the very best tuners, it lacks the most open stereo separation, and the noise floor could be a fraction lower. But considerably more finance would be required to purchase equipment which outperforms the FT-101A; and usually this would be considerably less sensitive and require a roof-mounted aerial that looks like the MI6 building. At its price the FT-101A makes most tuners sound bright and unrealistic.

I end up impressed with the Magnum Dynalab FT-101A, especially when it is used with attachments like the ST-2 and F-205 (see box). Although modern soundbyte culture shies away from products that require owners to think for themselves, this is a rewarding exception that offers rarely-heard radio sound quality. If you want your broadcasts to sound natural and listenable, this is the product for which you have been waiting. ▲

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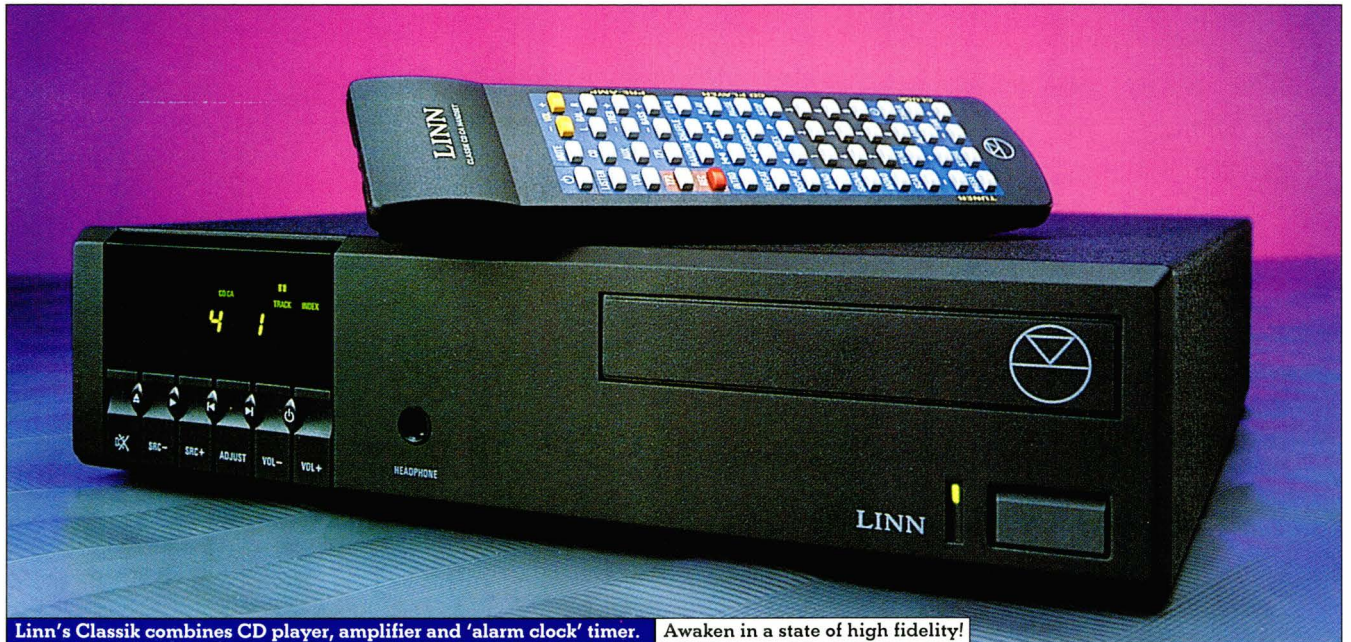


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# Modern Classik

Alan Sircom investigates the new Classik system from Linn. Is this the ultimate starter hi-fi?



Linn's Classik combines CD player, amplifier and 'alarm clock' timer. Awaken in a state of high fidelity!

I very nearly missed the point of the £995 Linn Classik. And if I had, I would have committed hi-fi snobbery of the worst kind. I began by setting up the Classik on my Mana support, like hair-shirt hi-fi; then I took care over positioning of the Linn Tukan speakers (supplied for the test) in the optimum site, hooking up with good quality speaker cable. But I came away unsatisfied.

Then I moved the Classik and Tukans into my office to note down salient features, hooked up the speakers with cheapo cable, and set up the whole affair in a frankly haphazard manner. Five minutes on I executed a U-turn in opinion. The Linn Classik is superb for all the reasons most hi-fi (even Linn stuff) is not. If you think purely in hi-fi terms, hi-fi prejudices get in the way.

Thinking in hi-fi terms is all too easy with Linn. The company has pursued a very obvious high-end hi-fi direction since its inception in the early 1970s. Its products sound highly distinctive, in a kind of dry, clean rhythmic way. Traditionally, the gear has always been beautifully made; and by its very nature it's expensive and cherishable.

With the Classik, however, Linn has produced the ultimate hi-fi alarm-clock. Within the characteristic bluff, black-painted Linn casework lurks a CD player, amp and timer system. There is a limited number of inputs

on the rear of the Classik for external recording and a radio tuner. I had expected there to be an airwave-fondler built into the device, or perhaps Linn system connections for control of a Kudos tuner at the same time... but let's not be greedy. In any case, with digital radio looming large on the horizon, perhaps Linn is being wise by keeping its customers' options open at this stage.

The timer function makes the Classik a bit special. This feature controls all major functions of the unit, meaning that you can set the Classik to perform a wake-up call with one of the external inputs or the built-in CD player. And if you take the CD option, you can even specify the track and a host of other parameters, offering a level of presettable functionality very hard to find elsewhere.

Linn's manual claims that the built-in power amp delivers 75 Watts per channel, though this is a little disingenuous since it relates to a four Ohm load — most amplifier specs are quoted into eight Ohms, and under those conditions the Classik barely hits 40 Watts. Also, the manual suggests the Classik will work with any passive Linn speaker, and while I have no evidence to the contrary, I do not believe that a partnership of the Classik and Linn's demanding Kaber speakers would be a marriage made in heaven. These caveats aside, the Classik's manual is an example to all manufacturers whose documentation is a photocopied A4 sheet.

## Get off your high horse

It's natural to prejudge the Classik as an old-school Linn piece, with all the weight of anticipation that implies. By comparison with Linn's greatest hi-fi components, though, the Classik suffers limitations both of output volume and dynamics — a similarly-priced CD player/amplifier combination would easily show it a clean pair of heels. However, next to similarly-priced packaged audio systems the Classik shows its worth. The characteristic dry, controlled sound of Linn electronics is still evident, but the sound is slightly smaller-scale; however it lacks the floppy-bass mediocrity most integrated systems display.

It's got tone controls, too. A sell-out by hair-shirt Linn? No: I found these useful when using the Classik in situations outside the normal idealised listening position. If you use the Classik in the kitchen or study, a little subtle tone-shaping helps to compensate for near-field listening or the bright, resonant sound of some rooms.

The Classik is hi-fi for the people. The point is not to liberate existing audiophiles from the clutter of separates, but to offer a decent system for rooms where space is at a premium, without running to the expense of a true multi-room system. Classik systems will slot elegantly into kitchens, bedrooms, studies — places where a full Linn system would never fit in. Although Sony got there first, the Classik should come with the words "My first Linn" on the side of the box. ▲

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# Sit back and relax

Paul Messenger takes an easy chair to listen to a comfy speaker, the new Dynaudio Contour 3.0.

**T**hough Dynaudio is a long established brand, UK availability has been patchy. The Danish company's drive units have popped up in some of the best places (such as PMC and Totem), but the complete speakers have not been so easy to come by until recently. I seem to have spent much of the last year catching up on several years' worth of speakers.

It's been a rewarding experience, despite the need for some aural re-education. All loudspeaker reviewers have their prejudices, and mine tend to be somewhat at odds with the Dynaudio philosophy. Despite this, the majority of the models I've tried have won me over — none more so than this relatively upmarket £2,930 Contour 3.0.

It's a logical step up the ladder from the Contour 1.8, which strutted its stuff so effectively in our test for *HFC* 167. The 3.0 adopts a similar formula in appearance and performance, but it is actually a brand new model, so benefits from some developmental refinements. The enclosure, for example, features a two-layer sandwich construction.

Presentation and finish are top class, with fine real-wood veneer and neat decoration. There are speakers as big, heavy and beautifully finished at half the price it must be said, but one shouldn't judge speakers on superficial perceived value alone. The Contour 3.0 is above all an exceptionally lounge-friendly package, slim in width yet reassuringly deep, discreet and demure to a fault.

This is a proper three-way design. The bass driver has a 140mm polypropylene cone loaded by a 47 litre enclosure with 6.5cm diameter port. Port-blocking bungs are supplied, but sound and power handling seemed better without. The midband diaphragm is a 100mm polypropylene cone, while the tweeter has a 28mm fabric dome. All use aluminium voice-coil wire and die-cast chassis.

The driver line-up displays a logical gradation of diameters with rising frequency reproduction duties, while the spec states that crossover slopes are a gentle six dB per octave. This places a premium on the drivers being able to work across wide bandwidths, and means there will be significant overlap between them, but it also ensures minimum phase distortion for a non-active system.



The Dynaudio Contour 3.0.

The Hush Puppies of the speaker kingdom?



Dynaudio doesn't believe in bi-wiring or bi-amping, so just a single terminal pair is fitted. The speaker sits on an MDF plinth which accommodates chunky eight millimetre spikes, my only niggle being that the spike sockets should be more effectively secured, to maintain floor coupling integrity over the long term.

The designer has opted to supply exceptional bass weight from a compact (22x106 x37cm) enclosure. Midband sensitivity is likely to be modest, and the amplifier load demanding — both characteristics acknowledged in the spec. Dynaudio claims 86dB sensitivity, though I'd go for 85 across the smooth and even central midband, based on my normal, far-field, in-room traces.

Output rises significantly below 100Hz under stereo in-room conditions, so that the average level 20-70Hz is +5dB ref. the midband. The upper mid through to lower treble (800Hz-3kHz) shows a broad but shal-

low depression (max -2dB), which should be enough to avoid any suggestion of presence 'edginess' without leaving voices sounding 'shut-in'. The treble is also notably smooth.

Bringing the Contour 3.0 into the listening room immediately after the Avantgarde Duo horn (*HFC* 178) required an aural readjustment akin to a back-somersault. The loss of immediacy and dynamic drama was inescapable, but it wasn't long before the subtle understatement started to get under my skin, albeit in a different way.

## Something more comfortable

Sonically these are no Nike AirMax 'bristling-with-attitude' trainers. Instead, the Contour 3.0 is your most comfortable pair of slippers. Few speakers are more transparent or well mannered, and although the presentation is a little laid back, the speaker still manages to sound exceptionally open, unusually free from unwelcome boxiness with delicate and detailed soundstaging, and impressively coherent top-to-bottom, with splendid consistency and seamlessness throughout the frequency and dynamic range.

Deliberately stressing them with the heavy synthetic bass lines of dance material from Prodigy, Leftfield and the like did eventually overload the capacity of the bass driver. However, up to that point the speaker continued to sound clean and effortless, free from mid-bass boom, with fine composure, immense weight and good timing. Not only is this one of the most neutral speakers I've encountered, it maintained that neutrality irrespective of the volume level.

Over the years I have developed some mistrust for the traditional three-way driver configuration, but Dynaudio's Contour 3.0 has done a great deal to allay those suspicions. The combination of top-class drivers, gentle-slope crossover networks and a very well controlled enclosure adds up to an outstanding speaker in almost every respect, though in practice the ultimate loudness capability may be somewhat constrained by the modest sensitivity, the amplifier power available, and the type of material you play.

It isn't a party animal, and doesn't have the dynamic realism I associate with high sensitivity designs, but this Dynaudio's consistency, neutrality, unflappability and transparency will be more than sufficient compensation for most listeners. The clean, deep, full-scale bass is a bonus, and the performance envelope will be more than ample for all sensible domestic situations. ▲

Dynaudio UK ☎ (01732) 451938



# Clash of the Titans

About to buy a new CD player? Hold back while you find out how new DVD video players handle music. As **Alvin Gold** reports, they don't just do movies...



**W**elcome to our first group test test of Digital Versatile Disc (DVD) players. In case you've been away on a very long cruise, DVD is a new digital disc format which can store almost 30 times as much information as a regular CD. You can read more about its background in our feature on p28; and *HFC's* sister magazine, *Home Entertainment*, has spent myriad column inches investigating the primary current consumer application of DVD, which is movie replay with advanced multi-channel digital surround sound.

In the absence of an agreed standard for audio DVD, commercial interests in the US and Japan have recognised the data storage potential of DVD video to contain a very high quality two-channel audio signal, if not the full surround sound monty which really eats up disc space. (Again see p28 and *Editor's Notebook*, p3, for more comment on this.) At the same time most new hardware is equipped with 20-bit or 24-bit DACs operating at up to 96kHz, holding out the promise of a quantum leap in sound quality. But investigation of that will have to wait for another day.

In fact, this month's test sets out to investigate rumours that have begun to circulate over DVD players' handling of regular CDs. In particular, that they turn in a remarkably capable performance notwithstanding the amount of high-tech micro-processor circuitry they require to be user-friendly and feature packed. If this rumour turns out to be true, it should give pause for thought to anyone considering spending £500-£1,000 on a new CD player.

## THE CAST LIST

Denon DVD-3000	£699.99	p47
Panasonic DVD-A350	£699.95	p48
Pioneer DV-505	£449.99	p49
Pioneer DVL-S909 (combi player)	£899.99	p50
Sony DVP-S715	£599.99	p51
Toshiba SD3107B	£549.99	p52

Consider this. Even if a DVD player sounds only just as good as an equivalently-priced CD player, it still holds out the possibility of DVD video replay as an extra feature, making value for money issues much harder to judge. And if specialist audiophile labels, like the US-based Classic Records (see *Ear Waxings*, *HFC* 177), start

releasing top-quality two-channel musical material within the parameters of the DVD video specification, that's another factor to consider. These are all threads that *HFC* will unravel in months to come.

For now, though, we have taken six DVD machines (one is also a LaserDisc player) and subjected them to our renowned unsighted listening test, using normal CD material only. We have made no comment on video performance; only on audio. As you will read below, we compared each DVD to recognised CD players both of lower and much greater cost. So, will your next CD player be a DVD player? Read on and find out...

## HOW THE TESTS WERE DONE

Each DVD player was auditioned by a panel of listeners under unsighted conditions, through high-quality amplification and loudspeakers, in comparison with two carefully chosen CD players. These were the Arcam Alpha 7 (£330; Recommended, *HFC* 167) and a Meridian 508.24 (£1,995, included as a yardstick of excellence). During each presentation to the panel we maintained the same measured volume levels, and all players were run in and kept under power until all testing had been completed. Following the completion of panel tests, the author undertook more extended, sighted, hands-on tests of each unit.

Equipment used for this test included a Musical Fidelity Nu-Vista preamplifier, a Copland CSA-515 power amp and Definitive Technology BP-2002 semi-active speakers. A Cyrus III amplifier, Musical Fidelity X-A200 power amps and speakers from JBL and Neat added perspective during the hands-on testing. A Theta

Jade/Pro Basic III combination was also used to set the scene before and after panel tests.

## WHAT MUSIC DID WE USE?

Buena Vista Social Club (with Ry Cooder): *Cnan Chan* — World Circuit WCD 050  
 Bizet: *Variations from Carmen* Arcadi Volodos (piano) — Sony SK 62691  
 James Taylor: *Line 'Em Up* from *Hourglass* — Columbia 4877482  
 George Dyson/Richard Hickox/LSO: *Overture: At The Tabard Inn* from *The Canterbury Pilgrims* — Chandos CHAN 9531(2)  
 Plus various other titles used during the hands-on testing sessions.

## WHAT MUSIC DID WE USE?

Our usual vote of thanks goes to our listening panel: Abbas Hussein (Orelle), Steve Cross (Ruark), Roger Batchelor (Denon), David Gamble (Mission), Mike Martindell (Arcam) and Rob Tribe (*Home Entertainment* magazine).





### Denon DVD-3000

Denon has opted for simplicity, with a plain, rather severe front panel adorned by a simple display and a bare minimum of controls. Under the skin this is one of the most comprehensively equipped of all the DVD players, alongside the Panasonic DVD-A350. In fact, these two share a common heritage, as Denon sourced this model from Panasonic. Relatively minor changes have been made to the user interface, which is slightly simplified, and to the unit's base, which claims to be made of a more resonance-free composite material boasting enhanced isolation properties. Both Denon and Panasonic models are identically priced.

Unusually, the DVD-3000 features built-in Dolby Digital (AC-3) and MPEG-2 decoders for instant 5.1 channel surround. The video DAC is a 10-bit device, which helps place on-screen performance alongside the best. The other headline feature is a full 24-bit/96kHz D/A converter, which will enable it to cope happily with 96kHz (48kHz audio bandwidth) DAD and other DVD-Video-compatible high-resolution recordings without having to 'downsample'. This facility is shared with the Panasonic DVD-A350 and the Sony DVP-S715. The

Denon won't play CD-Rs, however, which some of the others will. The back panel is equipped with twin SCARTs, the usual mix of composite and S-Video sockets and the six additional analogue outputs for Dolby Digital and MPEG-2 Audio. On the front is a headphone socket and associated level control.

### Sound quality

The Denon received an impressive test score, placing it top of the DVD group overall as far as the panel was concerned, and ahead of the Panasonic. Two listeners were slightly out of sympathy with the prevailing views, feeling that the Denon "lacked interest" and that it "wasn't much fun to listen to". More representative were such comments as "excellent — forceful and full bodied", "big and expressive", "good separation and space.... vocals OK".

The Buena Vista recording was described as "big, bold and open, with good vocal expression and timing, though not exactly spine-tingling", and the James Taylor as "big, expressive, well-differentiated bass, but it can sound a bit 'sat upon'". This listener also expressed a degree of unhappiness with the treble, mirroring comments from others which were made about all the DVD players to a degree. One listener, for example, noted that the Dyson orchestral excerpt "clouded up during the busy sections", and that the Volodos piano piece was

"slightly hard-sounding". It is true that the Arcam (CD) treble was also not universally liked, but its character was generally felt to be more lively and transparent. The Meridian was in a different league altogether, being more organic and expressive, without drawing attention to itself.

The issue of treble quality was noted with interest and followed up in the subsequent listening, which used other amplifiers and speakers. Here, I was able to confirm that the panel comments related to a real phenomenon that was a part of all the DVDs to a greater or lesser degree. As usual, different music led to slightly different judgements, but the bottom line is of a suggestion of muddle and harshness in the upper mid/lower treble region, and a degree of excessive bass warmth, though these effects were far from unpleasant.

### Conclusion

The DVD-3000 makes a more than acceptable CD player which is not far adrift from the standards of many (though not the best) dedicated CD players in the same price range. It has a smooth midband, with strong, propulsive timing offset by a slight loss of focus at the frequency extremes and a hint of the HF muddle that seems to be endemic with the current generation of DVD hardware. Its AV credentials are also well above average, which makes this model a particularly attractive all-rounder.



### DENON VERDICT

**SOUND** ★★★★★  
**VALUE** ★★★★★☆  
**PRICE** £699.99

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**Panasonic DVD-A350**

Billed as a 'second generation' DVD, the Panasonic DVD-A350 was released a few months after the DVD-A100. The A100 was a much more basically-equipped model which performed to a much lower standard. Its sound was sub-CD quality, and the picture quality from its nine-bit video DAC was well below DVD-A350 standards.

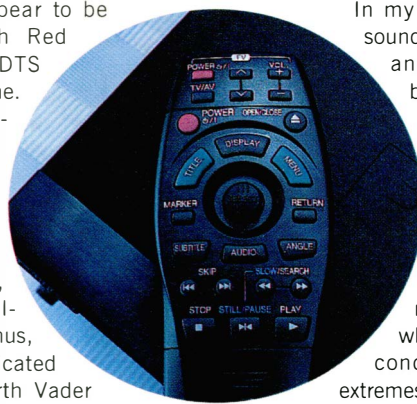
The DVD-A350 is unusually well equipped for audio and video purposes. The audio side is handled by a 24-bit 96kHz converter, though the S/PDIF output down-samples 96kHz audio to 48kHz (which allows a notional 24kHz audio bandwidth) in accordance with the copy-protect features that are imposed on DVD licenses (but see Pioneer reviews). The Panasonic won't look at CD-Rs. Audio credentials are bolstered by a raft of technologies developed over the years for Technics specialist audio, including selected passive components in some circuit areas, and Virtual Battery Operation power supplies.

For AV fans, the DVD-A350 has on-board Dolby Digital and MPEG-2 Audio converters, with six analogue outputs to cope with the 5.1 channel outputs available from these systems. Video is delivered in compo-

nent RGB form (DVD records chroma information as digital component video) as well as Y/C (chroma/luma) and composite video. As usual, there is no provision for the theoretical 7.1 channel outputs of MPEG-2 Audio, and there are no indications that this standard will be supported by the industry, that is if MPEG-2 Audio survives at all. As usual, DTS DVDs appear to be incompatible, though Red Book compatible CD DTS music discs work just fine.

Build quality is lightweight (but check out our review of the internally almost identical Denon DVD-3000, p48), and operationally the machine is slick, with particularly well-handled on-screen menus, operated by a sophisticated but well-designed Darth Vader handset with a joystick for menu selection. General operation is further enhanced with a front panel shuttle (rotary search) control. A couple of DVD video discs are supplied with this player, including a Queen double-sider, and a Wallace & Gromit short.

member wrote that he liked this model a lot for its "silky smooth, atmospheric vocals", (Buena Vista), though he went on to describe the Volodos piano recording as "very slightly veiled", (this is a razor-sharp recording in the best possible sense given the right replay environment), adding that it "doesn't quite come to life".



In my tests, the Panasonic sounded extremely well balanced, and if it hadn't been pipped to the post by the even better-sounding Panasonic-derived Denon, it would have walked away with the spoils of victory. Again, it is the midband that is most impressive, and what criticisms there are concern the frequency extremes, the treble in particular

sounding slightly ill at ease and muddled, and low-level detail suppressed. It is the better (and more costly) CD players that make this conclusion unavoidable, but the Panasonic is an easy match for the Arcam under most circumstances, trading slightly lower resolution and a more 'closed in' feel for the Arcam's sometimes acidic clarity.

**Sound quality**

This is an excellent performer, which was marked very similarly to the Denon DVD-3000, with an overall panel test score just one point behind. The scoring was a little less consistent from listener to listener than for the Denon. The Panasonic was deemed to be a "listenable, low fatigue" player, and one that "lays out the instruments clearly in space, making even complex performances very easy to follow" (Dyson). A second panel

**Conclusion**

The usual foibles of the current generation of DVD hardware are present here to a degree, but this remains a well-balanced and enjoyable player for the most part. It brings with it a high performance and well-equipped video section (Dolby Digital and MPEG-2 Audio decoders are built in), and the promise of 24-bit 96kHz compatibility.

**PANASONIC VERDICT**

**SOUND** ★★★★★  
**VALUE** ★★★★★  
**PRICE** £699.95  
**(ONE YEAR GUARANTEE)**

Excellent all-rounder, with smooth, well articulated midband, and a powerful set of supporting AV features and 24-bit 96kHz compatibility.

Panasonic UK Ltd, Panasonic House, Willoughby Road, Bracknell, Berks RG12 8FP  
 (0990) 357357





### Pioneer DV-505

The least costly DVD player currently available by a substantial margin, this is a full 96kHz machine, with Pioneer's Hi-Bit 20-bit processing and Legato Link conversion, though the trademark-inverted platter assembly is not part of the package. The video processor is a 10-bit component, with the usual Dolby Digital and MPEG-2 Audio compatibility, though analogue conversion is external using the Pioneer's S/PDIF outputs, which are available in optical and electrical form.

The most unusual feature of the DV-505 (discussed further in the Disc Formats feature on p28) is that its S/PDIF digital outputs are not limited to 48kHz sampling, but can output the full 96kHz that can be accommodated on DVD. This will be of little account immediately, but will be when 96kHz/24-bit recording hardware is developed. The two Pioneer players in this group are the only ones available with unrestricted S/PDIF outputs, but it is possible for recorded software to be flagged to prevent the digital datastream being output at 96kHz, in which case the maximum sampling frequency available for external use will be 48kHz.

No-one could accuse Pioneer of dressing this player up to the nines to celebrate the birth of the new technology, and only the most basic controls are fitted to the front panel, the rest of which are relegated to a simple, compact handset. The back panel is less generously populated than some.

There is only a single SCART socket, for example, but separate composite and S-Video sockets are available, along with the S/PDIF outputs. No headphone socket is fitted, and tracking performance is iffy on slightly marked CDs that play without hitch elsewhere.

### Sound quality

Although fairly even and neutral-sounding through the midband, this model did attract its share of criticism for a lack of detail and openness at the top end. Simple variants of the Legato Link digital filter sometimes have this effect on audition. The bass, too, was criticised for being "hard to follow", which is often a synonym for a lack of tunefulness. Dynamics were thought to be "compressed", a comment that was repeated by different listeners with different pieces of music. On the plus side, timing was ranked 'very good' in a number of the comments, and stereo soundstaging was praised. It was the lack of very low-level detail, however, that was the most obvious distinguishing feature for the panel, whose score served to show that the criticisms were not felt to be too damning.

Following the Dyson orchestral piece, one listener wrote that the Pioneer was "more involving...with nicely separated individual elements, though the bass is slightly muffled and the timpani sounds too distant".

I found the balance of this player mid-forward, but no more so than the Arcam

reference, to which it lost out principally on the groups of resolving power at the frequency extremes.

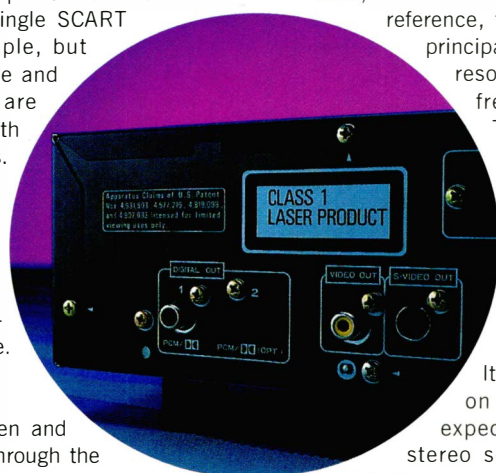
The DV-505 was, however, never less than competent, and generally contrived to equal the music-making stills of a good budget or a fair mid-price CD player.

It also sounded easier on the ear than expected, with good stereo soundstaging (also highlighted in the panel tests) being

a clear point in its favour. However, there was nothing in the Pioneer's makeup which should cause the engineers at Meridian or Theta any sleepless nights.

### Conclusion

The crucial fact here is that the Pioneer is not just an adequate CD player: thanks to its digital output it has the wherewithal to hold its own into the 24-bit 96kHz era. It is highly unlikely that any more new players will be released without the digital output degradation required by the software industry paymasters. So in this respect both Pioneers are classics — buy one while you can, to keep external DAC options open.



### PIONEER VERDICT

**SOUND** ★★★★★  
**VALUE** ★★★★★  
**PRICE** ★★★★★

£449.99

(ONE YEAR GUARANTEE)

Plenty of presence except at the frequency extremes, the makings of this model are its DAC and S/PDIF capabilities — and the price.

Pioneer High Fidelity (GB) Ltd, Pioneer House, Hollybush Hill, Stoke Poges, Slough, Bucks SL2 4QP  
 (01753) 789789





**Pioneer DVL-909**

Here's a player that can cope with LaserDiscs (Pioneer is the world leader in LD hardware and software) as well as DVDs, CDs, Video CDs and CD-Rs in a package no larger than a conventional LD player, making it a natural choice for multi-source crossover hi-fi/home cinema systems. CD-R compatibility arises because LaserDisc employs a CD-standard laser assembly which can cope with low reflectivity CD-R discs. The LaserDisc mechanism has an auto-side change, and copes with PAL (European) and NTSC (US/Japanese) discs, including Dolby Digital and DTS discs, with external processing. In fact, the Pioneer will output pure or PAL-friendly transcoded NTSC, to choice.

The audio section includes a 24-bit, 96kHz digital converter stage, and like the DV-505, the DVL-909's S/PDIF digital output is capable of outputting a 96kHz datastream, as long as the data doesn't contain a copy prohibit flag. This makes it even more desirable, though affordable 24-bit 96kHz digital recorders and standalone processors are still science fiction so the practical effects may be limited for some time.

Equipment standards are impressive, and include a switchable display and plenty of socketry (twin SCARTS with composite or

Y/C video, optical and electrical s/PDIF, plus RF for LaserDisc), but no headphone socket. The handset is complex and requires some acclimatisation, but it is comprehensive.

The DVL-909 has a smart, high-tech appearance, but is not heavily built. A note at the bottom of page 26 of the (provisional) instructions refers to another note on p118 which warns you to remove discs and to power the machine down fully (presumably to position the pickups safely) before moving the machine. Good advice, and if I'd read it first, I would have been saved having to strip the player down to retrieve a disc that had gone adrift inside.

**Sound quality**

As happens in our tests, this player had its turn immediately after the Meridian reference, and inevitably when subjected to such comparison, the cheaper model comes off worse. This goes part of the way towards explaining why the DVL-909 achieved a lower score than its stablemate, the DV-505. The panel made similar comments about both, leaving open the possibility that they were hearing much the same kind of performance, but were less inclined to give the DVL-909 the benefit of the doubt. So the player was deemed to "flow well" (James Taylor), and to have "plenty of weight, but (to sound) soft and rounded in the treble" (Dyson). The midrange was praised for its

"well projected vocals" (Buena Vista).

But there were difference this time around. The DVL-909 was marked down on stereo imaging — a strength for the junior model — and the bass was felt to be more heavyweight and was thus popular. My own listening, however, suggested that this is largely a system balance point, rather than a qualitative one.

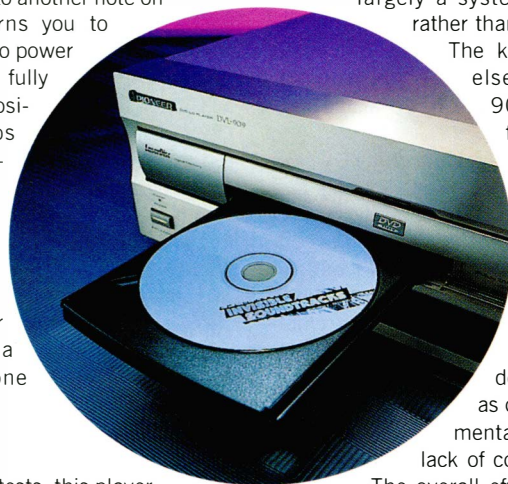
The key difference lied elsewhere: the DVL-909 was consistently felt to be "roughened", "edgy", "fuzzy" and "distorted", comments from four different listeners referring to four pieces of music.

My own notes describe the Pioneer as offering good instrumental separation but a lack of cohesion and power.

The overall effect was disjointed and failed to invest music with a sense of life and vitality. At the end of the day, this model was clearly inferior to the Arcam CD player.

**Conclusion**

The DVL-909, which will form the basis of a combi model from high-end producer Theta, is a little rough around the edges musically, and misses out on a formal Recommendation simply because it doesn't rate highly as CD-playing hardware. This does not undermine its unique desirability in other respects, especially the 24-bit 96kHz analogue and digital capabilities, and the LD and CD-R play features.



**PIONEER VERDICT**

**SOUND** ★★★★★  
**VALUE** ★★★★★  
**PRICE** £899.99  
**(ONE YEAR GUARANTEE)**

📄 A uniquely flexible optical disc reader which has been on back order since it was announced, though CD sound quality is modest.

✉ Pioneer High Fidelity (GB) Ltd, Pioneer House, Hollybush Hill, Stoke Poges, Slough, Bucks SL2 4QP  
 ☎ (01753) 789500





### Sony DVP-S715

With a smart champagne-gold extruded alloy fascia and attractive controls, this is the classiest looking player in the group, and the senior of two DVD players launched by Sony. In its home cinema incarnation, the player will output a digital datastream with Dolby Digital or MPEG-2 audio coding, with good picture quality thanks in part to a 10-bit video DAC. When playing audio it benefits from a 24-bit/96kHz D/A converter, though the S/PDIF digital outputs will output a 48kHz datastream, and not the full 96kHz. A switchable coefficient digital anti-aliasing filter allows some measure of adjustment to suit personal preferences, though the facility is buried in the menu structure, and defaults to the 'sharp' setting, the other setting proving impossibly dull and blurred in my view. Chassis and component quality draws on Sony's specialist audio roots, with an R-Core transformer, an anti-resonance chassis, and 'audio grade' components generally, though the latter description is too vague to be meaningful.

You may have noticed that DVD players won't usually play recordable CDs (CD-Rs). Sony makes no claims for CD-R compatibility (it is neither listed as a playable medium, nor explicitly mentioned in the exclusions)

but the player does include twin CD and DVD pickups rather than the adjustable focus single pickup usually employed, and CD pickups are by definition CD-R compatible. As with the other players, the Sony will also play Version 1.1 and Version 2 Video CDs (without and with menus).

The remote control is blandly styled but highly practical, and will operate a variety of Sony TVs and amplifiers. Sockets include optical and electrical S/PDIF digital outputs, a couple of SCARTS (with S/Video), a dedicated S Video Y/C connector, and on the front panel, a headphone socket with a level control.

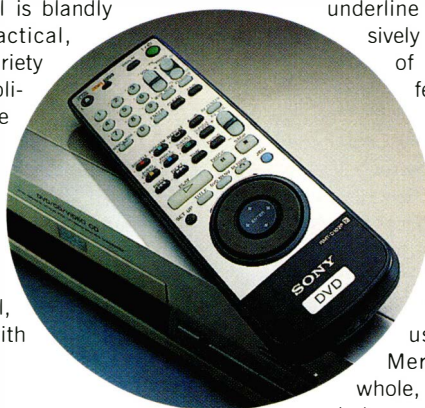
### Sound quality

There was little equivocation from the panel, which was consistent in scoring. One panellist deemed the player "fresh and smooth, with lots of detail, and which just misses being truly excellent" (Buena Vista), and "very low in distortion, but it somehow misses the expression locked up in the notes" (James Taylor). The prominent treble was heard by one as a "recessed mid-band", leading to a "small-scale" performance in the same piece, and the Dyson was felt to have "too much treble in the beginning, with great soundstaging". Despite the specific criticisms, the Sony was described as "very listenable", although the earlier comment about audibly low distortion was repeated in comments from several listeners.

My hands-on testing pointed to a player that sounded qualitatively different to the others, and in some ways closer to the Arcam CD player, though the treble wasn't free from the problems noted elsewhere as the panel comments imply. With some material, the Sony tended to emphasise or underline the treble, with excessively breathy vocals and hints of sibilance with some female voice recordings. The player also lacked the organic quality and awesome power in well-recorded orchestral music and piano recordings (the Dyson and Volodos are excellent examples) available using the Theta and Meridian players. On the whole, the Sony sounds clean and sharp, with a powerful, driving bass and a typically open, articulate mid-band. The bass was exceptional in its tunefulness and control, and the midband was layered and open, if rather flat spatially — a feature typical of all the players tested.

### Conclusion

The fresh, open vitality of the Sony marks it apart from its peers, but the DVP-S715 failed to completely transcend the standards set by good mainstream CD players. Listening fatigue was a factor in long-term use thanks to a treble that resolutely refused to sound wholly natural and transparent. With careful system matching some improvement can be expected, however, and its overall performance is easily good enough to earn a Recommended tag.



SONY VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
PRICE	£599.99
(ONE YEAR GUARANTEE)	
Clean, sharp and vivid player, marked down only by a loss of euphony and transparency in the treble.	
Sony UK Ltd., The Heights, Brooklands, Weybridge, Surrey KT13 0XW	
(0990) 111999	





**Toshiba SD3107B**

It is a long time since a Toshiba product graced the pages of this magazine, but DVD is nothing if it doesn't lay down new lines in the shifting sands of audio allegiances. Toshiba was one of the prime movers in DVD — the company was a prime mover behind the SD disc which provided the basis of the DVD format.

The principal market for this model is home cinema, the feature set being biased towards use with high-end TV, and specifically Toshiba's own Dolby Digital compatible home-cinema TVs, which the remote control will operate. Explicit support is provided for DVD Karaoke discs (a subset of the parent DVD standard, which will no doubt become readily available as Japan shares the UK's region-specific DVD "area code") and other video-related features including picture zoom and 3D sound for two-speaker playback. The latter is offered on numerous machines but is not recommended for hi-fi replay. There are some good tricks played here, features including reverse play.

The Toshiba is more limited in audio terms than the best of the opposition. It will read 24-bit discs, but only with the precision available from a 20-bit processor,

though this may not be much less than is available from today's 24-bit DACs in practice. This model is not supposed to play CD-Rs, but it didn't reject them out of hand, although it played them unreliably and with intermittent glitches.

The SD3107B has a single SCART, though it is capable of delivering component RBG as well as Y/C and composite video. Other sockets include an S-Video (Y/C) connector, optical and electrical-flavoured S/PDIFs (48kHz maximum) and analogue line and headphone sockets. The latter is under control of a volume level pot.

**Sound quality**

Achieving a fair-to-middling score from the panel, with little variation between listeners, the Toshiba was liked more than it was admired. Positive references were given to its forcefulness, solidity and midband detail, along with some criticism of a lack of atmosphere and a degree of muddle and veiling, mostly associated with the treble. This was noticed especially in the piano recording, whose percussive nature is particularly demanding. "A bit cloudy," wrote one, while another thought the piano "lacked dynamics and bite," while a third felt that "it is quite a convincing sound, but (that it) lacks some of the spacious atmosphere" of the Meridian player used as reference. Such comments could indicate the presence of significant jitter lev-

els — given the number of microprocessors under the hood of these machines, high levels of jitter would not be surprising.

The Dyson piece also focused attention on less satisfactory performance elements. The piece was deemed "pleasing but not captivating," and "slightly recessed".

Another listener, who came closest to representing a consensus view across the range of music, wrote that the piece sounded "dramatic and forceful" through the opening bars, and that it was "jaunty, with plenty of detail and good timing. This player is fun to listen to, if not the most detailed here," he concluded.

My own tests placed the Toshiba firmly in the bottom part of the group. In the company of top-rank CD players like the Theta Jade/Pro Basic III, a leanness in the sound was very obvious, and much of its get up and go seemed to dissipate. The overall effect was soft and homogenised, though the Toshiba was never overtly unpleasant.

**Conclusion**

The electronic beep that accompanies each control action had me wanting to strangle this player, and made its presence difficult to disguise during the tests. In other respects, it was a pleasant machine to use, with good if not exceptional on-screen and sonic performance, though its natural constituency remains firmly with home cinema.



**TOSHIBA VERDICT**

**SOUND** ★★☆☆☆  
**VALUE** ★★☆☆☆  
**PRICE** £549.99  
**(ONE YEAR GUARANTEE)**

☐ Adequate but unexceptional player which is a natural partner for home cinema systems, but no match for a respectable CD player.

✉ Toshiba (UK) Ltd, Toshiba House, Frimley Road, Camberley, Surrey GU16 5JJ  
 ☎ (01276) 62222



# Conclusions



Denon DVD-3000

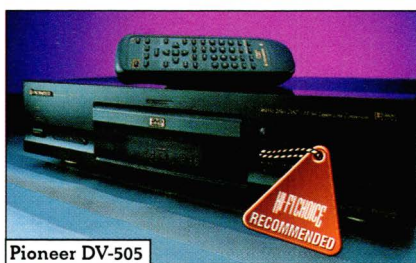
This test set out to answer the question of whether DVD players sound better than CD players, a bold and intriguing suggestion that has been doing the rounds. The panel tests failed to confirm the proposition, and at the end of the day the DVD players emerged more or less level with the Arcam Alpha 7. The broad consensus of the panel testers, from conversation after the products had been scored and identified, was that if it wasn't always the nicest sounding unit, the budget Arcam marshalled the musical information at its disposal more consistently and, on the whole, more coherently. The DVDs generally performed well too, with plenty of variation in colour and texture, and a generally open, easy character. There were, however, consistently identifiable problems at the frequency extremes: DVD players sounded lumpy and sometimes excessive at low frequencies, and their treble was variously sibilant, bright and sometimes messy. The player that consistently showed the DVDs a clean set of heels was the Meridian 508.24. The confidence level in these tests was high — the Arcam and Meridian made regular multiple appearances, and attracted similar listening comments and scores.

This result should come as no surprise. It would have been a shock if a group of products which are more complex than CD players, with a much higher internal chip count, and radio frequency interference signing inside, had managed to outperform simpler CD players at anything like the same price. The characteristic shortcomings of the tested DVD machines bear a striking similarity to sonic limitations of ordinary CD players known to suffer high levels of jitter and RF emission. (Lab assessment of DVD players will follow in months to come. — Ed)

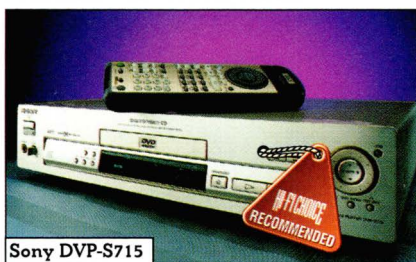
If there was a surprise in this test, it was how capable and involving these DVD play-



Panasonic DVD-A350



Pioneer DV-505



Sony DVP-S715

ers sounded, though there was never any doubt who was boss when the Meridian or Theta were cranked up. Both of the latter can transform good recordings into a special experience. On a more practical level, remember that most (though not all) DVDs won't play CD-Rs, but of course DVD players have uses other than just playing CDs. If you haven't seen one in action with a good TV, you've missed something.

Finally, a word of warning. This is not the place to examine video-related issues in

depth, but many *HFC* readers will be interested in DVD at least partly for its home cinema potential, and there are issues here which have yet to be fully resolved. In particular, while Dolby Digital has now been adopted as universal, the performance of DTS is potentially much better — indeed, LaserDisc DTS recordings prove this. There are no DTS recordings on DVD yet, but there will be within months, and a DVD player probably won't play them. (Read *Home Entertainment* magazine every month to keep up to date with DVD's home cinema applications. And see p16 for more on DTS.)

## Recommendations & Best Buys

Before looking in more detail at the Recommendations and Best Buys, let me stress that they were awarded strictly on the basis of music CD sound quality; nothing more. We very nearly recommended the Pioneer DVL-909 LD + DVD player, purely for its superior compatibility (with Laser Discs and CD-Rs) and its 24-bit, 96kHz digital output (bound to be regarded as a collector's item in years to come). However, to play CDs there are better DVD machines like Pioneer's own DV-505, which sounds similar and costs £450 — staggering value by any standards. This model clearly represents a better deal than the £550 Toshiba SD3107B.

The three top-ranking models, however, are the Panasonic DVD-A350, the Denon DVD-3000 and the Sony DVP-S715. The latter has a certain sharpness and clarity that surpasses the other two, but it is the Denon and Panasonic that put in a more satisfying organic and balanced performance at the end of the day. The Denon — a Panasonic with slightly better build and minus some inconsequential front panel furniture — is the clear victor, but only just. ▲



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# BEATS 'N PIECES

Charlotte Ricca grapples with amazing new 'home DJ' products that won't look out of place in your lounge.

Last year we made history with *DJ Choice*, a nifty little magazine put out with *HFC 171* just before Christmas. Boundaries have blurred between passive hi-fi systems, and active home DJ gear permitting creative input from the user. And at the same time there has been a growing need for magazine coverage that takes an authoritative, objective approach to 'bedroom' DJ equipment and the ideas, people and culture that shape it. *DJ Choice* was the first magazine to address this need, and the feedback has been very positive.

Six months further down the line, we're feeling a weird sense of déjà vu. Left, right and centre, companies are launching new equipment that is neither hi-fi system nor DJ kit, but both. Just check out the Pioneer RMX9, Vestax

AA-88 and Sony MHC-RX88 featured here, all perfect examples of the trend we spotted last year.

We've got amps and speakers to complement the most challenging modern music styles. We've got amazing gadgets that no self-respecting noise-merchant should be without. And for a wide-ranging assessment of each product's appeal, we tested them with the help of a top-ranking DJ and an experienced home musician.

A quick note of caution: as with all semi-professional equipment, not all of the featured gear will be available in regular hi-fi and electronics stores. You may well need the services of a DJ specialist outlet such as those advertised elsewhere in this magazine. If in doubt, call the manufacturers to get their list of authorised stockists. And have fun!

## Pioneer RMX9 (£999) ▶

To create the RMX9, Pioneer has obviously thought long and hard to meet every need of the bedroom DJ, or even just the home enthusiast who fancies blending Glenn Miller with Glen Campbell. The RMX9 comes with twin CD decks, a single tape deck, a 100 Watts receiver, an effects module and a DJ mixer for the CD decks. Optional extras are a MiniDisc (MD) recorder (£200), speakers (£100), and a rack will be available, too.

Although these components are separate, they are simple to connect up with ribbon cables. The mixer connects to the main system with a computer-style five-pin plug.

The mixer uses hands-on-



jog dials for cueing up, and features a crossfader (easily replaceable) which blends between the two CD players. It is also the control centre for the clean-sounding effects unit, which features a phaser, reverb and a built-in sampler for looping drum sounds to create repeated break-beats.

## Experts' verdict

We were suitably impressed with this outfit and the thought behind it. For example, the MD recorder option would enable budding DJs to produce broadcast-quality demos of their mixes for radio or nightclub promoters. "I could seriously see me having this in my home. It could add into my existing hi-fi to give it more scope," said Norman.

Pioneer ☎ (01753) 789 500





**Boss Dr. Sample SP-202 (£299)** ▲

The Dr Sample is a very basic 32-second digital sampler, which is ideally suited for use in conjunction with the Roland MC-505 (see overleaf) for adding custom sounds to your mixes. Basically it enables you to sample favourite drum loops or melodies from your music collection — but watch out for the copyright police!

**Experts' verdict**

Dean and Norman agreed that this unit would provide a good introduction to sampling for those still honing their home-studio capabilities, since it does the job efficiently, as advertised, and is easy to use. Like the MC-505, though, it'll soon be outgrown by maturing mixmasters. "It's like the sampler equivalent of the 'My First Sony,'" commented Dean.

Roland ☎ (01792) 702701

**Denon DN-M2000R £850 ▼**

This MiniDisc (MD) deck, the first ever MD recorder designed specifically for DJ use, is aimed at the top-end of the professional market, for installation in nightclubs and the like. It is very heavy and robust-looking, and arrives in a purposeful 19-inch-wide rack-mount chassis. But the (very) well-heeled home DJ might think about saving up for a DN-M2000R, since it offers features above and beyond any domestic MD recorder. These super-widgits include pitch control for matching tempos of different records, a jog dial for cueing up tracks, a Hot Start facility for instant playback with no track-search delay, and a loop/sample function.

**Experts' verdict**

Norman really liked the fact that the Denon offers DJs the chance to make a great-quality demo recording, to try out on a club audience before incurring the cost of pressing on vinyl or CD. Dean was also very impressed, but being a vinyl die-hard he still can't believe MiniDisc will take over from the platters that matter. In conclusion, Norman and Dean both thought that this was a brilliant machine, and extremely well made, with chunky rubber buttons in bright colours, making it perfect for use in a club — or a very smoky bedroom...

Hayden Laboratories ☎ (01753) 888447



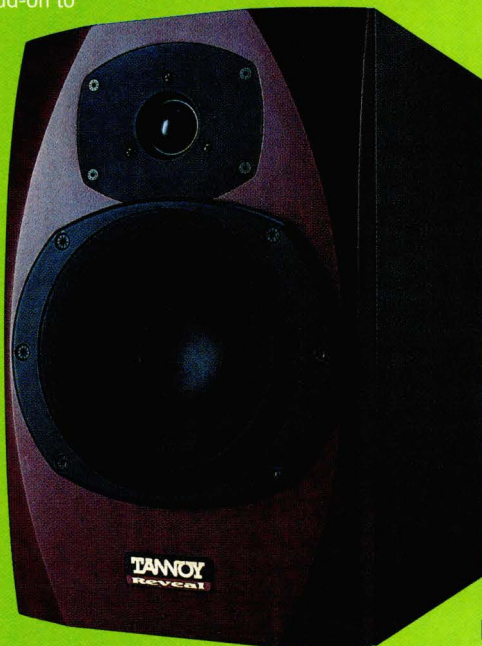
**Tannoy Reveal monitors (£229) ▼**

These attractive red-wood-coloured monitor speakers have a maximum power handling of 100 Watts. Their frequency response is claimed to be 60Hz to 20kHz with a sensitivity of 90dB, making them well-suited as an upgrade for standard hi-fi speakers, or as an add-on to the Vestax AA-88 and Pioneer RMX9, for example.

**Experts' verdict**

The Reveals have a warm, friendly sound which is easy on the ear — essential, as our DJs pointed out, when doing a 90-minute mix! Dean had another way of looking at this, which was that the bass was rather muddy and the treble seemed to get lost along the way. Try before you buy.

Tannoy ☎ (01236) 420199



**Sony MHC-RX88 (£360)** ▲

This all-in-one rig is a pumped-up midi system with ultra-garish graphics and gadgets such as drum pads and a loop facility to repeat, say, a rhythm pattern over and over. However, with its jazzy flashing lights and chrome finish the Sony is squarely aimed at a certain market — and we're not talking about the Val Doonican crew.

**Experts' verdict**

Up to the age of 16, you'll be working out how on earth you can persuade Santa to bring you one of these. Thereafter you'll be working out which one of your youthful relatives to palm it off onto. Both Norman and Dean reckoned it could be fun in the right pair of juvenile hands, and while in no way can it match the systems from Pioneer and Vestax, it might whet a young appetite for the joys of beat manipulation.

Sony ☎ (0990) 111999



## ON TEST: DJ GEAR

### Cerwin Vega E315 (£700) ▼

These monsters stand over 36 inches high and look like the kind of equipment your neighbours' nightmares are made of. Their frequency response is claimed to be 28Hz to 20kHz and they are said to have a ludicrous sensitivity of 102dB. Couple that with a power handling of 400 Watts and they obviously mean business. Loud business.

#### Experts' verdict

We reckon these wardrobes look bigger than they sound, but if you're out to create the Ministry of Sound at home, they're ideal. Commented Dean: "I was expecting the bass to hit me in the chest, but it never happened. They look like bookshelf speakers which have been enlarged on a photocopier." Maybe the neighbours can rest in peace after all, then. *CSE* ☎ (01423) 359054



### Roland MC-505 (£949) ▼

Roland is staying at the forefront of the home-studio digital revolution with this all-singing, all-dancing box of tricks. The MC-505 is ultimately a sequencer, capable of arranging up to 50 songs or 95,000 notes. However, it is also a sound module, offering 512 sounds including basses, pianos, swirling keyboard 'pads' and all the classic Roland drum sounds, heard everywhere from the Prodigy's first single to Madonna's latest album.

In addition there are 248 programmed drum patterns, which range from cheesy Latin to industrial hardcore, and they can be edited to suit. A further novelty is the 'D-Beam' controller which emits infra-red light from a lens on top of the machine. When you put your hand above it, light is reflected back to control tempo, musical key or even instruments. It has six audio outputs, and sockets for connecting up to a computer or other keyboards.

#### Experts' verdict

Both Dean and Norman agreed that this is an excellent starter kit, for bedroom mixers who have neither the space or money for a separate keyboard, drum machine etc. Essentially the MC-505 is a complete studio in a box, and is very user friendly. However, our experts felt that even with limited experience users would grow out of it quite quickly, and it is very much biased towards rave music — rap fans beware!

*Roland* ☎ (01792) 702701



### Pioneer SE-DJ5000 (£119) ►

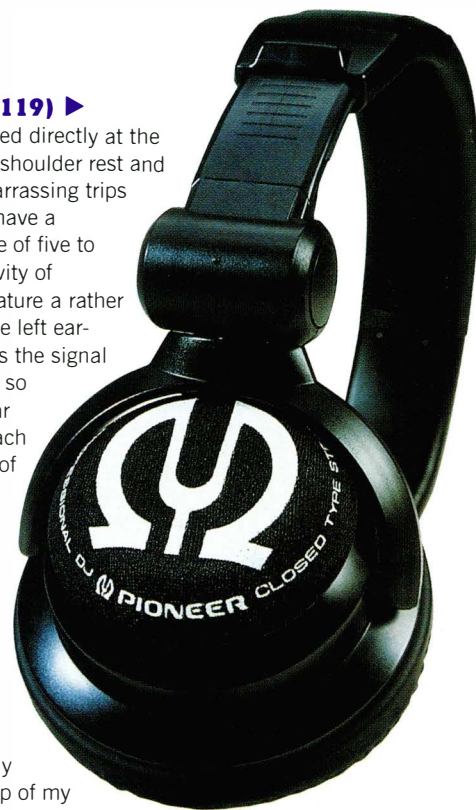
These headphones are aimed directly at the jobbing DJ, with a padded shoulder rest and a coiled lead to avoid embarrassing trips over lengths of wire. They have a claimed frequency response of five to 28,000 Hz and sensitivity of

105dB. They also feature a rather cunning switch on the left earphone which changes the signal from stereo to mono, so when mixing you hear the same music in each earphone regardless of left/right panning on the track.

#### Experts' verdict

Dean favoured these 'phones as he thought they were robustly made, if a little too heavy. "They're nice and loud, but a little trebly and painful on the top of my head!" Poor little fella. Norman figured they'd be too cumbersome for his purposes, but perfectly adequate for bedroom use.

*Pioneer* ☎ (01753) 789 500



### Vestax AA-88 (£1,250) ►

The AA-88 is Vestax's 'Active Audio' console, and boy, is this a treat for your parlour. Look at it from the front and you see only a volume knob, CD draw, MiniDisc slot and some nice wooden cheeks. Peer down from above and it's sliders, displays'n'buttons galore. Houston Mission Control has nothing on it. The three-channel mixer (with removable crossfader) blends together all of the sources on board — there's a radio tuner in addition to the CD and MD already mentioned. But it will also accept external record decks, even musical instruments, and the MD recorder can be used to produce top-quality transcriptions of your latest mental mixdown. (Or you can hook up an external tape deck.) There's a mic input for voiceovers, a three-band equaliser and a headphone socket. Like Vestax's CDX-12, the AA-88 uses a four-way joystick for cueing and pitch bend. A built-in 30 Watts amp means you only need speakers (and music!) to get up and running.

#### Experts' verdict

Like the Pioneer RMX9, this is an incredibly novel product hitting a gap in the market, and even with little experience users can start mixing straightaway. We had fun blending Sneaker Pimps with a Jean-Michel Jarre CD: speed garage meets synth-prog, anyone? The MD's transport controls make it easy to repeat phrases as if looped in a sampler, though as with the CDX-12, the cue-up joystick takes a bit of getting used to. It's not cheap, but it's a much more elegant lounge accessory than a rack of decks!

*Vestax* ☎ (01428) 653 117



**SoundTech PowerSource PS802 (£449)  
/PowerLab PL602 (£279) ▼**

As featured in HFC 179's Update pages, the PS802 PowerSource is a basic but very powerful professional studio amp, which is currently being used by the US Military in a tank simulator. Measuring just one rack-mount unit high (1.72 inches), this 15.8lb amp is ultra-slim, thanks to a hybrid switched-mode power supply, which does away with the need for a bulky mains transformer. With single inputs accepting both XLR and quarter-inch jacks, and outputs via Neutrik Speakon connectors, the PS802 has a massive power rating of 400 Watts per channel RMS into four Ohms. Twin varispeed DC fans keep it cool, though, and the amp has full protection against mains spikes.

**Experts' verdict**

Dean aptly described this amp as a workhorse — robust enough for constant studio abuse, and it produces a clear, neutral sound. The PL602 PowerLab amp is a heftier alternative, but much cheaper at £279. It offers 300 Watts per channel into eight Ohms, stands 3.5 inches high and weighs in at 37.4 lbs. Both units come with a ten-day money-back guarantee.

Smart Sound Direct ☎ (0990) 134464



**Red Sound ▲  
Systems Voyager 1  
(£299.50)**

Red Sound Systems' chrome box is principally a studio tool, but can be used in the DJ environment. Its aim is to count the beats of a track you're playing and then produce a MIDI clock signal, with which to synchronise sound modules such as the Roland MC-505, or a synthesiser. This means that you could play a nice little Kylie tune and lock it up with an industrial hardcore break beat, if that sort of thing turns you on.

**Experts' verdict**

The Voyager 1 is extremely well built and ergonomically designed, but both DJs were sure its chrome finish wouldn't stay shiny for long! Although it certainly should work well with basic 4/4 house beats, Dean thought James Brown's funky drummer would probably confuse it.

Red Sound Systems Ltd ☎ (01494) 429321



**Vestax CDX-12 (£749) ▼**

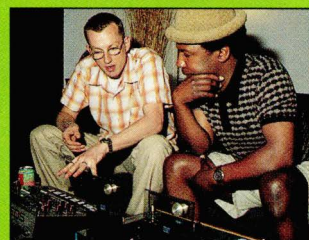
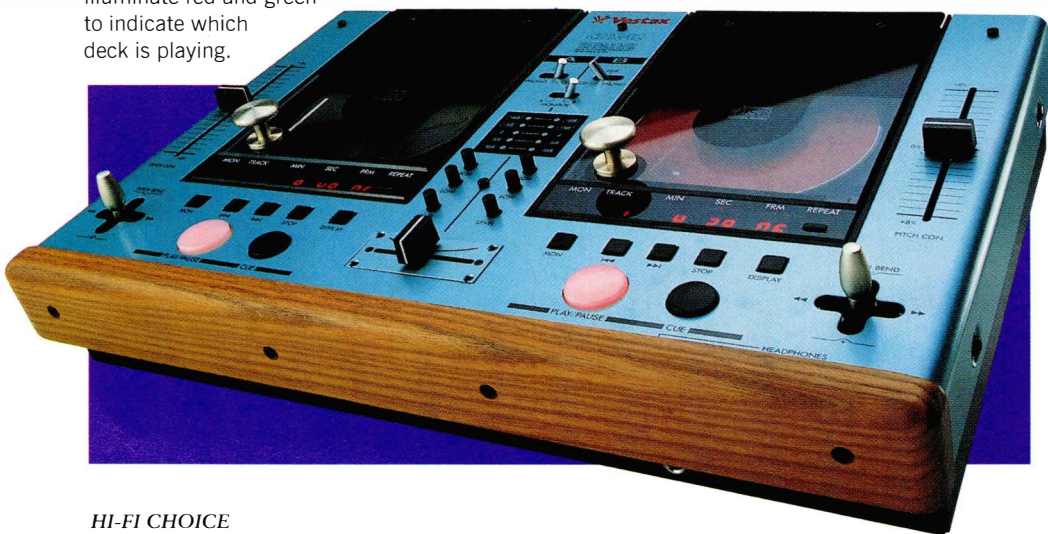
The Vestax CDX-12 is a one-box combination of twin CD players, and a mixer to blend between them. The latter has a removable cross-fader, so you can replace it after the inevitable DJ wear'n'tear, and it also has inputs for external sources so you can mix in turntables as well. The CDX-12 differs from many DJ CD players by omitting the jog wheel which is normally used to cue up tracks. Instead, a joy stick performs this 'fast-forward/rewind' operation when moved left or right; and when moved up and down the same control causes a pitch-bend effect of slowing down or speeding up the playing CD.

**Experts' verdict**

Our DJs liked the 'start' and 'stop' buttons which illuminate red and green to indicate which deck is playing.

There are also two-band tone controls to adjust levels of bass and treble. Both DJs were more concerned with the rather fragile pitch-control sliders, and felt the joy stick was a bit gimmicky — "very much the product of a computer generation," as Norman pointed out. Old-skool Norman bemoaned the fact that the CDX-12, like any DJ CD player, "doesn't give the user any hands-on, in the way that vinyl does. It's only a matter of time until you can pre-programme all of this and there's no involvement for the DJ. Then what role do you play?" But Norm, look at those lounge-friendly wood cheeks and the mint-green colour scheme...

Vestax ☎ (01428) 653 117



Dean Smith (left) and Norman Jay take to the Hi-Fi Choice sofa.

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OUR EXPERTS**

Norman Jay is globally acknowledged as a top DJ playing a vast range of musical styles, from funk to garage. He first came to light as a founder of Kiss FM (London's premier dance music station), and since then he has been voted Club DJ of the year by *Blues and Soul* magazine. While he often entertains at parties for the likes of Mick Jagger, Michael Caine, Paul Weller and George Michael, come Sunday evening Norman still finds time to titillate the airwaves of London on BBC GLR 94.9.

Dean Smith, our 'bedroom studio' boffin, often DJs at bars and parties, but his principal musical vocation lies with production not performance. Though he doesn't like to advertise the fact, Dean is a walking compendium of home-studio recording technology.



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DM-1835x .£599

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# HEAVYWEIGHT CONTENDERS

Paul Messenger (listening test) and Paul Miller (lab test) put 11 big-box loudspeakers through the Hi-Fi Choice testing mill. Are they really loud and proud?

Is bigger better? was the question at the top of the Editor's commission for this group test. I shall leave the answers to the Conclusions section at the end of this wide-ranging report (p86), but the group of speakers assembled for the quest provides an appropriate framework for such an investigation.

Our group of 11 ranges in price from £950 up to £1,800, split somewhat arbitrarily into three price bands. There may be nearly a two-to-one ratio between the cheapest and the most expensive, but this sector of the market is far less price-sensitive than the sub-£400 mainstream, so buyers are unlikely to choose between a £1,400 Group B and £1,500 Group C model purely on the basis of price.

This introduction at least allows the scene to be set with something more subtle than the tools of accountancy. Purchasers of upmarket speakers are certainly looking for serious performance, but beyond that fundamental requirement there are numerous possible priorities, simply because there's a much greater variety of products on offer as one moves up the price scale. It's unlikely that someone seriously considering the JBL SVA2100 would even countenance the Chario Academy — or vice versa. (For example, the Chario is the one likely to strut its stuff in a stately home, while the JBL is destined for a second-floor flat in somewhere like Stoke Newington.)

Speakers differ from other hi-fi components by virtue of different shapes and sizes, and those variations translate directly into certain aspects of performance. You'll never get deep bass and high sensitivity together from a small loudspeaker, whatever the marketing men might try to imply. However, small size is a major plus for most customers, so some sort of compromise is usually required.

Sadly, there is only one standmount among this month's 11 — last year (*HFC* 167), across a similar price span, we mustered three standmount, one semi-standmount and a sat/sub combination. While the

## THE CAST LIST

MODEL	PRICE	PAGE
Audiovector M2.....	£1,399.95	... p75
Cabasse Farella 400.....	£950.00	... p65
Celestion A2.....	£1,499.00	... p81
Chario Academy.....	£1,649.99	... p83
Heybrook Octet.....	£1,800.00	... p84
JBL SVA2100.....	£1,250.00	... p67
JM Lab Spectral 909.1.....	£1,375.00	... p77
Living Voice Auditorium.....	£1,499.99	... p85
Magnat Vintage 720.....	£1,199.00	... p69
Monitor Audio 705PMC.....	£1,399.99	... p79
Naim Credo.....	£1,090.00	... p71

Chario is clearly the smallest here, there are obvious gradations in size among the floorstanders — height and width are the most significant factors in the perceived bulk.

And you don't have to look any further than this group to realise that surface finish quality is directly related to price. There's none prettier than the pricey Chario; none more utilitarian than the JBL. The others fill the broad rift valley in between. Not surprisingly, the best-looking veneers tend to

be seen on the smaller, more expensive models (eg Monitor Audio, Living Voice).

The driver line-up varies significantly across our test group. Three are simple two-way designs (Cabasse, Naim, Chario), but only two follow a full three-way configuration (Heybrook, JM Lab). The others are twin-main-driver two-way designs of various kinds: some mount the main drivers above and below the tweeter, in the so-called d'Appolito layout (JBL, Magnat, Celestion, Living Voice); the Audiovector and Monitor Audio keep their tweeters at the top, the former rolling off its lower main driver early (in what is sometimes called a two-and-a-half-way configuration). The effect of these variations is also reflected in the review findings, though again it wouldn't do to pre-empt the conclusions in the introduction.

There are no easy routes to loudspeaker nirvana, and in the end it's all about one compromise or another. One advantage of these higher-price loudspeakers is that serious performance is pretty well guaranteed. The trick is to use our reviews to help you pick the particular speaker which suits your particular lifestyle and taste.

## HOW THE TESTS WERE DONE

Each of the 11 speakers underwent a programme of tests comprising a physical examination, computerised performance measurement, hands-on listening and, most important of all, a panel audition in which listeners were kept from knowing which pair of speakers was being auditioned.

The 'blind' listening tests were spread over two days, allowing a number of repeats. The main reference system used for the blind and hands-on work consisted of the usual collection of Mana-supported Naim and Linn components, viz: Linn LP12 turntable, Naim ARO tonearm, Linn Arkiv 2 cartridge, Naim CDS CD player, NATO1 tuner, NAC52 preamp and NAP135 power amps, plus the Audio Precision Eikos CD player and Musical Fidelity A1001 integrated amplifier. Speaker cables were NACA5 and Nordost SPM.

Music used during the testing included excerpts from the albums shown right. BBC Radios 3 & 4 were also used extensively during the hands-on work.

### WHAT MUSIC DID WE USE?

Joni Mitchell: *Mingus* Asylum AS53 091

The Chemical Brothers: *Dig Your Own Hole*  
XDUSTCD2 42950 2 8

Cambridge Singers: *There is Sweet Music*  
Rutter/Collegium COLCD 104

Talking Hands: *Acoustic Mania* naimcd020

Villa-Lobos: *Uirapuru/Stokowski/Stadium Symph*  
Orch New York/Everest DCC Compact Classics  
LPZ-1003

Fun Lovin' Criminals: *Come Find Yourself*  
Chrysalis 37566 2 9

Little Feat: *The Last Record Album/WEA* K56156

### THE LISTENING PANEL

Thanks are due to to panellists David Inman (Castle), Robin Marshall (Mission), Russell Kauffman (Morel, Densen), Keith Haddock (JBL), Andy Whittle (Rogers) and Dave Denyer (Musical Technology).

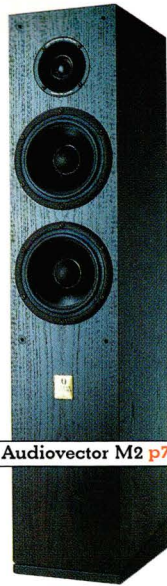




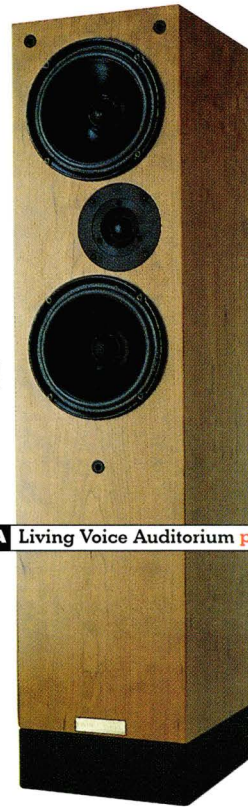
A Magnat Vintage 720 p69



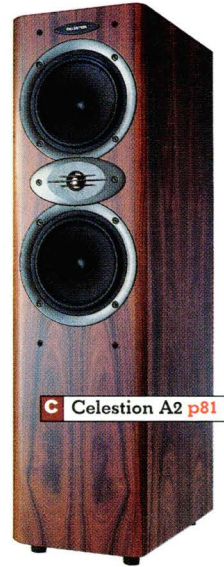
C Chario Academy p83



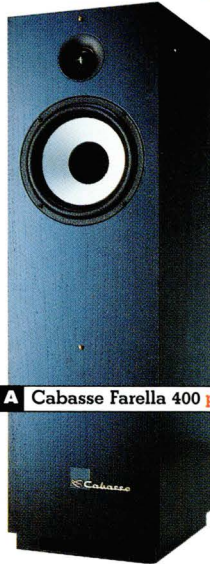
B Audiovector M2 p75



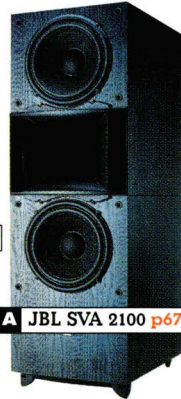
A Living Voice Auditorium p85



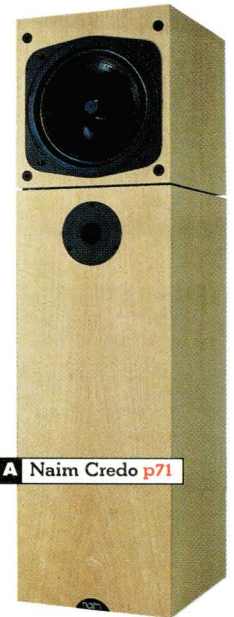
C Celestion A2 p81



A Cabasse Farella 400 p65



A JBL SVA 2100 p67



A Naim Credo p71



C JM Lab Spectral 909.1 p77



B Monitor Audio 705PMC p79



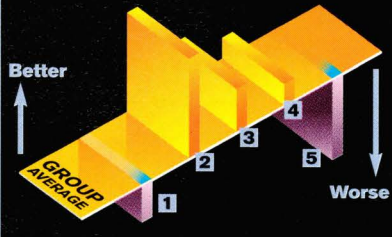
C Heybrook Octet p84

**UNDERSTANDING OUR BAR-GRAPHS AND GROUP AVERAGES**

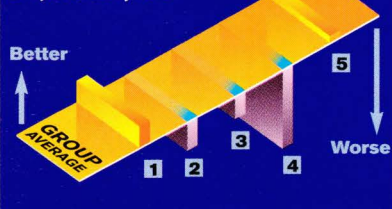
There will be significant differences between the cheapest product in our test and the most expensive. For this reason we always segregate our test candidates into two or more categories based on price. Our aim is to assess every product's performance in the context of its closest rivals.

Each lab-report panel is colour-coded according to the key given below:

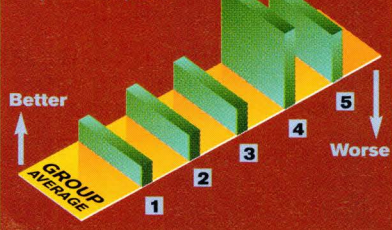
**GROUP A EXAMPLE UP TO £1,300**



**GROUP B EXAMPLE £1,300-£1,450**



**GROUP C EXAMPLE £1,450-£1,800**



**UNDERSTANDING OUR BAR-GRAPH MEASUREMENTS**

The measurements behind *Hi-Fi Choice's* unique bar-graphs 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.

**1 Ease of drive**

This statistic is derived from the reactive and resistive components of the speaker load, indicating how tricky it is for the amplifier to drive.

**2 Relative loudness**

The sensitivity of the speaker is measured at 1m with a 2.83V input across third-octave bands 17-29, then weighted according to the human loudness contour to indicate how 'loud' one speaker will sound relative to another.

**3 Maximum loudness**

This takes into account the speaker's sensitivity, distortion, the maximum useable amplifier power and the effects of placement in an 'average room' to gauge the maximum practical Sound Pressure Level obtainable from a given pair of loudspeakers.

**4 Audible distortion**

This valuable test momentarily raises the output to 96dBA with dynamic signals through bass, midrange and treble. This allows us to assess distortion under realistic, transient conditions.

**5 Bass Extension**

This provides an indication of a speaker's likely bass extension in an "average" living room, according to the maker's suggestions for positioning.



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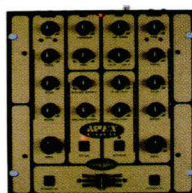
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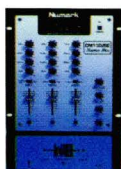


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## Numark



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# Cabasse Farella 400

Though little known here in Britain, Cabasse is one of France's largest and longest established loudspeaker brands, with a continuing history of family ownership which is unusual for a company of this longevity. *Choice* reviewed a couple of Cabasse models a few years back (*HFC* 110 and 122), which established the brand's credibility, but UK distribution didn't work out that time. Now the company is back, this time operating through Audiofreaks, with (among others) a floorstander that reinforces the French refusal to follow mainstream trends just for the sake of it.

The £950 Farella 400 might be the least expensive in our group test, but it's by no means the least capable. It's physically compact, but feels solidly built, turning the scales to a substantial 22kg. While the cabinetwork is neat, with a black real-wood veneer (three other options are available), it's also rather sharp-edged and shiny, which goes somewhat against the modern trend.

Drive units have always been Cabasse's forté, and the two used here are distinctive. The cast-frame main driver has a generous 155mm main cone, white in colour, while the tweeter has a large 33mm dome and a pronounced horn flare. There's just a single

terminal pair, with no bi-wire/amp option, while the reversible spikes have no lock-nuts, but use a clever socket thread instead.

The in-room, far-field balance is different from the norm, as the Farella's exceptionally high sensitivity extends up through the presence band. It peaks at a high 3-4kHz off in a manner slightly reminiscent of Rehdeko designs, which is a full octave above the point at which most designs start rolling off. Given the massive sensitivity and modest dimensions, bass alignment is decidedly dry, so some close-to-wall reinforcement is likely to pay dividends.

## Sound quality

"If this one is right, then all the others must be wrong," quoth one panellist, describing the Farella dilemma, and the difficulty in summing it up on a single rating. Given the tendency of panels to opt for the bland, I was surprised that reactions were positive towards a sound which is certainly exciting, invigorating and highly informative, but also decidedly edge-of-seat and in-yer-face in terms of presentation.

It's not a particularly smooth-sounding speaker, and voices can have a 'quacky' character. The bass is rather light and dry, so the sound is a little short of weight and scale, but it does have plenty of drive and purpose, never lagging behind the pace and always adding a measure of dynamic tension on appropriate material. Ironically (in view of the very high sensitivity), the Farella 400 is particularly effective at low volume levels, where it retains a full measure of subtlety, delicacy and detail. Start winding up the volume and the edginess begins to become more obvious.

## Conclusion

Being different from the norm, the Farella will sound too vivid for many. A minority, however, will find the extra injection of life and pace they're looking for. The solid build and classy finish provide decent value for money, while the high sensitivity is a worthwhile extra bonus. *PM*  
 Postscript: Audiofreaks has informed us that Cabasse is changing the crossover network of the Farella 400 in response to criticisms that its balance is too 'forward'. Models reaching the shops after July should sound more restrained than our review samples.



## VERDICT

**SOUND** ★★★★★  
**VALUE** ★★★★★  
**PRICE** £950.00

### LIFETIME GUARANTEE

- Very up-front and edge-of-seat presentation, will inject extra life and vigour into any system. Fun, but not for the fainthearted.
- Audiofreaks, 15 Link Way, Ham, Richmond, Surrey TW10 7QT
- (0181) 948 4153

## THE LAB REPORT

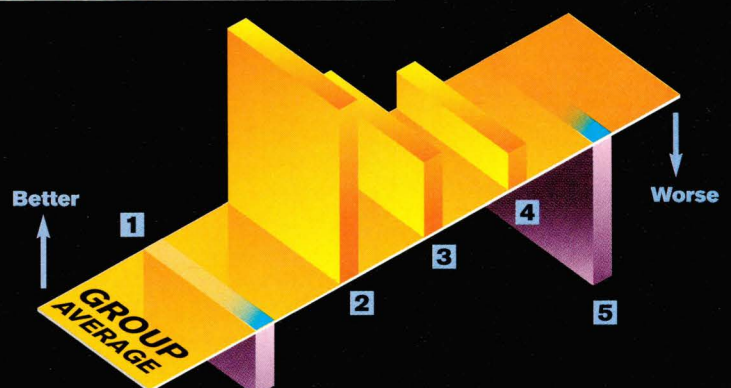
Putting the 'loud' firmly back into 'loudspeaker' and challenging Musical Fidelity's Kelly range on home ground, the Cabasse Farella 400 will muster an astonishing 95.4dB sensitivity at 2.83V/1m. With a maximum continuous power input of 100W, a pair of 400s would realise an ear-crushing maximum of 110-111dB SPL at 2m in the average room. However, though Cabasse also specifies its speakers to withstand a momentary power input of 700W without damage, this does *not* mean the Farella 400s will generate a peak output of 119dB SPL! (see my *Oasis* column last month).

And the price? Well, its bass extension is limited by the -6dB point of the driver (60Hz) and 34Hz port-tuning, giving a projected in-room figure of about 40Hz. The speaker load, however, is not too difficult, with minima of 4.30hms at 200Hz and 4.20hms at 3.6kHz and a band average of 9.40hms.

There is some peakiness in its forward response immediately following the 1.4kHz crossover point while, off the horizontal axis, this begins to look more like a step-function, leading into a progressively rolled-off treble. Distortion also increases to around 1 per cent in the 1-4kHz range (re. 96dBA, pulsed) though its performance improves through lower bass and higher treble frequencies, suggesting the 'presence' band might appear more coloured. *PM*

## HOW IT COMPARES

1	EASE OF DRIVE	-25%
2	RELATIVE LOUDNESS	70%
3	MAXIMUM LOUDNESS	30%
4	AUDIBLE DISTORTION	15%
5	BASS EXTENSION	-55%





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# JBL SVA2100

It's just as if JBL had taken the SVA1500 standmount we reviewed a few months back (*HFC 174*), and put it into a magnification machine so that it came out 10 times bigger. The 1500 was arguably too small to impress, yet this 2100 is a real monster — too big for the majority of British customers and homes, I daresay. It looks like it belongs in a Goldilocks scenario, with something halfway between (such as the SVA1800) more likely to do the business.

Still, there's no denying you get a lot of speaker for your money. It's at least twice the size of its competitors in this test, and turns the scales round to a daunting 40kg. Two 10-inch-frame main drivers and two large rear ports provide a much greater bass radiating area than the competition, too.

Pretty it's not: the acreage of black vinyl woodprint couldn't help but dominate all but the largest rooms. However, the large Pro-style 'elephant's bum' horn tweeter brings plenty of attitude to a party where the emphasis is primarily on putting the Loud into Loudspeaker. The 2100 looks like a US-built JBL, and its £1,250 pricetag is by no means unreasonable in view of the bulk and shipping costs involved.

You don't get any fancy cosmetics here, nor any neatly chamfered box edges, but

that large bi-radial horn driver is the key Unique Selling Point (USP), carrying all sorts of messages about kit musicians use on stage. Horns have high sensitivity and controlled directivity, and the latter will reduce the proportion of room-reflected versus direct sound which reaches the ears. However, the SVT2100 will behave as an omni-directional point source at lower frequencies, before the horn takes over, and the problems of achieving a good blend between bass and horn are far from trivial.

The back panel has two terminal pairs and two enormous reflex ports. The whole thing sits on plastic feet, the front two adjustable, and if this doesn't give the security of adjustable spikes, the 40kg weight and deep footprint are sufficient to ensure stability.

Massive bass output makes free-space siting mandatory. The in-room, far-field measurement shows a good balance across the band, albeit with strong low bass output — the bottom octave (20-40Hz) is about 6dB up on the rest of the band. However, the good overall balance is punctuated by significant unevenness.

## Sound quality

With all the visual cues taken out of the equation, the SVA2100 didn't sound

all that different from the norm — much to the panel's surprise. And while it may not be a great loudspeaker, it is certainly a very competent one, delivering exceptionally powerful, deep, clean bass with an attractive evenhandedness elsewhere too.

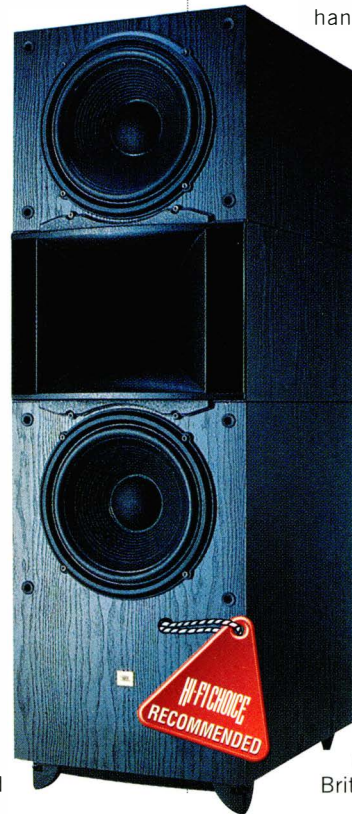
There's some lack of smoothness and transparency here, which is made all the more obvious because the broad midband is just a little laid back and undemonstrative. And on some material the bass output can

be a little too excessive. But the hands-on work confirmed the prodigious headroom and power handling on offer here, which makes it just the ticket for students of the latest dance grooves.

## Conclusion

Is this a real hi-fi speaker, or something scaled down from the PA (public address) sector? It's a difficult question to answer. In many respects the SVA2100 works rather well, delivering a good if bass-heavy balance, decent sensitivity, plus impressive detail and focus, though it is not the last word in smoothness and transparency. It's obviously a lot of speaker for the money, and has massive loudness potential too, though the sheer physical bulk could remain a deterrent in many

British homes. *PMc*



## VERDICT

**SOUND** ★★★★★  
**VALUE** ★★★★★  
**PRICE** £1,250.00

### THREE YEAR GUARANTEE

- ☐ Monstrously large with brutish styling. Goes very loud as well as deep. Fine focus but some boxiness.
- ✉ Gamepath Ltd, 25 Heathfields, Stacey Bushes, Milton Keynes, Bucks MK12 6HR
- ☎ (01908) 317707

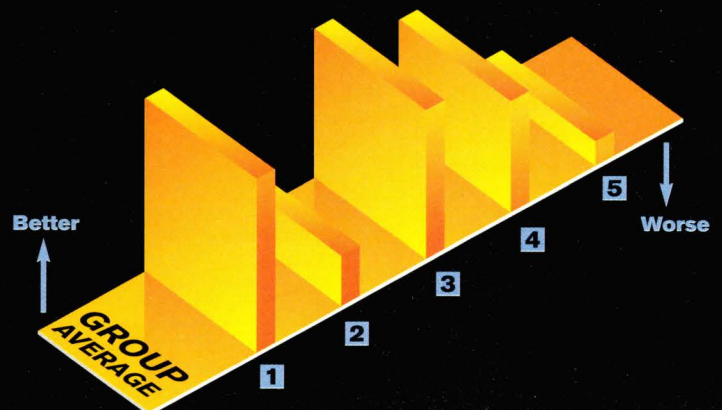
## THE LAB REPORT

This SVA2100 may *look* like a monumental version of the SVA1500 reviewed in *HFC 173*, but its larger, bi-radial horn has a much improved dispersion characteristic, helping to produce a surprisingly flat and even response from 300Hz right up to 10kHz (a sharp cancellation notch at 12kHz is unlikely to be audible). Positioning is not quite so critical — you'll experience a slight loss in 'presence' off-axis — though a listening height on a level with the top of the horn gives ideal results. The larger SVA2100 may fall short of its rated 93dB sensitivity, but 92.3dB/2.83V/1m is still very much more sensitive than the little SVA1500, leading to peaks of 112dB SPL with a mighty 300W amplifier!

And though these are by far the largest speakers in our test this month, they won't necessarily produce the deepest bass. Sure enough, the two rear-facing ports are accurately aligned to 34Hz, coinciding with the driver null(s) and minimum impedance, but this is a high-Q tuning with a rapid roll-off — good enough for around 28Hz (re. -6dB) under standard conditions. Big swings in impedance 60hms to 770hms at the system resonance along with equally sharp swings in phase angle also suggest a fundamentally undamped design. *PM*

## HOW IT COMPARES

1	EASE OF DRIVE	70%
2	RELATIVE LOUDNESS	20%
3	MAXIMUM LOUDNESS	60%
4	AUDIBLE DISTORTION	45%
5	BASS EXTENSION	10%





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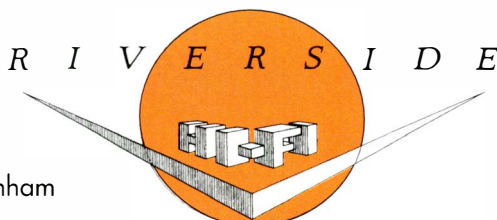
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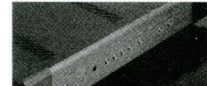
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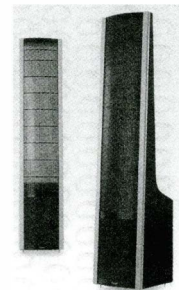
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# Magnat Vintage 720

The Magnat name will probably be unfamiliar to many readers, as this 30-year-old German brand's products have, to the author's knowledge, only made fleeting previous appearances on the UK market. Check out its German home market, however, and you'll find that Magnat is a major name. Then check out the Pound/Deutschmark exchange rate and you'll see an additional incentive for Henley Designs' new initiative to reintroduce the brand.

Having myself encountered Magnat at some overseas shows, I was aware of some of its technical achievements, like the plasma ion tweeter. Yet these always seemed somehow at odds with Magnat's fang-baring bulldog logo, backed up by a slogan that translates as 'Speakers with Bite', leaving the company itself something of an enigma — something which the arrival of this Vintage 720 for review has done little to dispel.

At £1,200 it's among the least expensive in our test group, yet it's also the tallest, and at 27kg one of the heaviest. It is not, however, one of the prettiest, and that judgement shouldn't be construed as size-ist. In fact, it's the smallest of three floorstanders in the Vintage 700 series, even though its black front (which remains black, grille on or

off) seemed to loom rather large in our room. Happily it's not too wide or deep, has an interesting hexagonal plan shape, and the other five faces have a real-wood finish, with four options to choose from. Ours had a rather anonymous grain, and the panel fit around the base area might have been better.

In an essentially simple two-way design, the 720 uses two main drivers with hunky cast chassis and 120mm metal cones above and below a 14mm ceramic dome tweeter (d'Appolito-style). A large (70mm) rear port should provide ample extra bottom-end reinforcement. The driver chassis motif is echoed in the real terminal panel, itself a chunky casting with enormous, well-separated multi-way terminals, offering bi-wire/-amp options. In contrast, the 6mm floor spikes look like a bit of an afterthought.

The in-room, far-field response shows a fine overall balance with impressive bass extension, and sufficient midbass output to imply that free-space siting is mandatory. The overall balance looks very well judged, though a touch of 'three-humped' character is also visible, separating mid-band from bass and treble from midband.

## Sound quality

The first day's panel was so impressed by this speaker I repeated it the following day — only to find it receiving a similarly enthusiastic endorsement. The secret of its success would seem to lie in combining the weight and scale of a large loudspeaker with the coherence of a simple two-way configuration.

The end result might not be the smoothest or most delicate sound around, but it does pack a serious punch, with good weight, plenty of impetus and a real sense of purpose. The presentation is a little crude — the bass can sound rather thumpy with some material, and the presence is a bit shut in — but the whole is more than the sum of the parts here, and the end result is entertaining and communicative, rough edges notwithstanding.

## Conclusion

Fine results in the listening tests put this newcomer well on track for success in this month's test. In the final analysis it falls just short of a Best Buy, but remains a doughty performer that combines serious welly and ample headroom with fine timing and good communication skills. It may not be the prettiest speaker in the group, but it's great value for money. *PMc*



### VERDICT

**SOUND** ★★★★★  
**VALUE** ★★★★★  
**PRICE** £1,199.00

#### FIVE YEAR GUARANTEE

- 📄 A big speaker which combines a full-scale sound with the coherence and communication skills of a simple two-way.
- ✉ Henley Designs Ltd, The Old Coach House, The Street, Crowmarsh Gifford, Wallingford, Oxon OX10 8EH
- ☎ (01491) 834700

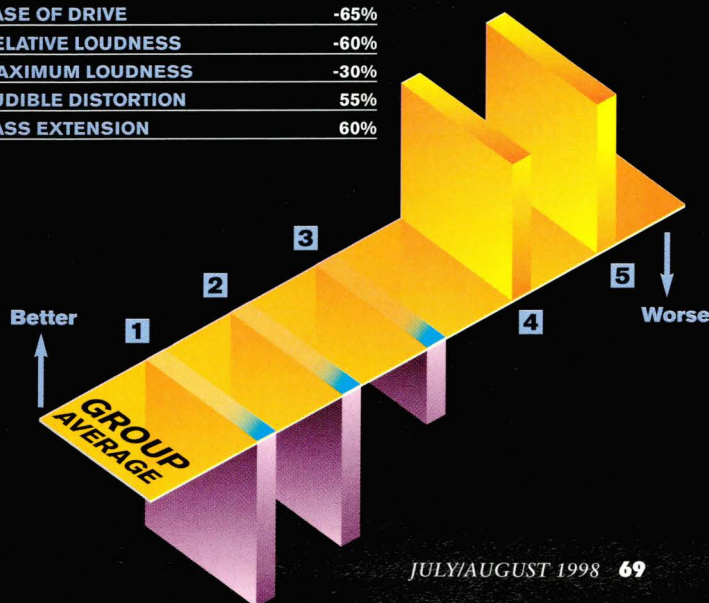
## THE LAB REPORT

Both on- and up to 30 degrees off-axis, the 720's response shows a slight depression through the lower treble 'presence' region, but it has a far smoother-looking treble than many of its competitors in this test. Only the bass looks a little lumpy, but then this is not uncommon with large 3-way designs and can be minimised by keeping the speaker clear of room boundaries. And its bass is uncommonly extended. The large, rear-facing port is tuned to 29Hz but actually provides a broad, low-Q reinforcement that extends from 25-105Hz, pushing the speaker's bass -6dB extension down to 22Hz-or-so in the average room.

In point of fact, at typically 0.3-0.4 per cent, the 720 has one of the lowest bass distortion figures on record, even at sustained levels of 96dBA. Neither is the speaker assisted in this effort by an exceptionally high sensitivity — 88dB/2.83V/1m will have to suffice, I'm afraid. Perhaps this explains the slightly higher 'quacky' distortion evident through the midband, at closer to 1 per cent. The impedance trend also shows an additional swing in load and phase angle between 1.8-4kHz caused, I presume, by the speaker's complex crossover network. Otherwise the load is a little taxing, with its 3.10hm minimum occurring at 120Hz and the average figure amounting to just 7.40hms. *PMi*

## HOW IT COMPARES

1	EASE OF DRIVE	-65%
2	RELATIVE LOUDNESS	-60%
3	MAXIMUM LOUDNESS	-30%
4	AUDIBLE DISTORTION	55%
5	BASS EXTENSION	60%





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# Naim Credo

Choice tested Naim's Intro speaker in HFC 164, and this £1,090 Credo looks very similar indeed, while costing nearly twice the price. There are, however, several important differences. This more upmarket version is finished in a real-wood veneer rather than vinyl wood-print, and also features Naim's classy cast-chassis main driver, plus a more elaborate external crossover. Indeed, the Credo owes a considerable design debt to the long-standing, ongoing and much more expensive SBL: both its main driver, and the design approach which houses the vibration-creating main driver in its own enclosure, have been 'borrowed' from the SBL.

Unlike the SBL, Credo mounts this smaller box directly on top of a larger floor-standing enclosure, which expands the total enclosure volume considerably, and also accommodates the tweeter. The two boxes are acoustically connected through large holes in their connecting faces. Three little plastic pegs decouple and locate the upper box, and are very precisely dimensioned to create a slit gap between the two boxes. This acts as a (relatively small) reflex port. A metal strip in the base provides secure spike attachment and a measure of controlled decoupling (to avoid exciting the floor).

Veneer apart it's not the prettiest speaker around — accommodating Naim's eight-inch, cast-frame main driver with its largish 140mm doped paper cone resulted in a rather boxy looking shape. Sharp edges and corners all round don't help, but it is at least a lot shorter than many floorstanders, with neat grille and badge treatment. An external crossover is housed in a plastic box that is fixed onto the back panel, with flying leads that plug into the drivers, and just a single pair of input terminals. Bi-wiring is therefore not possible, but completely removing the crossover allows the speaker to be upgraded to active drive at any stage in the future if desired.

The room-averaged responses show many similarities to the Intro, but some differences too. The treble is less obtrusive now, but the upper mid-band is consequently a little more exposed, with a lack of upper bass and lower midband output. The bass shows a strong 50Hz room mode emphasis, so is likely to remain uneven whatever the placement.

## Sound quality

Despite some reservations over the sonic presentation, the panel reacted

quite positively to the Credo, simply because of its effectiveness in dragging the detail and the music out of the grooves and pits.

The dynamic range is very good indeed, and midband dynamics are more expressive than most, providing the sort of subtlety in textures that less accom-

plished designs merely gloss over. But the sound is also a little cold and clinical, and the bass rather lumpy and thumpy — not slow or thick, but somewhat uneven and lacking in warmth. Speech too has a slightly 'pinched' character, and the forward character does tend to highlight deficiencies in microphone technique.

## Conclusion

The Credo is an interesting, entertaining and very involving loudspeaker, following a now well-established Naim speaker tradition by giving greater precedence to mechanical considerations than acoustic behaviour. The result is a rather uneven mixture which proves highly effective at getting to the heart of musical rhythmic subtleties, but at some cost in terms of tonal accuracy. Some listeners also found its presentation a little too edge-

of-seat for comfort. *PMc*



VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
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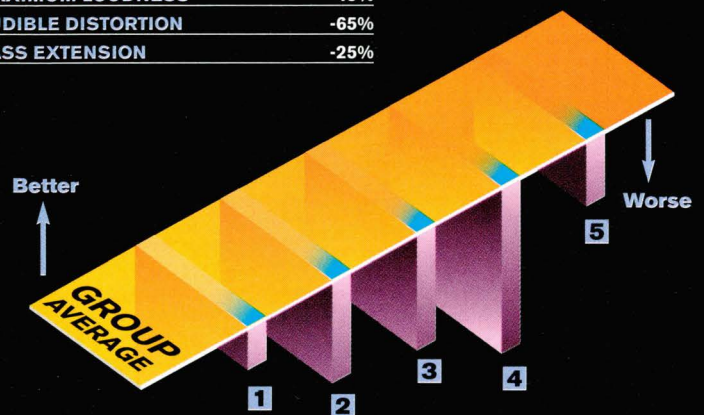
## THE LAB REPORT

It is about twice the price and marginally less sensitive at 89.5dB/2.83V/1m than the Naim Intro reviewed in March '97, but the technical parallels between the Credo and its forbear are obvious. Even the pattern of distortion is similar, including the (relatively) high 1 per cent second harmonic at HF which is around 8-10dB behind that of other speakers in this test. This still confers less 'character' than would a strong 3rd harmonic and, in all likelihood, will be swamped by the speaker's mid-dominant response, which leaves its upper octaves looking far smoother. This balance has evidently been engineered, assuming the listener's head-height is roughly on a par with the top of the bass/mid cabinet assembly.

A nearfield analysis is complicated by the speaker's resistively-loaded bass-alignment; nevertheless, from the driver null and impedance minimum, it's reasonable to assume a low, tuned frequency of around 34Hz. This equates to an in-room extension of about 35Hz with the Credo's back to the wall! Meanwhile, the driver's output is unusually 'rippled' with peaks at 85Hz, 210Hz and 475Hz together with dips that coincide with obvious reflections on the impedance trend at 175Hz and 350Hz. Like the Intro, the Credo's overall load is fairly tough with an average of just 7.20hms, including a sub-80hm span from 80Hz-1.5kHz. *PMI*

## HOW IT COMPARES

1	EASE OF DRIVE	-15%
2	RELATIVE LOUDNESS	-40%
3	MAXIMUM LOUDNESS	-45%
4	AUDIBLE DISTORTION	-65%
5	BASS EXTENSION	-25%





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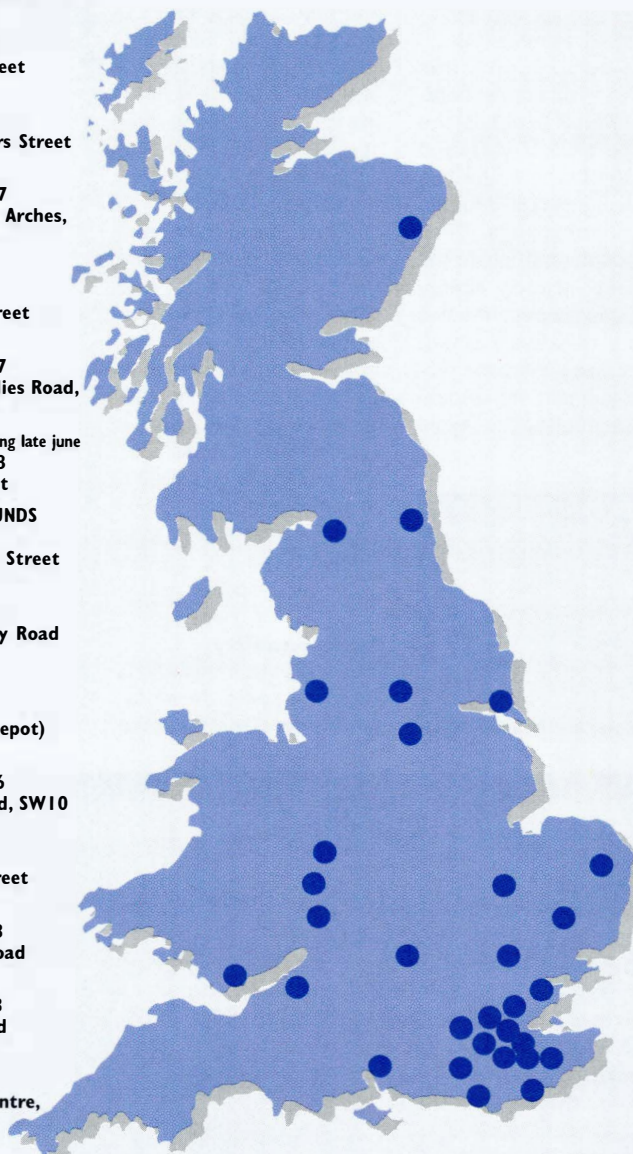
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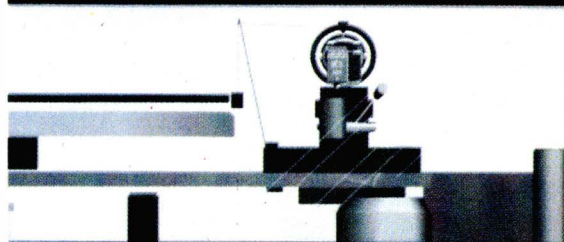
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# Audiovector M2

This isn't the first time Audiovector has appeared in *Hi-Fi Choice* — we reviewed a 3X model three years ago (*HFC* 143) — but this is the first appearance under its new importer Glaive Ltd. This brand represents the more specialist and upmarket face of Denmark's very successful loudspeaker industry.

The company has actually been around since the '70s, following a consistent quality-oriented philosophy without attempting to go for price-led mass-market sales. The £1,399 M2 is the least expensive floorstander in a six-strong M-series, which was introduced in 1997, and is particularly unusual for offering a degree of future upgradeability to either the M3 or M3 Signature models, which feature better drive-units and enclosure engineering.

The M2 stands around a metre tall and presents a rather sober, severe and monolithic appearance, especially in the black finish. (Cherry and rosewood alternatives cost £100 and £200 more respectively.) Handsome rather than discreet, with real wood on five faces, its build feels exceptionally solid and substantial, the whole thing standing on a very chunky, angled plinth. This provides secure accommodation for four meaty spikes, a decent size stability

footprint, and a degree of variation in enclosure height which might slightly de-tune the internal column resonance.

A 'two-and-a-half-way' driver configuration uses both main drivers (and the rear port) through the bass region, rolling off the lower one early and running the upper one right up through the midband to the tweeter crossover point. The tweeter implementation is interesting, as its diaphragm is vented through the magnet assembly but isolated from the pressures inside the enclosure by an extra port tube. This is fixed to the magnet and leads out through the rear panel. Three separate terminal pairs give the full bi-/tri-wire/-amp flexibility.

The in-room, far-field response indicates that the speakers should be sited clear of walls, and shows a very smooth, essentially neutral, if slightly rich and laid-back balance, with a noticeable presence dip (3-4kHz) followed by a mild treble peak (10-12kHz).

## Sound quality

The M2 was pressed into service as a 'known reference' on the first listening test day, acquitting itself very well and gaining gen-

eral approval for its evenhanded neutrality. Results were rather less consistent with the 'blind' presentations the following day, but the Audiovector still received general approval for its clarity, drive, and overall smoothness.

The reservations were mostly of a slight 'boom'n'tizz' character. The bass has fine momentum and decent timing, but also a slight tendency to thump and sound a little too full and rich. The top end is rather inclined to draw attention to itself — though this open-back tweeter design certainly sounds uncommonly clean and open.

Partly as a consequence of the latter, no doubt, the mid-band seems a little too restrained and slightly 'shut in', and lacking in dynamic generosity and grip, though taken as a whole this is a fine all-round package, which does little wrong and most things well.

## Conclusion

This is a good all-round loudspeaker, which shows the sort of close attention to detail and commitment to sound quality that characterises the genuine and serious specialist. Slim, elegant and very well put together, its option of future upgrade potential is an unusual extra incentive, over and beyond an impressively smooth and evenhanded sound. *PM*



## VERDICT

**SOUND** ★★★★★☆  
**VALUE** ★★★★★★  
**PRICE** £1,399.95

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- ☐ Elegantly slim floorstander has firm, driving bass, and a smooth laid-back balance with fine coherence and dynamic range.
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## THE LAB REPORT

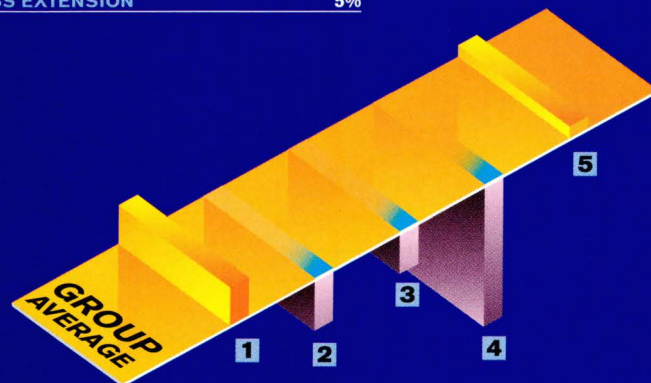
The M2 is described as a "2.5-way loudspeaker", and its two 18cm bass drivers work up to 160Hz, leaving the central unit to carry on alone to 3kHz where it crosses over to a 'low compression' treble dome. This is a relatively wide passband for a doped cone and, perhaps unsurprisingly, the response does decline throughout the midrange (there's an obvious mistermiation glitch at 1.1kHz) before becoming rather ragged from 3-6kHz.

There's no mistaking the bite of its treble, however, which increases up to +5dB above the mean speaker output at 10-12kHz. The bright treble seems equally prominent off-axis but it can be used to justify Audiovector's 91.5dB sensitivity. Taken across 3rd-octave bands 17-29 (500Hz-8kHz) the sensitivity falls to a more realistic 89.8dB, with maximum SPLs as high as 108dB.

Bass distortion remains relatively high at >1 per cent re. 96dBA (2nd harmonic in nature), but the two drivers do roll-off cleanly to a -6dB point of 58Hz and are augmented by a rear-firing, low-Q reflex port. The upper 'port' only isolates the HF unit. This lower port offers a useful, -3dB reinforcement of 28Hz-90Hz, bringing the in-room extension close to 35Hz. This also coincides with an impedance minima of 3.4ohms, however. Indeed, the entire sub-500Hz band lies pretty much below 8 Ohms, taxing the LF performance of some amplifiers. *PM*

## HOW IT COMPARES

1	EASE OF DRIVE	15%
2	RELATIVE LOUDNESS	-20%
3	MAXIMUM LOUDNESS	-15%
4	AUDIBLE DISTORTION	-55%
5	BASS EXTENSION	5%





# The Cartridge Family



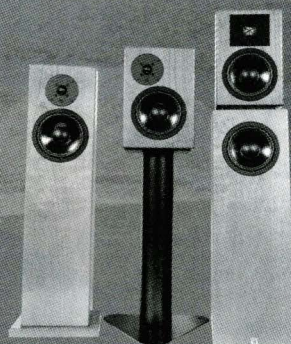
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# JM Lab Spectral 909.1

**J**M Labs is a long-standing and highly regarded French loudspeaker brand which only recently has become available in Britain. The initials refer to founder Jacques Mahul, who left Audax in the late '70s in order to start up his own company, Focal, now well known as a manufacturer of high-quality drive units (notably the inverted-dome tweeters one sometimes encounters). Complete speaker systems are made and marketed under the JM Lab imprint we appraise here.

The £1,375 Spectral 909.1 is about halfway up our test-group price ladder, and occupies roughly the same position in the JM Lab hierarchy. The latter kicks off with a sub-£400 standmount and extends up to the £33,000 Grande Utopia. The smaller of two Spectral models, the 909.1 is nonetheless a very substantial speaker indeed, standing more than a metre tall and weighing an intimidating 34kg, thanks presumably to the double-thickness side panels and four-driver configuration.

Though it is handsome enough in its bulky way, one would be hard-pushed to describe the 909.1 as pretty, despite the hefty hardwood side panels, and heavy post-forming along their front edge. There's

real wood and real wood, and this African Anigre is not distinguished by attractive figuring or grain. The top, base, front and back are all textured vinyl. A set of spikes is supplied, without lock-nuts (though the weight of this speaker was quite enough to ensure good stability on its decent footprint).

The four drivers are organised in a three-way configuration, twin bass units mounted above and below a separate midrange driver and tweeter. Cast chassis are used throughout, the bass drivers using 125mm Polyglass cones, the mid a 90mm Polyglass with phase plug, and the Tioxid tweeter a 26mm concave dome with phase compensator. The twin terminal pair splits the drive between bass and mid/treble sections.

Clearly intended for free-space siting well clear of walls, the Spectral 909.1 delivers a fine overall in-room balance, albeit with some elements which are bound to result in a degree of sonic 'character'. The upper bass is a little too full, while the upper midband is also rather prominent, and not too smooth either.

## Sound quality

I always discard the marking for the first speaker of the day, as it's usually both nega-

tive and unreliable. The trouble is, second time around the Spectral 909.1 fared only a little better. It's not a bad speaker as such — one panellist wrote approvingly of its decent dynamic performance — but the rest were generally underwhelmed by the sound, criticising its edgy 'forwardness' and lack of full top-to-bottom coherence and transparency.

"Not much wrong; not much right. Just OK; doesn't grab me," wrote one panellist, and I have to admit that the hands-on work only served to confirm that thumbnail sketch. It's not that there's anything desperately wrong here — the bass goes very deep and the balance is studiously neutral. But there just isn't the sweetness and coherence of some of its rivals, thanks in part to the slightly exposed and edgy upper midband.

## Conclusion

It's my suspicion that this speaker is a victim of its own complexity, since it lacks the delicacy and subtle coherence of simpler two-way designs. While it does a lot of things very competently, and provides plenty of serious engineering content for your £1,375, the whole is somehow less than the sum of parts, subjectively speaking. *PMc*



VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
PRICE	£1,375.00
<b>THREE YEAR TRANSFERABLE GUARANTEE</b>	
<ul style="list-style-type: none"> <li>  Lots of high-class speaker engineering for the money, but the sound as a whole lacks delicacy and subtlety.           </li> <li>  Sound Image UK Ltd, 52 Milton Road, East Sheen, London SW14 8JR           </li> <li>  (0181) 255 6868           </li> </ul>	

## THE LAB REPORT

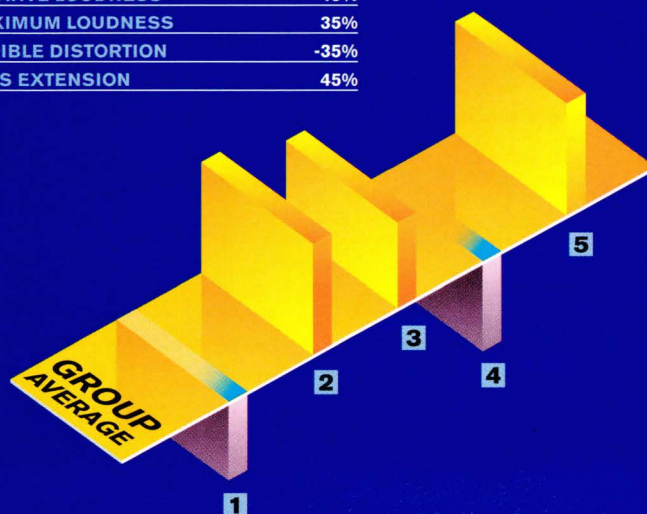
Achieving the optimum listening *height* is everything with this speaker. My data suggests an axis midway between the uppermost bass unit and midrange driver where the averaged 3rd-octave response trend looks remarkably smooth and extended. Remarkable not only because of the 909's evident complexity but also because it combines this with excellent off-axis uniformity and a generous 91.5dB sensitivity.

A narrowband analysis suggests the speaker is rather less tidy, through what I presume is a crossover region at 2-4kHz. Distortion also increases through this region from a low 0.2-0.3 per cent achieved through the bass and lower midrange to a somewhat more obnoxious 1.5-2 per cent. The complex and fearsome impedance trend also takes an unexpected dip to 3.90hms at 2.1kHz with an additional swing in the phase angle. The absolute minimum of 3.10hms occurs at 130Hz, leading to a current-hungry *average* of just 6.60hms. Tough amplifiers only need apply!

The speaker's LF alignment clearly pushes its bass extension into the 20-30Hz region, with the front-facing port operating over a full 24-76Hz (-3dB) and the bass driver(s) achieving a natural 51Hz roll-off. However, there is sharp resonance from the port at 790Hz, just following what appears to be the bass crossover at 650Hz. An interesting and complex design, nonetheless. *PMi*

## HOW IT COMPARES

1	EASE OF DRIVE	-30%
2	RELATIVE LOUDNESS	45%
3	MAXIMUM LOUDNESS	35%
4	AUDIBLE DISTORTION	-35%
5	BASS EXTENSION	45%





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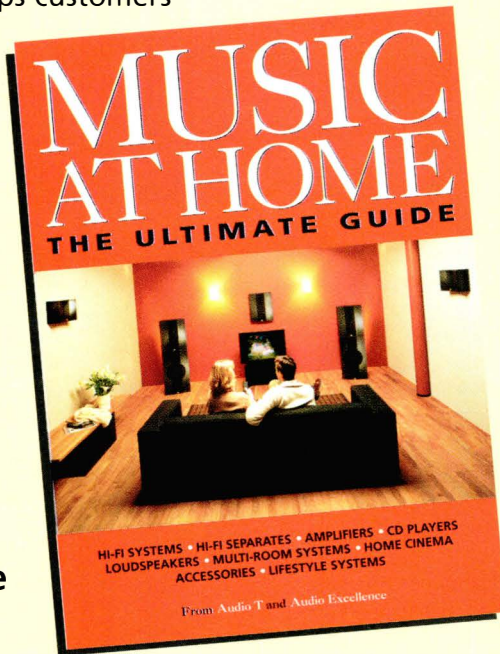
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# Monitor Audio 705PMC

Monitor Audio is well known for producing some of the prettiest cabinet-work around, and this real-wood-veneered compact floorstander is no exception to the rule. However, in the context of this test group — and also the less expensive models in MA's PMC range — the £1,400 charged for this 705PMC does seem rather steep. (Check out our reviews of the rest of the range: 700PMC in *HFC* 152, 702PMC in *HFC* 174, 703PMC in *HFC* 160.)

The 705PMC looks very similar to the 703PMC, but whereas that model uses a single main driver loaded by a large reflex port, this 705PMC has two main drivers operating in sealed-box mode. It stands a few centimetres taller too, but neither of those factors provides justification for the huge £600 price difference between two such similar models from the same stable. Still, it does have one of the nicest surface finishes around, and neatly softened edges that are tricky to achieve properly — those are bound to be reflected in the price tag.

Top-class ingredients include cast-frame, metal-diaphragm drivers, rebated into the front panel. However, their gilt anodising might be a bit too strong for some tastes, and the grille is best left off for acoustic reasons. The main drivers have

115mm metal cones, while the tweeter has a 25mm metal dome, well protected by a coarse mesh. Spikes are fitted directly (and most effectively) into the bottom panel, but there's no plinth, so the fore-to-aft footprint is limited.

The 703PMC delivered one of the smoothest in-room balances I've ever recorded, so it was disappointing to find that this 705PMC isn't really in the same ballpark. The tweeter looks to all intents and purposes the same, so the addition of an extra driver merely results in 3dB or so extra through the midrange — ergo the balance is now short of treble. The bottom end is more favourable, the sealed box loading improving extension and delivering a 'dry' balance which is well suited to close-to-wall siting.

## Sound quality

Considering its shortcomings in tonal balance, the 705PMC didn't disgrace itself in the listening tests. The fine midband coherence of those metal diaphragms gives

impressive focus, detail and delicacy, which drew decent enough marks and comments from half the panel.

The problems, however, lie outside the broad midband. There's simply not enough treble here, and the end result sounds determinedly shut-in and over-restrained. As one panellist put it: "thick and treacly". The bass, too, is a bit of an underachiever in the context of this upmarket group. It's clean and smooth enough, but is short of weight, drive and impetus, tending to plod on regardless of the subtleties musicians might be trying to convey. Dynamics, too, seem rather muted, and 'softened' leading edges do little to break down the barriers between the music and the listeners.

## Conclusion

There's no denying that MA's metal cones have their own special and persuasive qualities, but price is the stumbling block with this implementation. It costs £600 more than its similarly-sized 703PMC stablemate, yet in crucial areas it's actually not as good. On this occasion, slapping in an extra main driver seems to have done more harm than good to the sound. *PM*



VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
PRICE	£1,399.99
<b>THREE YEAR TRANSFERABLE</b>	
Fine midband coherence but inadequate treble. Pricey for the ingredients and performance.	
Monitor Audio, Unit 34, Clifton Road, Cambridge CB1 4ZN	
(01223) 242898	

## THE LAB REPORT

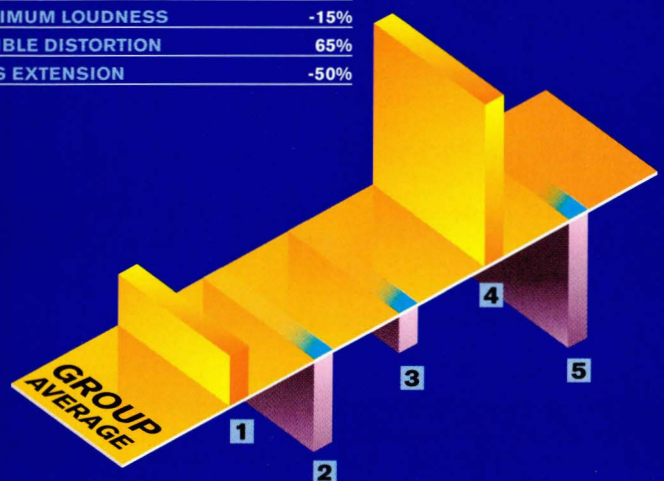
MA's 705PMC betrays only a superficial resemblance to the reflex-loaded 702PMC (*HFC* 174). Once again, it is emphatically *not* a speaker with a sting in its tail, its forward response falling gently away by 7-8dB from 200Hz to 2-3kHz where it finally flattens out. This very mild balance is even more apparent as the speakers are toed inwards — at 30 degrees off-axis, the drop from 200Hz to 12kHz is around 10dB! Even so, and bearing in mind this is a sealed-box design, the effective sensitivity of the 705PMC is not bad at 89.5dB/1m.

Then again, the 705PMC's impedance trend is fractionally tougher (though not especially grim) than that of the 702PMC with an *average* of 90hms and a minimum of 3.60hms at 215Hz. Fortunately, it's mercifully free of the additional swings in phase angle noted with the 702.

In further contrast, my narrowband analysis reveals a cancellation notch rather than two sharp peaks around 2.9kHz from the 705PMC, though MA's alloy-dome treble unit still makes itself known with a sharp break-up mode at 26kHz. Distortion remains usefully low, typically 0.3 per cent through bass and treble frequencies but up to 0.8-0.9 per cent in the low-kHz where the metal-coned drivers are working hardest. A speaker to temper the brightest of systems, no doubt. *PM*

## HOW IT COMPARES

1	EASE OF DRIVE	20%
2	RELATIVE LOUDNESS	-35%
3	MAXIMUM LOUDNESS	-15%
4	AUDIBLE DISTORTION	65%
5	BASS EXTENSION	-50%







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# Celestion A2

Celestion's standmount A1 was a hit in the mid-price group test we conducted in *HFC 164*, so perhaps it's surprising the company has taken so long to get around to this next model in the series, a £1,500 floorstander logically dubbed the A2. Incidentally, it cost only £1,200 back when we tested the A1. There's a close family resemblance between the two models, but the A2 is distinguished by an extra main driver as well as its much larger cabinet.

The weight of the whole thing is 30kg, evidence of the very solid build. Our samples were in the rosewood finish, which carries a £300 premium, but the quality of workmanship in these German-built cabinets is truly exceptional, with solid-wood edge pieces giving a very classy appearance.

Advanced technologies were part of the design processes. Finite element analysis helped create the 25mm titanium dome tweeter, while laser interferometry was used to place the internal box bracing for best effect. The main drivers have cast chassis and 135mm injection-moulded cones, with Faraday rings to stabilise the magnetic flux. According to the propaganda, the A-series models are intended for home cinema as

well as hi-fi applications, so it's only to be expected they should have an appropriately full tonal balance.

One might tend to assume from the size and type that this speaker is likely to work best well clear of walls. But the room measurements indicated, and listening confirmed, that some wall reinforcement is beneficial — there's plenty of low bass here, but it tends to measure and sound a little detached when the speaker is well away from walls. Overall the in-room balance is commendably smooth, with bass rich and laid back, if a little bright.

## Sound quality

The listening panel was quite taken with the A2, enjoying its "well balanced, civilised presentation". There was general agreement that the bass erred on the rich and heavy side of neutrality, but there was less certainty over its quality, which could seem a touch leaden and detached.

The midband is very evenhanded, but also just a little too laid back for some tastes: "Very

controlled; doesn't want to let go," was one panellist's opinion, while another felt that strings lacked sufficient 'sheen' even though the ultimate top end was a bit 'glassy'. Midband dynamic expression is not a forte, though its manners remain impeccable throughout.

Moving the speaker closer to the wall did help the bass quality somewhat, improving the integration and timing even though the richness was further emphasised. The stereo soundstage is impressively coherent too, though perspectives shift a little when one moves listening position.

## Conclusion

A lot of very good-looking speaker helps justify the hefty £1,500 price tag in this group context, though the A2 does look rather expensive against its A1 standmount sibling (*Best Buy HFC 164*). And although the A2 has the advantage in deep bass grunt, its midband is a shade too laid back and the treble consequently a bit intrusive. Nevertheless it remains an entertaining, stylish and compact package, equally suited to home cinema or hi-fi duties. *PMc*



VERDICT	
<b>SOUND</b>	★★★★☆
<b>VALUE</b>	★★★★☆
<b>PRICE</b>	£1,499.00 (£300 EXTRA FOR ROSEWOOD)
	<b>FIVE YEAR GUARANTEE</b>
📄	Entertaining, stylish and conveniently compact, with plenty of bass weight, and well suited to home cinema or hi-fi duties.
✉	Celestion International, Ecclestone Road, Tovil, Maidstone, Kent ME15 6QP
☎	(01622) 672261

## THE LAB REPORT

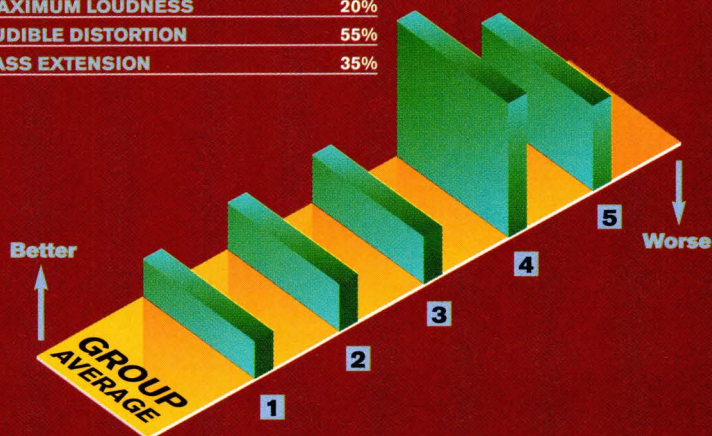
While playing second fiddle to the likes of Cabasse and Living Voice, this heavyweight box still puts up a surprising 92.3dB/2.83V/1m sensitivity and maximum output close to 109-110dB SPL — should you have no respect for your hearing. Low distortion goes hand-in-hand with such a figure as the drivers are under minimal stress, even at the 96dBA test level: here the A2 achieves better than 0.5 per cent across the entire audioband.

Celestion rates its A2 at a conservative 90dB and specifies a nominal 40hm load which is also erring on the side of caution. In practice there's a minimum of 4.7ohms at 10kHz but the 9.20hm average is far from difficult. Otherwise, the price for Celestion's high sensitivity is probably paid in its classic 'three-humped' forward response trend, with emphasis in the 2-4kHz band and 10kHz region bringing an added degree of liveliness to its performance.

The response is generally smoother off-axis but bass below 600Hz might start to dominate if care is not taken over siting. This said, Celestion has obviously taken great care in the A2's bass alignment with the relatively sharp output of the port coinciding precisely with the driver null and impedance minimum at 33Hz, driving the speaker's -6dB point to 28Hz. *PMc*

## HOW IT COMPARES

1	EASE OF DRIVE	15%
2	RELATIVE LOUDNESS	20%
3	MAXIMUM LOUDNESS	20%
4	AUDIBLE DISTORTION	55%
5	BASS EXTENSION	35%





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# Experience the Excellence of Naim Audio

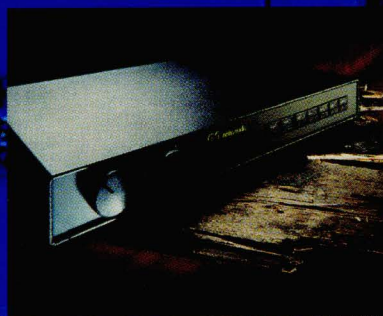


The CD3.5 Integrated CD Player has been developed to offer complete musical satisfaction rivalling that of the finest analogue turntables. It is designed to be the best in its class, incorporating genuine technological advances to provide a thoroughly enjoyable musical experience.

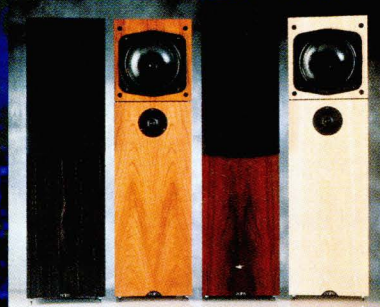
The NAT 03 Tuner is based on the famous NAT 01 and NAT 02. The NAT 03 is unmatched for sound quality at its price. It is clear and articulate when correctly installed with a suitable aerial and makes music like only a Naim tuner can. The NAT 03 is fully compatible with all Naim Audio Systems.



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# Chario Academy 2

Though it is a relatively new name on the UK scene, Chario has been in the speaker business since 1975, and has been actively exporting for more than a decade. This very comprehensive and good-looking range of speakers is Italian in origin, but is being brought into the UK by the Musical Design Company, and is doubtless benefiting from the current exchange rates.

Choice had a look at one of the least expensive models in HFC 170, but the little Syntar 100 didn't make a particularly strong impression. Now we've moved much further upmarket to this absolutely gorgeous — but at £1,649 undeniably expensive — Academy 2, the only standmount in our group test.

It's probably the most expensive standmount Choice has tested, and the most beautiful. This is thanks to the box being built — sculpted is perhaps the better word — from planks of solid walnut, one inch thick. Neatly dove-tailed joints, a sculpted baffle that narrows up around the tweeter, and softened, rounded edges all add up to a beauty which in this case is definitely more than skin deep, and which is also claimed to offer significant sonic benefits too.

A simple port-loaded two-way configura-

tion uses a main driver with 130mm cone, plus a 28mm fabric-dome tweeter. Chario's attractive matching real-wood stands were supplied (£250 extra), which certainly make sense if aesthetics are the main priority, though MDC was happy at the suggestion that the rigidity of a mostly metal (Kudos S100) stand was likely to give superior performance.

Being significantly smaller than the other models in the test group, it's hardly surprising that the Academy 2 doesn't have seriously deep bass on its agenda. However, the in-room far-field measurements show that the generous port has more than ample output, and the Academy 2 is best kept well clear of walls. Interestingly, in an otherwise impressively smooth trace, the speaker shows a brief-but-deep suckout close to the crossover point (1.6kHz) — similar to that recorded by the Syntar 100.

### Sound quality

The Academy was well received by the listening test panel, despite (or perhaps partly because of) its relatively modest dimensions. While it does lack the weight of some floorstanders in the test group, it manages to avoid sounding 'small', actually generating a good sense of scale, the slight mid-bass excess somehow subjectively making up for the loss of the bottom octave.

It's engagingly nimble and light on its feet, and the presentation is warm and relaxing, partly because of the way the presence suckout 'softens' any edgy tendencies. This doesn't seem to lose much with musical information, bar perhaps a touch of 'bite', though speech does sound a little 'swallowed' with slightly suppressed consonants (and a touch of

chestiness too). Another consequence is that the speaker likes to be played quite loud, but always manages to maintain its innate sweetness and good manners.

### Conclusion

The Academy 2 is a compact aristocrat of a loudspeaker, to which the art of music making seems to come effortlessly and naturally. It has shortcomings, such as a slight lack of weight and 'bite', but the sheer artistry of the cabinetwork will win many friends. The sum-up seems to point firmly towards a Recommended flag — especially where politeness is a priority. *PMe*



**VERDICT**

**SOUND** ★★★★★

**VALUE** ★★★★★

**PRICE** £1,649.99

**LIFETIME WARRANTY AGAINST MANUFACTURING DEFECTS**

☐ An aristocrat among standmounts, with solid walnut enclosures and an innately musical disposition.

✉ Musical Design Co, PO Box 4146, Epping, Essex CM16 6HJ

☎ (01992) 573030

## THE LAB REPORT

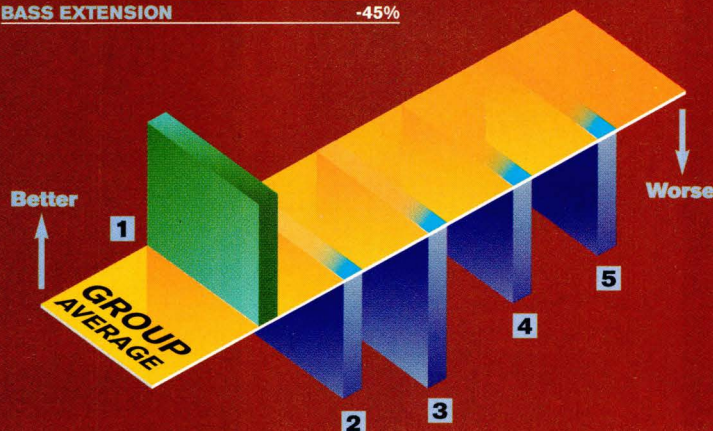
Not only is the Academy 2 physically smaller than its partners in this final group of four, it's also substantially less sensitive at 85.2dB/1m. Volt-for-volt, it's almost 10dB quieter than the Living Voice, for example. All else being equal, this suggests you'll need 10 times the amplifier power to achieve the same output. Naturally, not everything is equal and the load presented by the Academy averages out at 9.60hms over the audioband with relatively 'safe' minima of 6.20hms @ 46Hz and 6.50hms @ 3.65kHz.

Both on and off-axis, its response suggests a very 'rumbly' bass with more than a little enhancement up to 300Hz and some 'peakiness' near, what I presume, is the crossover point at 1.5-2kHz. THD also increases from, typically, 0.4 per cent to 1-2 per cent through this region where the impedance and phase angle trends also go through an additional swing due, I presume, to a high-order network.

A nearfield analysis confirms the Academy's substantial bass reinforcement with a high-Q port resonance at 53Hz coinciding almost directly with the equally sharp driver null at 50Hz. Pity about the spurious resonance breaking through at 700Hz, otherwise this would have looked very clean indeed. A position away from bookshelves and walls is recommended. *PMi*

## HOW IT COMPARES

1	EASE OF DRIVE	50%
2	RELATIVE LOUDNESS	-45%
3	MAXIMUM LOUDNESS	-60%
4	AUDIBLE DISTORTION	-45%
5	BASS EXTENSION	-45%





# Heybrook Octet

Heybrook usually concentrates its efforts at the more affordable end of the market, and has always had the knack of balancing small standmount designs like the redoubtable Heylios (HFC 164). Its floorstanders have been less common and perhaps less distinguished, though I have fond memories of the three-way Sextet which came our way in 1992 (HFC 102). Celebrating 20 years in the speaker building business, Heybrook is introducing this new 'flagship' Octet model, which at £1,800 sits at the top of our test-group price ladder.

Its shape follows the classic compact floorstanding stereotype, with classy real-wood finish cabinetwork, chunky, purposeful proportions, and rounded box edges to soften the lines. The Octet is one of only three models in the group to offer 'fail-safe' spiked floor-coupling, in this instance by the provision of a small metal-frame stand which accommodates chunky 8mm spikes.

The driver array makes an impressive technological *mélange*. The bass end is handled by a pair of 120mm carbon-fibre diaphragm, cast-frame drivers operating in tandem, with further assistance from a modest front port. The midband has a 90mm aerogel cone, again in a cast basket, loaded

by a ceramic enclosure inside the box. The Audax-sourced tweeter is even more dramatic, featuring a large (28x42mm) lozenge-shaped diaphragm made of gilt polymer, which is driven via a gas-filled envelope from a piezo-electric transducer. Despite the three-way configuration, just two pairs of terminals are fitted (splitting the mid/treble from the bass). Irrespective of convenience, these new style-shrouded pins didn't seem too positive mechanically, when used with heavy cables.

The 'dry' bass balance found with the in-room, far-field responses indicate that some wall reinforcement is likely to be beneficial, though the upper bass is a trifle prominent. Elsewhere the midband is well maintained up to 2.5kHz, but far from smooth en route, while the treble is also distinctly uneven as well as somewhat lacking in level.

## Sound quality

The Octet failed to justify its high premium in the listening tests. It didn't disgrace itself, but reactions varied from the positive: "This does pretty much everything right", to the opposite: "The sound seems so divorced from the music... I certainly would-

n't... rush home at night to listen to this."

The Octet's strength undoubtedly lies in its midband, which is impressively coherent and quite expressive, if not entirely free from coloration. The latter is rendered

more noticeable because the top end has a rather shut-in, over-restrained and 'hooded' character, despite some 'splash'. The bottom end is less of a handicap, sounding dry and free from boom, though ultimate weight is unexceptional, and it seems disinclined to take the initiative and drive things along when the music so demands.

## Conclusion

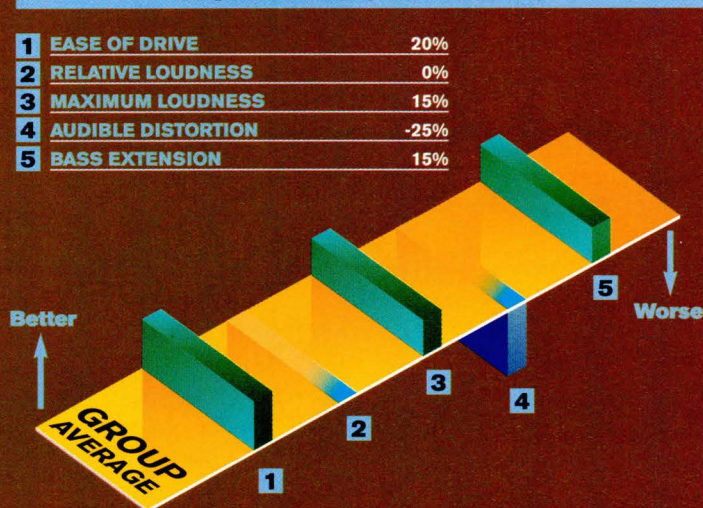
While this is not a bad loudspeaker, it doesn't seem to do enough to justify a significant price premium over the others. Though a good-looking and well-built design, it's a victim of its own complexity, and the costs thereof, while at least one finger of suspicion is pointed at the high-tech piezo tweeter. *PM*

*Postscript: Subsequent to this review, Heybrook has announced minor adjustments to the mid/treble crossover of the Octet, slightly increasing the midband rolloff frequency and treble level to 'open up' the top end a little.*



VERDICT	
SOUND	★★★★☆
VALUE	★★★☆☆
PRICE	£1,800.00
TWO YEAR GUARANTEE	
<p>A handsome but pricey floorstander. Nice midband, but let down by the piezo-electric tweeter that looks after the top end.</p>	
<p>Heybrook, Clemo Road, Liskeard, Cornwall PL14 3NH (01579) 342866</p>	

## HOW IT COMPARES



## THE LAB REPORT

Constructed from an interesting assortment of Audax drivers (including a gas-filled piezo tweeter and lightweight aerogel midrange unit), the Octet yields an equally, er, interesting performance. For starters, Heybrook's claimed 92dB sensitivity is only optimistic unless the excess bass and treble energy (200Hz and 10-16kHz respectively) are included in the equation. Otherwise, 90.8dB/1m is nearer the mark. The Octet's impedance/phase angle trend is also rather complex with a safe average load of 10.40hms largely unaffected by the 4.20hm minimum at 125Hz. The large 'blip' at 900Hz and big swing thereafter (as the inductance of the Aerogel coil takes over) do look rather messy, however.

There's also evidence to suggest the two carbon-fibre coned bass units are a dominating influence. Bass alignment is spot-on, for example, with a strong and broad 24-90Hz (-3dB) port output complementing the -3dB roll-off of the drivers at 85Hz. Sadly, a pipe harmonic also escapes at 145Hz. Sure enough, bass distortion is pleasingly low at typically 0.4 per cent (re. 96dBA) but, off-axis, its bass-heavy response is exaggerated as the Aerogel unit trails off up to -5dB (mid) and -8dB (presence) from the 100-600Hz band. Above 6kHz, the novel gold/polymer tweeter takes over, building up to -4dB below the mean 100-600Hz level. An axial listening position, typically 80cm up, is recommended. *PM*



# Living Voice Auditorium

The Living Voice speaker brand hails from Nottingham, and is best known for its enormous Air Partner horn loudspeakers, and the smaller but similarly super-efficient Air Scouts. Those are serious high-end speakers — I still have fond memories of spending the Christmas holidays with a pair of Air Partners a few years back. At serious high-end prices they can only be afforded and accommodated by the fortunate few. Accordingly LV's Kevin Scott has developed this more affordable £1,500 Auditorium, which attempts to achieve similar goals on a less ambitious scale.

The Auditorium shows some similarity in overall configuration to the Dali 104B, which is one of Kevin's favourite low-cost speakers. However, where that Danish design was built down to a price, and was among the less attractive speakers to come my way, the Auditorium is a far prettier proposition in a lovely real-wood veneer, and boasts considerable internal refinement too.

This is an essentially lounge-friendly design, which looks good and doesn't take up too much space either. The speakers are made as mirror-imaged pairs, with two main drivers in each mounted above and below the tweeter (d'Appolito-style), with additional bass reinforcement provided by a generous (70mm diameter) rear port, tuned to

38Hz. The Vifa-sourced drivers have 125mm doped paper cones and foam surrounds, while the tweeter has a 30mm fabric dome, and is offset from the cabinet centre-line to spread unwanted baffle-edge diffraction artefacts.

Bi-wire-/amp terminals feed a vibration-decoupled (internal) crossover network, which claims to use high quality, closely-toleranced components, hard-wired to LC-OFC cables using silver solder. The speakers come supplied with separate plinths, fabricated from crackle-finish steel, which raise them 10cm off the deck and provide secure fixing for chunky 8mm spikes.

Despite its high sensitivity, the Auditorium delivers plenty of bass output, while the in-room, far-field responses show an unusually smooth and even overall balance through the bass and midband, best suited to free space siting. Like most quality British designs, there's a down-turn starting at around 1.8kHz, creating a slight notch at around 3kHz, followed by a smooth, well-judged treble.

## Sound quality

A strong result on the first listening day wasn't quite matched second time around, but the Living Voice's fine pedigree shone brightly

in the hands-on tests, leaving little doubt that this is a capable and refined performer.

Immediately after bringing the Auditoria into the room, one is aware of the restrained and somewhat 'hooded' balance, but after five or ten minute's acclimatisation time this design's very real strengths start to show themselves.

This is an exceptionally subtle loudspeaker, maintaining fundamentally correct acoustic perspectives and tonality alongside a lively expressiveness and considerable delicacy and transparency. It could perhaps have a little more bass drive and slam, and a bit more presence 'bite' too, but the fine overall coherence and agile sense of timing are of a kind rarely encountered in larger speakers.

## Conclusion

The Living Voice Auditorium is a particularly welcome addition to the ranks of higher sensitivity speakers, not just because of its attractive and compact packaging, but more importantly because it combines that high sensitivity with an unusually smooth, neutral and well-behaved balance. The resulting combination of neutral transparency and fine coherence, with decent dynamics and ample headroom, is sufficiently rare to merit a Best Buy rating, at a high but far from unrealistic price. *PMc*



## VERDICT

**SOUND** ★★★★★  
**VALUE** ★★★★★  
**PRICE** £1,499.99

### FOUR YEAR GUARANTEE

- ☐ A lovely all-round performer — pretty, lively, neutral and transparent, with high sensitivity too.
- ✉ Definitive Audio, PO Box 247, Nottingham NG2 7TX
- ☎ (0115) 981 3562

## THE LAB REPORT

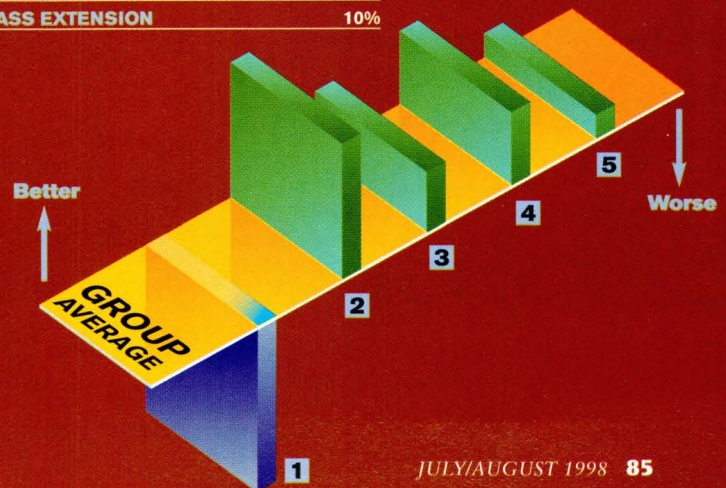
Second only to the Cabasse speakers in this month's test, the Living Voice Auditorium will muster an astonishing 94.9dB sensitivity at 2.83V/1m. Even with the maximum 80W amplifier recommended by LV, these boxes will still achieve around 109dB SPL at 2m in the average room. Nevertheless, unlike the Cabasse, this has only been achieved at the expense of a punishing amplifier load with a minimum of 3.10hms (250Hz) and a 20Hz-20kHz average of just 4.40hms. Heroic amplifiers only, please.

LV recommends toeing-in the speakers in 'nice stereo' but this also reveals a step function in its response above and below 2kHz, probably due to the offset treble dome. Turn them back on-axis, and a stronger mid/treble balance results.

Otherwise, cone excursion is low so distortion remains fabulously controlled at typically 0.3-0.4 per cent right through the bass and midrange at 96dB, though it jumps closer to 1 per cent beyond 2kHz until the soft dome gets into its stride. The Auditorium's bass is also accurately aligned with the 43Hz bass/mid driver null coinciding with the centre of the port's broad 26-88Hz (-3dB) output. There is secondary resonance quite clearly escaping at 205Hz, but it's probably low enough not to be heard. *PMc*

## HOW IT COMPARES

1	EASE OF DRIVE	-65%
2	RELATIVE LOUDNESS	55%
3	MAXIMUM LOUDNESS	25%
4	AUDIBLE DISTORTION	30%
5	BASS EXTENSION	10%





# Conclusions

**F**ans of alliterative clichés are doomed to disappointment. The results of this exhaustive group test tend to suggest that size is a largely neutral factor in determining the overall goodness of a speaker. Bigger almost always means deeper bass, for sure, but also it often means greater complexity in driver line-up. And the bigger the enclosure, the more difficult it is to control.

"Simple is better" would be one aphorism which would sum up quite well. For many veteran readers, that phrase will forever be linked to Linn Products' advertising over many years, but nonetheless it is entirely appropriate here. The two three-way designs (Heybrook, JM Lab) find themselves left out in the cold, with all the plaudits

going to the simpler two-way models.

The d'Appolito models, whose twin main drive-units reside above and below the tweeter, were particularly successful. Examples of these were from Living Voice, Magnat, Celestion and JBL. Historically this



Celestion A2

layout has all too often seriously suppressed the midband, making it a tough configuration to optimise. It is much simpler to effect a two-way design with two two-way point-source drivers, than to grapple with the matching of a line-source midband to a point-source tweeter, as a d'Appolito requires. However on the evidence of this test, the latest designs in the latter camp are achieving great success.

Only six months ago, the Kelly KT3 set a new benchmark for high sensitivity in a lounge-friendly package. Now it has serious competition from Cabasse, Living Voice and JBL, to pick just three devotees of a burgeoning trend. Valve aficionados should check out the Cabasse in particular, as it achieves its high efficiency without the high current demands of the others named.

## GROUP A (BELOW £1,300)

<b>Cabasse Farella 400</b>	<b>£950.00</b>
<b>JBL SVA 2100</b>	<b>£1,250.00</b>
<b>Magnat Vintage 720</b>	<b>£1,199.00</b>
<b>Naim Credo</b>	<b>£1,090.00</b>

After the review programme concluded, news reached us that **Cabasse** was planning to modify the **Farella 400** (£950) to counter criticisms of its very 'forward' balance. The result should widen the appeal of an otherwise impressive design, which supplies seriously high sensitivity at a very realistic price.



Naim Credo

The £1,250 **JBL SVA2100** will probably be rather monstrous for typical British rooms, but if enormous bass and power handling are your bag, this is one to check out.

Though it's a new name in Britain, the **Magnat Vintage 720** (£1,200) makes a very auspicious debut, combining a full-scale sound with fine communication skills.

Superb midrange detail and dynamic range distinguishes the **Naim Credo** (£1,090), though the bass had a 'one note' tendency in our listening room.

## GROUP B (£1,300-£1,450)

<b>Audiovector M2</b>	<b>£1,399.95</b>
<b>JM Lab Spectral 909.1</b>	<b>£1,375.00</b>
<b>Monitor Audio 705PMC</b>	<b>£1,399.99</b>

There are just three models in our middle group, and the **Audiovector M2** (£1,400) is certainly the pick of them. It's attractively slim, goes genuinely deep and sounds unflappably smooth and neutral, with a notably clean, if slightly bright top end.



Audiovector M2

The **JM Lab Spectral 909.1** (£1,375), a French design also new to Britain, is certainly a lot of speaker for the money; but while the sound is balanced with plenty of deep bass, it lacks sweetness and has too much 'edge'.

The top model in the PMC line, the **Monitor Audio 705PMC** (£1,400) is actually the least distinguished in a rather good range. While the midband is pretty good, the treble and bass are both a bit lacking.

## GROUP C (£1,450-£1,800)

<b>Celestion A2</b>	<b>£1,499.00</b>
<b>Chario Academy 2</b>	<b>£1,649.99</b>
<b>Heybrook Octet</b>	<b>£1,800.00</b>
<b>Living Voice Auditorium</b>	<b>£1,499.99</b>

Heftily built but quite compact and very handsome with it, the **Celestion A2** (£1,500) has abundant bass, a relaxing, laid-back midband, and slightly obvious top end — a good all-round compromise for hi-fi and home cinema use.

Though it is indisputably pricey for a stand-mount, the **Chario Academy 2** (£1,650) has a beautiful enclosure in sculpted solid walnut, and a delightful sound quality to go with it —



Heybrook Octet

delicate and light on its feet, if a little too inclined to paper over any cracks.

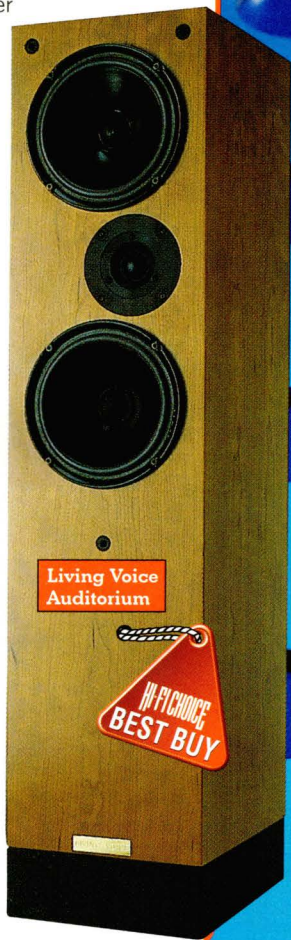
The **Heybrook Octet** (£1,800) is an impressive collection of high-tech drivers in an attractively finished and compact box, but the whole didn't seem to justify the expected sum of the parts, so while the midrange shone brightly enough, the treble was less impressive.

The **Living Voice Auditorium** (£1,500) is compact and beautifully finished, yet sounds even better than it looks, with high sensitivity and a wonderful coherence which reflects its essential simplicity, quality ingredients and painstaking development.



## BEST BUYS

**F**irm evidence, if such was needed, that the smaller manufacturer is still more than able to compete with much larger brands: the £1,500 **Living Voice Auditorium** has clearly been designed by someone who puts a passion for music ahead of marketing hype. The result is neat, compact and beautifully finished, but above all sonically very coherent and musically highly communicative. Criticisms are minor (the bass could go deeper and voices are a bit shut in) while the design's high sensitivity much more than compensates for what is a fairly demanding load.



Living Voice Auditorium

HI-FI CHOICE  
BEST BUY

Top left: **Chario Academy 2**; top right: **Cabasse Farella 900**. Line-up from left to right: **Magnat Vintage 720**, **Audiovector M2**, **JBL SVA2100**, **Celestion A2**, **Naim Credo**.

## RECOMMENDED

**S**even Recommended models might represent a high 'hit rate', but it reflects the fact that, in a group such as this, inevitably there are many high-quality models, yet also a much greater choice of designs and approaches than one would find at lower prices.

The only standmount, the **Chario Academy 2** (£1,650), takes full advantage of its small size with a lively sound that's always easy on the ears. The solid walnut enclosure probably contributes as much to the sound as it does to the appearance — and the price!

As the smallest of the floor-standers, the **Naim Credo** (£1,090) has wonderful midband detail, excellent timing and a wide dynamic range, though bass is a bit lumpy.

Slightly larger and with much higher sensitivity, the **Cabasse Farella 400** (£950) looks like a fine match for valve amps. We understand it's currently undergoing revision to avoid the aggressive forward-



ness noted by our panel. A big speaker, yes, but a discreet and very attractive one too: the **Celestion A2** (£1,500) can operate quite close to a wall, supplying a full-scale sound with plenty of deep bass. The midband is a bit laid back and the top a bit obvious — just like that of the **Audiovector M2** (£1,400), a slim, free-space design notable for its neutrality.

Considering its size and sound quality, the £1,200 price tag on the **Magnat Vintage 720** seems very reasonable. It may not be the prettiest box or smoothest sound around, but it does communicate well, and delivers plenty of grunt too.

If your listening room has space for a couple of black vinyl wardrobes, and you've got a thing about massive loud bass, check out the **JBL SVA2100** (£1,250). It's as much a PA as a hi-fi speaker, but it's quite well mannered and can go seriously loud with a powerful amplifier.

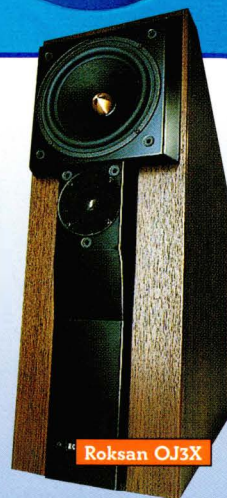


## BEST OF THE REST



Audio Note AN-E/B

Audio Note AN-E/B	£1,299	Musical Technology Condor	£1,000
B&W Matrix 805 V	£995	Naim SBL	£1,878
B&W Matrix 804	£1,600	PMC AB1	£998
Castle Howard S2	£1,100	Rega XEL	£1,040
Dynaudio Contour 1.8	£1,842	Rehdeko RK115a	£1,550
JBL 4312mkII	£1,000	Rogers Avanti C628	£1,400
JBL L90	£1,300	Roksan OJ3X	£1,200
JPW Ruby 4	£1,000	Ruark Crusader 2	£1,600
Kelly KT3	£1,200	Tannoy Definition 300	£1,000
Keswick Audio Torino	£900	TDL Studio 1m	£899
Linn Kaber	£1,800	Totem Model One	£995



Roksan OJ3X







**WIN!**

**COMPETITION**

# SENSATIONAL SENNHEISER!

## WIN ONE OF 23 SUPERB HEADPHONES!



**S**ennheiser's new top-quality 'cans' combine the latest in headphone technology with stylish design. All have detachable three-metre cables, with 3.5mm jack plugs for portables and 6.3mm adapters for hi-fi.

There are three First Prizes of HD 570s, worth £79.95 each. Inside the snazzy 'BioNetic' earcups are special Duofol diaphragms and lightweight aluminium voice-coils. The ear-enclosing headset weighs only 210grams but offers a big sound - from 18Hz to 22kHz with less than 0.2 per cent distortion, says Sennheiser.

Five Second Prizes are also up for grabs, of HD470 headphones, a £34.95 design which weighs just 130g and exerts minimal contact pressure on the head. It even has hypo-allergenic earpads! With lightweight voice-coils it claims a frequency response of up to 20kHz.

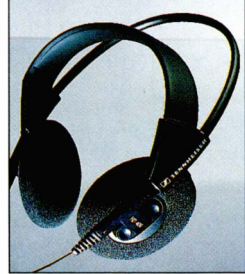
Last but not least, there will be 15 Third Prizes of the £24.95 HD400 headphone. This is another stylish, light, easy-to-wear design that has a claimed frequency response up to 18kHz.

Enter today and enhance your leisure time!

**2nd: Sennheiser HD470**



**3rd: Sennheiser HD400**



### HOW TO ENTER

Answer the questions below by circling the correct answer, then fill in your name, address and daytime telephone number in the spaces given below. Please remember to tell us whether you are over 18 years of age.

#### POST THIS ENTRY FORM TO:

Hi-Fi Choice Competitions (CHFC807 C)  
Bradley Pavilions,  
Bradley Stoke North,  
Bristol BS12 0BQ

All entries must arrive by First Post, Thursday August 6th, 1998.

### THE QUESTIONS

**What's the name given to the design of the HD470's earcups?**

- a) Bionic
- b) Hydromatic
- c) BioNetic
- d) Cybernetic

### YOUR DETAILS

Name \_\_\_\_\_  
 Job Title \_\_\_\_\_  
 Company Name \_\_\_\_\_  
 Address (inc. postcode) \_\_\_\_\_

Day-time Telephone Number \_\_\_\_\_  
 Please tick here if you are under 18.  
 Please tick here if you do not wish to receive any further information about other products or services.  
 Please tick one of the following:  
 Are you a current subscriber? **OR**  
 Are you a regular reader? **OR**  
 Are you an occasional reader?

### COMPETITION RULES

- The Closing Date for this competition is Thursday August 6th, 1998.
- Winners of the Sennheiser Competition will be judged from all correct entries submitted, and drawn at random after the Closing Date.
- Winners will be notified by post.
- The Editor's decision is final and no correspondence will be entered into.
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**CHFC 807C**



# 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 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



# For Value

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

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 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

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### THE MAG

## CONTENTS

MAY 1997 ISSUE 166

### REGULARS

**Update**  
Election? Schmelection! We've been to Bristol and we got the news. All the latest from the show as well as locations further afield.

**Instant Systems**  
Alan Sircom gets to grips with a pair of £300 separates systems. The question is, can you get real hi-fi for the price of a telly?

### REVIEWS

[Acurus ACD11](#)

[Aeon Acoustics Linear](#)

[AMC 3025a](#)

\*Answers at the bottom of the page for those without web access.

### Have you ever wondered...

- 1 Which is the most expensive amplifier in the World?
- 2 How many drive units in the Mission 753 Freedom?
- 3 What is the name of Benz-Micro's most expensive cartridge?
- 4 What is the best CD player for £350 or under?

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Answers:

1 The Audio Note Caku On, at a basic price of £159,500, is probably the most expensive commercially manufactured amplifier package in the world. And it's only a pre-amp. 2 The Mission 753 Freedom has 12 drive units. 3 Benz-Micro's most expensive cartridge is the Ruby (over £1,000). 4 The Cambridge Audio CDASE, which received an HFC Best Buy in issue 163, will assess the latest crop of budget CD players priced below £350. One of the best-value CD players priced below £350 is the Cambridge Audio CDASE, which received an HFC Best Buy in issue 163. We'll assess the latest crop of budget CD players in our December 1997 issue.



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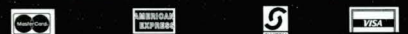
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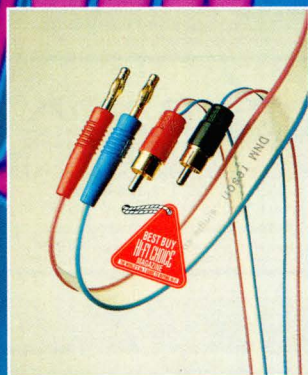
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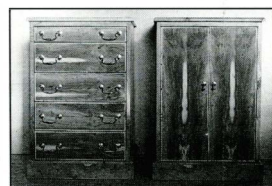
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| <b>Cardas Audio</b>            | Cables, analogue recordings   |
| <b>conrad-jobson</b>           | Valve & FET pre-amplifiers, power amplifiers and digital components |
| <b>Expressive Technologies</b> | Step up transformers and cables                                     |
| <b>fnite elemente</b>          | Reference standard audiophile furniture                             |
| <b>Golden Tube Audio</b>       | Affordable valve pre and power amplifiers                           |
| <b>Harmonix</b>                | Resonance tuning components   |
| <b>Kuzma</b>                   | Tonearms & turntables   |
| <b>Magnum Dynalab</b>          | Audiophile fm tuners and tuner accessories                          |
| <b>Muse Electronics</b>        | Solid-state amplifiers and digital components                       |
| <b>Power Wedge</b>             | Power line conditioners and mains filters                           |
| <b>Shun Mook Audio</b>         | Resonance control tuning devices                                    |
| <b>Sonographe</b>              | Affordable conrad-jobson FET pre-amplifier and power amplifiers     |
| <b>Sound Lab</b>               | Electrostatic and hybrid loudspeakers                               |

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- AudioNote DAC1 with valve output stage. Dynamic, liquid sound, £485 (£685), mint. Audioquest 2 digital interconnect £35 (£60). Marantz CD52 II £40. (01308) 868044.
- AudioNote 'K' loudspeakers, fast, clean transparent sound. Excellent condition £340. (01273) 277368.
- B&O complete A/V system, BeoSound 9000 CD/tuner, BeoLab 6000, 4000, 2000 speakers, Avant TV/video with extras. £6,000 ono. (01252) 614812.
- conrad-johnson (valve) PV10A preamp, phono stage,

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- Cyrus Straight Line amp, 3 months old, mint, boxed, receipt. £250. Sussex (01273) 383443.
- Dynaudio Audience 15 floorstanding speakers, cherry finish, new condition, excellent reproduction, manual, boxed. New £1,132, sell for £750. Eastbourne (01323) 732828.
- Exposure 25RC, stunning integrated amp, 10 months old, boxed. Only £675 (£1,000 new). (0181) 575 8377.
- Exposure CD player, boxed, £700. Naim IBL loudspeakers, black ash, £300. Micromega Duopro 2 DAC, mint, boxed. Lancaster (01524) 381389.
- Hi-fi stand in solid welded steel. 5 shelves, excellent condition. Cost £150, will accept £75. (01279) 629408.
- Linn Isobarik speakers, walnut finish, spiked stands, excellent sound & condition. Original boxes/receipts, reasonable offers. Brighton (01273) 325307.

- Linn Karik, Kairn Pro, Klout, Shahinian Arc loudspeakers, 3 Tier Stand. Latest models, little used. £4,650. May split. Scotland (01333) 350337.
- Linn Keilidhs, granite stands, £650. Pioneer Precision amp £300. Monolith 20/20 cables £170. Mordaunt-Short 25 51 £180. (01977) 620558.
- Linn LP12/Ittok/Goldring Eroica high-output moving coil cartridge, with Avondale power supply (1989), immaculate, boxed. £550. Lancaster (01524) 381389.
- Meridian 208 CD I pre-amp, immaculate £695. Meridian 207 CD/preamp, immaculate £395. Meridian 209 system remote. (01704) 833601.
- MicroMega T-DAC, 4 in/outs including optical & balanced configurations. Superb, boxed. Full demo. £800 new, £295 no offers. Edinburgh (0131) 538 9073.
- Mission 751 Rosewood speakers £150. Quadraspire hi-fi cabinet £150. Chario speaker stands £50. All perfect. (01932) 353529.
- Mordaunt Short Decoder One Dolby Pro-Logic surround sound decoder. As new, boxed £200 ono. (01203) 457748.
- Musical Fidelity

- P270mkII power amp £550. PS Audio 4.6 preamp £300. Revox B77 MkII £350. All mint, boxed. (0181) 543 8625.
- Musical Fidelity X-LP, £80. Townshend Seismic Sink + pump £80. Kimber mains cable £40. London (0181) 810 0488 (before 10pm).
- Naim 180 power amp, 6 months old, not used, boxed and still under guarantee. £750. Worcs (01905) 356923.
- Naim Nait 3 amp, £325. Teac VRDS T1 transport, £275. Audio Alc DDE v 1.1 + PS3, £275. All boxed with manuals. Hants (01256) 356933.
- Nakamichi BX-300E cassette deck, mint condition and boxed £275. Sussex (01903) 815208.
- Nakamichi DR-3 cassette deck, top quality, rare, barely used, cost £350, sell £250 ovno. Also, Alpine car speakers cost £160, sell £70. Carl, Bournemouth (01202) 718460.
- NVA Soundpipes 2 x 0.75m £50 1 x 0.5m £40. Audioquest Ruby 3, 2 x 2ft £50ea. Sigtech HF6 0.5m £50. Sonic Link Caremusic Rhodium 2 x 2m bi-wire £90. (01772) 314151.
- Pair Sony TCK611S

- decks, Dolby HXPro £130 each £240 for the pair. Solid Team shelf speakers £100. Excellent condition (01424) 722674.
- Quad 33/405 pre and power amps, FM3 tuner with manuals £250. Feltham (0181) 890 7169 evs.
- Quad 44/606/FM4 £800. Arcam Alpha £100. All immaculate. SL 600 speakers/stands £250. (01473) 402931.
- Quadraspire Q4 hi-fi table + extra shelf and extension feet, in cherry. (new £347) £150. Bracknell (01344) 489664.
- Rega 'Radio' tuner, mint, £150. Rega ELA, black, vgc £185. Mission 731i, black, new £65. Postage at cost. Rod, (01706) 345418.
- Sony MiniDisc recorder MDS-JE500 £110, Sony tuner STS-3AES £110. Both as new and boxed. (0411) 007 808
- Sony TA-FA3E5 amp, £250. Sony ST-505ES tuner £150. Sony CDP-761E CD £140. All as new, boxed, manuals. (0181) 500 4308.
- Sony TC-KE600S, 3-Head cassette deck, excellent hi-fi reviews, unmarked, boxed, hardly used £150 ono. May p/x. (0181) 251 8782.
- Spendor S100 monitor speakers with especially made Target stands, black. Glowing press reviews, excellent condition. £1,000. (01844) 208751.
- Stands Unique tower, 6 shelves £180 (ono). Marantz CD-63, Audio Alchemy DITB, Audioquest Video Z. £200 together ono. All boxed. (0121) 373 8598.
- Talk Electronics pre/power. Hurricane 1P/Tornado 1, phono, 50WPC (£1,000). Immaculate, boxed. Unwanted prize. Offers, or swap active sub/turntable. (01282) 422820.
- Theta Pearl transport £1,495 (£800), Theta Chroma HDCD DAC £950 (£550), Silent interconnect £30. All 1 year old, mint condition and under guarantee. Martyn, (01494) 459768.



# THE DIRECTORY

## Our Three Step Guide to Buying Hi-Fi

The legendary *Hi-Fi Choice* Directory is now simpler to use than ever before, but contains all the information you need to select and buy the perfect hi-fi system.

**STEP 1** Discover which products fall within your budget by using our Price Guide (starts on the next page). This listing is updated bi-monthly and includes all hi-fi products currently available in the UK. It is organised by product type, then by price band, and is sorted alphabetically. Products whose names are printed in **red** are those we have reviewed. That leads us to...

**STEP 2** Read about the hi-fi equipment we have reviewed in the Directory (starts after the Price Guide). Here you will learn which items have been singled out for our famous Best Buy and Recommended awards that denote 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 'reviewed product' directory) to book a demonstration of the products you are interested in.

## Best Buys and Recommendations

If you see a Best Buy (**red**) or Recommended (**blue**) flag at the beginning of an entry in our Directory of reviewed products, the item concerned is particularly deserving of your attention.

**B** **Red** signifies the Best Buy swing-tag, which indicates products of the best quality and superb value for money in their price category.

**R** **Blue** Recommended products offer excellent quality and value, but not the same cost-effectiveness as a Best Buy.

Please note that an expensive Recommended product will nearly always perform better than an inexpensive Best Buy.

### Using Best Buys and Recommendations to buy hi-fi

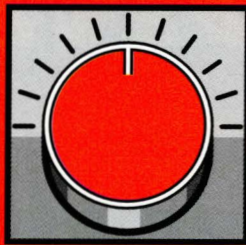
Do not commit the cardinal sin of dashing into your local dealer, magazine in hand, demanding to purchase Best Buy CD player A, Best Buy amplifier B and Best Buy speakers C. This is unlikely to result in your long-term satisfaction. Our belief at *Hi-Fi Choice* is that you must consider the hi-fi system as a complete entity, not as a collection of components. While a superb system might well contain Best Buy and Recommended components, one cannot lump together Best Buys and Recommendations in the hope that they will automatically perform superbly. These ratings make a useful guideline for short-listing components worth trying, but only by hearing them for yourself can you draw meaningful conclusions about what suits your taste. Furthermore, don't panic if the dealer offers you equipment that we have not tested. At the end of the day, what matters most is that your hi-fi system fits your tastes like a glove, and it is the dealer's challenge to ensure your satisfaction by any means – and components – necessary!



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**AMPLIFIERS INTEGRATED**

**KEY**

Ⓢ - number of line-level inputs.  
 '20W' - output power per channel into nominal load of 8 Ohms.

Up to £250

Akai AM1100	Ⓢ	50W	230
AMC 3020	Ⓢ	20W	100
AMC 3025A	Ⓢ	30W	130
AMC 3050A	Ⓢ	45W	170
Ariston AX900	Ⓢ	30W	80
Ariston AX910	Ⓢ	30W	100
Cambridge A1 Mk III	Ⓢ	40W	100
Cambridge A1 Mk III SE	Ⓢ	40W	120
Cambridge A3i	Ⓢ	60W	200
Denon PMA-250SE	Ⓢ	30W	160
Denon PMA-350SE	Ⓢ	50W	200
Denon PMA-425R	Ⓢ	45W	230
Denon PMA-100M	Ⓢ	80W	240
Goodmans Delta 801	Ⓢ		140
H/K HK610	Ⓢ	30W	180
H/K HK620	Ⓢ	40W	250
JVC AX-V4BK	Ⓢ	30W	200
JVC AX-R5BK	Ⓢ	45W	200
Kenwood KA-1080	Ⓢ	60W	140
Kenwood KA-3080R	Ⓢ	70W	170
Kenwood KA-3020SE	Ⓢ	50W	200
Marantz PM-47	Ⓢ	40W	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 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-405R	Ⓢ	60W	250
Rega Brio	Ⓢ	30W	229
Rotel RA921	Ⓢ	20W	100
Rotel RA-931	Ⓢ	35W	150
Rotel RA971	Ⓢ	70W	200
Sansui AUX-410R	Ⓢ	50W	150
Sansui AUX-510	Ⓢ	50W	230
Sherwood AX 4050R	Ⓢ	50W	150
Sherwood AX-7030R	Ⓢ	95W	250
Sony TA-FE210	Ⓢ	45W	130
Sony TA-FE310R	Ⓢ	45W	150
Sony TA-F248E	Ⓢ	40W	200
Sony TA-F448EB	Ⓢ	55W	250
TEAC A-R300	Ⓢ	45W	200
TEAC A-R500	Ⓢ	90W	250
Technics SU-V300	Ⓢ	25W	150
Technics SU-V500	Ⓢ	30W	180
Technics SU-A600 Mk3	Ⓢ	30W	200
Technics SU-V620	Ⓢ	70W	230
Technics SU-A700 Mk3	Ⓢ	45W	250
Yamaha AX-390	Ⓢ	60W	170
Yamaha AX-492	Ⓢ	85W	220

£251 to £500

Alchemist Maxim	Ⓢ	30W	319
AMC CVT 3030A	Ⓢ	30W	400
Arcam Alpha 7	Ⓢ	40W	260
Arcam Alpha 8	Ⓢ	50W	360
Arcam Alpha 9	Ⓢ	70W	500
Audio Analogue Puccini	Ⓢ	40W	450
Audiogram MB1	Ⓢ	35W	493
Audiolab 8000LX	Ⓢ	60W	470
Audiolab 8000A	Ⓢ	60W	500
Aura VA-100 II	Ⓢ	70W	350
CR Dev CR324	Ⓢ	100W	499
Creek 4330	Ⓢ	35W	279
Creek 4340	Ⓢ	35W	279
Creek 4330R	Ⓢ	35W	355
Creek 5250	Ⓢ	50W	450
Denon PMA-725R	Ⓢ	65W	350
EMF Audio Sequel	Ⓢ	50W	450
H/K HK640	Ⓢ	55W	400
Kenwood KA-5090R	Ⓢ	65W	300
Kenwood KA-7090R	Ⓢ	85W	400
Magnum IA120	Ⓢ	65W	265
Magnum IA170	Ⓢ	96W	330
Magnum IA170SE	Ⓢ	90W	430

Marantz PM-68	Ⓢ	90W	300
Marantz PM-66 Kl Sig.	Ⓢ	50W	400
Micromega Minium	Ⓢ	40W	350
Mission Cyrus SL	Ⓢ	50W	398
Monrio Asy	Ⓢ	60W	440
Musical Fidelity E11	Ⓢ	60W	300
Musical Fidelity X-A1	Ⓢ	50W	480
Musical Fidelity A2	Ⓢ	25W	500
NAD 314	Ⓢ	35W	260
NAD 317	Ⓢ	80W	470
Onkyo A9210	Ⓢ	40W	260
Onkyo A921	Ⓢ	50W	350
Onkyo A922	Ⓢ	70W	400
Orelle SA-100	Ⓢ	50W	499
Pioneer A-400X	Ⓢ	50W	300
Pioneer A-605R	Ⓢ	80W	400
Pioneer A-300R Precision	Ⓢ	35W	400
Pro-Ject Model 7	Ⓢ	40W	300
Rega Elex	Ⓢ	50W	398
Shearpe 2.5	Ⓢ	35W	489
Sony TA-FA3ES	Ⓢ	70W	400
Sony TA-F3000ES	Ⓢ	60W	500
Talk Electronics Storm 1	Ⓢ	50W	500
TEAC A-H500	Ⓢ	50W	280
Technics SU-A8000 Mk2	Ⓢ	55W	300
Technics SU-A9000 Mk2	Ⓢ	70W	400
Yamaha AX-592	Ⓢ	100W	280

£501 to £700

Alchemist Kraken APD6A	Ⓢ	55W	579
Alchemist Nemesis	Ⓢ	80W	700
Audio Analogue Puccini SE	Ⓢ	50W	599
Audio Note Kanji Line SE	Ⓢ	9W	699
Audio Note First integrated	Ⓢ	40W	699
Audiogram MB2	Ⓢ	60W	599
Audiolab 8000S	Ⓢ	60W	700
CR Dev Kalyppo	Ⓢ	15W	599
CR Dev CR325	Ⓢ	175W	699
Creek 5250R	Ⓢ	50W	575
Creek 5250SER	Ⓢ	60W	665
Densen Beat B-100 MkII	Ⓢ	60W	650
DPA Renaissance int.	Ⓢ	40W	595
Exposure XX Super	Ⓢ	55W	700
Fase Evoluzione Performance 2.0	Ⓢ	40W	570
Gamma Gemini	Ⓢ	12W	699
H/K HK660	Ⓢ	65W	700
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
Mission Cyrus III	Ⓢ	50W	598
Musical Fidelity A220	Ⓢ	50W	700
Myriad M1 120	Ⓢ	60W	600
Naim Nait 3	Ⓢ	30W	575
Orelle SA-100RX	Ⓢ	75W	649
Prime Design A-100	Ⓢ	100W	650
Quad 77 Integrated	Ⓢ	85W	700
Roksan Caspian	Ⓢ	70W	695
Rose Scion	Ⓢ	65W	615
Shearpe Phase 2	Ⓢ	50W	649
Stemfoort SF60	Ⓢ	60W	549
Talk Electronics Storm 2	Ⓢ	50W	650
TEAC A-BXTR	Ⓢ	50W	700

£701 to £1000

Alchemist Forseti Integrated	Ⓢ	100W	949
Audio Note Oto Line PP	Ⓢ	12W	950
AVI S2000MI	Ⓢ	100W	999
Copland CSA8	Ⓢ	60W	945
Credo IMP702	Ⓢ	70W	850
Credo IMP703	Ⓢ	70W	1,000
Electrocompaniet ECI-2	Ⓢ	50W	995
Exposure XV Super	Ⓢ	55W	800
Fase Evoluzione Performance 1.1	Ⓢ	75W	790
Fase Evoluzione Performance 1.0	Ⓢ	60W	790
Golden Tube Audio SI-50	Ⓢ	50W	1,000
H/K HK680	Ⓢ	85W	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
Micromega Tempo 1	Ⓢ	50W	750
Micromega Tempo 2	Ⓢ	75W	950
Naim Nait 3 R	Ⓢ	30W	760
Pioneer A-07	Ⓢ	80W	999
Primare A20	Ⓢ	60W	800
Rega Elicit	Ⓢ	70W	730
Shearpe Phase 2 Reference	Ⓢ	50W	799
Sonneter Alabaster	Ⓢ	50W	900
Stemfoort SF100	Ⓢ	100W	849
TEAC AB-X10	Ⓢ	100W	1,000
Unison Simply Two	Ⓢ	12W	995

£1001 to £2000

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
Beam-Echo SA-50	Ⓢ	50W	1,950

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Audio Research LS7 and VT60.

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Alan Sircom, Hi-Fi Choice, November 1994

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Bow Technologies Wazoo	Ⓢ	50W	1,795
Bryston B-60	Ⓢ	60W	1,249
Copland CSA14	Ⓢ	70W	1,199
Copland CSA28	Ⓢ		1,299
Copland CIA401	Ⓢ	25W	1,699
CR Dev Romulus V3	Ⓢ	35W	1,198
CR Dev Remus V3	Ⓢ	60W	1,989
Credo LIM 702	Ⓢ		1,191
Credo LIM 703	Ⓢ		1,249
EAR 834	Ⓢ	40W	1,999
Graaf Venticnique	Ⓢ	20W	1,995
LFD Integrated 1	Ⓢ	65W	1,099
Meracrus Intrare	Ⓢ	60W	1,095
Monrio MC-205	Ⓢ	80W	1,545
Primare 301	Ⓢ	80W	1,800
Rogers E-20a	Ⓢ	20W	1,229
Rogers E-40a	Ⓢ	40W	1,900
Sonic Frontiers Anthem Integrated	Ⓢ	25W	1,295
T+A PA1200	Ⓢ	90W	1,350
T+A R1200R	Ⓢ	90W	1,495
T+A PA1500	Ⓢ	135W	1,650
T+A R1500R	Ⓢ	135W	1,895
Unison Simply Four P	Ⓢ	24W	1,555
Unison Simply Four T	Ⓢ	11W	1,595
Woodside ISA230 Line	Ⓢ	30W	1,099
Woodside ISA230 Disc	Ⓢ	30W	1,249
YBA Integre DT	Ⓢ		1,650

Over £2000

Adyton Opera	Ⓢ	50W	2,595
Audio Note Meishu Line	Ⓢ	9W	2,750
Audio Note Ongaku	Ⓢ	26W	36,000
Audio Research CA50	Ⓢ		3,990
Cary CAD-300SE1	Ⓢ	11W	3,995
Conrad-Johnson CAV-50	Ⓢ	50W	2,495
EAR V20	Ⓢ	24W	2,495
EAR 859	Ⓢ	13W	2,499
Electrocompaniet ECI-1	Ⓢ	100W	2,195
Gamma Rhythm	Ⓢ	18W	2,499
Gamma Rhythm Ref	Ⓢ	20W	3,499
Gamma Moment	Ⓢ	40W	19,999
Jadis DA30	Ⓢ	30W	3,490
Jadis DA60	Ⓢ	60W	5,750
Krell KAV300i	Ⓢ	150W	2,550
Meracrus Onesta	Ⓢ	75W	2,595
Musical Fidelity A1001	Ⓢ	200W	2,500
Pioneer A-09	Ⓢ	45W	4,000
Tube Tech Unisis Sig. Int.	Ⓢ	30W	2,300
Tube Tech Synergy PPS	Ⓢ	150W	6,900
Unison Performance One	Ⓢ	25W	4,500
Unison Absolute 845	Ⓢ	40W	11,995

£501 to £2000

**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

AMC CVT 1030A	Ⓢ	Ph	400
Art Audio Minuet	Ⓢ		499
Audio Analogue Bellini	Ⓢ	Ph	475
Audio Note The M	Ⓢ		350
Beam-Echo PP-21	Ⓢ	Ph	499
Bryston BP1	Ⓢ	Ph	438
Carver CT-24	Ⓢ	Ph	499
CR Dev Themis	Ⓢ	Ph	349
Creek P43	Ⓢ		399
Creek P52	Ⓢ		499
Crimson CS610C	Ⓢ	Ph	450
EAR 834P	Ⓢ	Ph	349
EAR 834L	Ⓢ		449
Electrocompaniet ECP-1	Ⓢ	Ph	495
Fase Evoluzione Phondrive 1.0	Ⓢ		445
Henley HMC50	Ⓢ		200
Henley HMC100	Ⓢ		450
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
Moth 30 Passive	Ⓢ		149
Moth 30 RIAA	Ⓢ		249
Moth 30 Active	Ⓢ	Ph	349
Musical Fidelity X10-D	Ⓢ		120
Musical Fidelity X-LP	Ⓢ	Ph	130
Musical Fidelity X-PRE	Ⓢ		200
Musical Fidelity E20	Ⓢ	Ph	400
NAD 114	Ⓢ	Ph	270
NAD 116	Ⓢ	Ph	430
Naim Prefix	Ⓢ		350
Naim NAC92	Ⓢ		470
Rega EOS	Ⓢ	Ph	398
Roksan Artaxerxes 10	Ⓢ	Ph	395
Rose RV-23	Ⓢ	Ph	450
Rotel RQ970BX	Ⓢ	Ph	130
Rotel RC371	Ⓢ		150
Rotel RC372	Ⓢ		225
Talk Electronics Hurricane 1	Ⓢ		500
Technics SU-C1000 Mk2	Ⓢ	Ph	300
Trilogy 905	Ⓢ		375
Trilogy 904	Ⓢ	Ph	375
Trilogy 900	Ⓢ	Ph	499



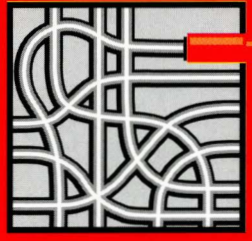
# PRICE GUIDE

Conrad-Johnson PV-10AL	£	995	Trilogy 902	£	1,595	Mission Cyrus XPA	50W	298	Moth 60 Stereo	60W	599
Conrad-Johnson PV-10A	£	1,295	Tron Retro	£	1,000	Mission Cyrus Power	50W	498	Moth 30 Mono/100	100W	879
Conrad-Johnson PV-12AL	£	1,990	Tron Nucleus Phono	£	2,000	Moth 30 Series Power	30W	249	Muse Model 100	100W	1,490
Conrad-Johnson EF-1	£	1,990	Tron Nucleus	£	2,000	Moth 30 Mono/40	40W	469	Musical Fidelity X-A200	200W	1,000
Conrad-Johnson PF-2	£	1,990	Tube Tech Seer Line	£	935	Musical Fidelity X-CANS	0.1W	130	NAD 218THX	200W	850
Copland CSA303	£	1,199	Tube Tech Mac Phono	£	1,150	Musical Fidelity E30	100W	500	Naim NAP140	45W	750
Copland CTA301 MkII	£	1,399	Tube Tech Prophet	£	1,970	Musical Fidelity X-A50	50W	500	Naim NAP180	60W	1,060
CR Dev Carmenta	£	659	Unison Mystery One	£	1,750	Myryad MA 120	60W	450	Naim NAP135	75W	1,655
CR Dev Argento	£	699	Unison Phono One	£	1,995	NAD 912	30W	200	Naim NAP250	70W	1,655
Creco CMP004	£	1,246	Van Den Hul Pre-amp	£	1,700	NAD Z14	80W	370	Naim NAP250	70W	1,655
Creco CMP005	£	1,876	Wilson Benesch Stage One	£	995	NAD 216THX	125W	470	Papworth TVA50	50W	1,425
Densen DM-20	£	1,200	Woodside SC27 Line	£	949	Naim NAP90/3	30W	450	Prime Design P-150	150W	650
DNM 3 Start	£	1,000	Woodside SC26 Line	£	1,557	Rotel RB971	70W	200	Quad 77 Power	85W	600
DNM 3A Start	£	1,650	XTC PRE-1	£	1,250	Rotel RB981	130W	300	Quad 707	140W	800
DPA Enlightenment pre	£	795	Yamaha CX-2	£	650	Rotel RB991	200W	500	Rega EXS	70W	598
DPA DSP5005	£	2,000	YBA 3	£	1,199	Rotel RB991	200W	500	Rega Exon	125W	1,196
Dynavector L200	£	1,195	YBA Integre	£	1,199	Shearpe 3.5	35W	469	Roksan Caspian	70W	595
Dynavector P100	£	1,495	YBA 2	£	1,999	Talk Electronics Tornado 1	50W	450	Roksan ROK-SL.5	100W	1,495
Dynavector L100	£	1,995				Technics SE-A1000 Mk2	70W	350	Rose RP-190 (Dual Mode)	75W	550
Earmax Pre	£	1,895						Shearpe Phase 3	50W	619	
ECA Vista S	£	760	Adyton Temper	£	2,495	Alchemist Kraken pwr	60W	529	Shearpe Phase 3 Reference	50W	729
ECA Vista HD	£	880	Adyton Modus	£	2,695	Alchemist Forsetti Pwr	150W	1,309	Shearpe Phase 5 Mono	100W	1,500
ECA Prisma	£	880	Alchemist The Alchemist pre	£	4,995	AMC CVT 2100A	80W	600	Sonic Frontiers Anthem Amp 1	40W	1,195
Electrocompaniet EC-4.5	£	1,195	ATC SCA2	£	2,499	Art Audio Quintet	15W	1,393	Sonographe SA250	125W	1,195
Electrocompaniet EC-4R	£	1,495	Audio Note M3Line	£	2,650	Art Audio Quintet SE MB	-W	1,500	Sonographe SA400	220W	1,695
Electrocompaniet EC-4.6	£	1,750	Audio Research LS15	£	3,399	Art Audio Concerto	50W	1,669	Sumo Polaris III	164W	950
Exposure XIX	£	800	Audio Research LS22	£	4,391	Audio Analogue Donizetti	60W	575	Sumo Model Five	60W	1,975
Exposure XVII	£	850	Audio Research LS5 MkII	£	6,435	Audio Note The P	40W	550	Sumo Andromeda III	240W	1,975
Fase Evoluzione Controlsources 2.0	£	625	Audio Research REF 1	£	9,900	Audio Note PD	9W	599	T+A A1200	110W	845
Fase Evoluzione Controlsources 1.0	£	1,395	Boulder L3AE	£	2,100	Audio Note P1	12W	750	T+A A1500	140W	1,495
Golden Tube Audio SEP-1	£	990	Boulder L5AE	£	3,400	Audio Note P1SE	12W	999	Talk Electronics Tornado 2	65W	600
Graaf WFB Two	£	1,195	Boulder L5M	£	3,800	Audio Note P2	20W	1,000	Talk Electronics Tornado 3	100W	750
Graaf WFB One	£	1,895	Boulder 2010	£	19,995	Audio Note P2SE	18W	1,499	Talk Electronics Tornado 4	110W	1,100
Henley HMC200	£	750	Cary SLP-98L	£	2,595	Audio Note Conqueror	8W	1,599	Technics SE-A2000	100W	1,100
Heybrook Signature II Pre	£	555	Chord CPA 2200	£	2,355	Audiolab 8000SX	60W	550	Thorens TTA-2000	30W	599
Hi Q Sound MCB2	£	545	Chord CPA 2800	£	3,246	Audiolab 8000PX	100W	850	Trilogy 948	50W	1,895
Hi Q Sound MCL2	£	645	Chord CPA 3200	£	3,320	Audiolab 8000MX	125W	1,800	Trilogy 948T	22W	1,895
Jadis DPL2	£	1,790	Chord CPA 4000	£	6,210	Aura PA-100	100W	700	Tube Tech Syrinx	45W	1,150
LFD MC1 Phonostage	£	949	Conrad-Johnson PF-R	£	2,490	Aura PA-200	110W	1,200	Tube Tech Unisis Sig. Pwr	30W	1,900
LFD LS1 Linestage	£	999	Conrad-Johnson PV-12A	£	2,590	Aura PA-200 C	100W	1,250	Woodside SA240	40W	1,199
LFD MC2 Phonostage	£	1,499	Conrad-Johnson Premier 15	£	3,995	AVI S2000MM	150W	1,399	Woodside MA100	100W	1,733
LFD LS2 Linestage	£	1,599	Conrad-Johnson Premier 14	£	4,495	Bryston 2B-LP	75W	750	Woodside STA50	50W	1,880
LFD LSB Linestage	£	1,999	Conrad-Johnson Art	£	14,995	Bryston 3B-ST PRO	150W	1,160	XTC POW-2	150W	1,450
Linn Wakonda	£	750	CAT SL1 Sig. Mk2	£	6,500	Bryston 3B-ST	150W	1,160	Yamaha MX-2	150W	750
Linn Linto	£	850	CR Dev Kastor	£	2,995	Bryston THX3B	150W	1,262	YBA 3 stereo	1,299	299
Linn Kairn	£	1,400	Creco LPR 001	£	2,815	Bryston 7B-ST PRO	500W	1,545			
Lumley LV1.5	£	895	DNM 3C Primus	£	2,550	Bryston 4B-ST PRO	300W	1,756			
Lumley LV1	£	1,150	DNM 3C Twin	£	3,800	Bryston 4B-ST	300W	1,756			
Lumley PV1.5	£	1,700	DNM 3C Six	£	5,050	Bryston 7B-ST	500W	1,815			
Lumley PV1	£	1,700	EAR 802MC	£	2,599	Bryston THX4B	300W	1,850			
Matisse Atom	£	1,000	EAR G88	£	9,999	Bryston THX7B	500W	1,886			
Meracur Ingredi	£	925	EAR P52	£	15,999	Carver A-500X	250W	949			
Meridian 501	£	695	Gamma Era Ref	£	7,999	Carver A-760X	380W	1,299			
Meridian 562	£	765	Graaf GM13.5B	£	3,950	Chord SPM 400	100W	1,325			
Meridian 562V	£	995	Jadis DP60L	£	2,800	Chord SPM 600	130W	1,720			
Meridian 502	£	1,295	Jadis DPL	£	3,190	Conrad-Johnson MV-55	50W	1,995			
Michell Argo	£	730	Jadis DPMC	£	3,190	Copland CTA501	30W	1,750			
Michi RHC-10	£	795	Jadis JPL	£	4,720	CR Dev Amphion	12W	1,949			
Michi RHQ-10	£	1,150	Jadis JPP200	£	4,998	Creco PMP 804	187W	1,876			
Michi RHA-10	£	1,150	Jadis JP30MC	£	5,978	Creek A52SE	80W	599			
Micromega Tempo P	£	1,250	Jadis JPS2	£	7,900	Crimson CS630C	100W	800			
Mission Cyrus Pre	£	1,250	Jadis JP80MC	£	11,989	Densen DM-30	100W	1,200			
Monrio ADN	£	648	Krell KRC3	£	3,250	DNM PA Start	45W	1,000			
Monrio Pluri-L	£	625	Krell KRC-HR	£	6,949	DNM PA1 Start	45W	1,650			
Muse Model 3	£	960	LFD Disc Preamp	£	4,499	DPA Enlightenment pwr	100W	995			
Musical Fidelity F25	£	1,990	Mark Levinson 25S	£	2,950	Earmax Power	25W	1,895			
NAD 118	£	1,000	Mark Levinson 380	£	3,995	ECA Lectern S	50W	880			
Naim NAC32R	£	630	Mark Levinson 380S	£	6,495	ECA Lectern HD	50W	1,480			
Naim NAC72	£	725	Matisse Fantasy	£	2,500	Electrocompaniet AW60B	60W	1,095			
Naim NAC102	£	1,050	Matisse Reference	£	3,500	Exposure XVIII Super	70W	850			
Quad 77 Pre	£	850	Meracur Pretare	£	2,195	Fase Evoluzione Powersource 2.0	65W	860			
Rega Hal	£	998	Naim NAC82	£	2,160	Fase Evoluzione Powersource 1.0	100W	1,670			
Roksan ROK-L2.5	£	1,250	Naim NAC52	£	3,350	Golden Tube Audio SE-40	40W	1,100			
Rose RV-235	£	525	Roksan ROK-L1.5	£	2,250	Golden Tube Audio SE-300B MkII	8W	1,490			
Rotel RC995	£	525	Sonic Frontiers Line 2	£	2,995	Golden Tube Audio SE-100	100W	1,995			
Shearpe Phase 6 Pre	£	899	Sonic Frontiers Line 3	£	4,995	Graaf Venticione P	25W	1,250			
Shearpe Phase 1 Pre Ref	£	1,399	T+A Pre DA3000	£	2,800	Heybrook Signature II Pwr	120W	1,045			
Siemel MC20	£	650	Tesserac TAP-A	£	5,300	Hi Q Sound MCM	70W	715			
Siemel MM20	£	650	Trilogy 918	£	2,775	Jadis DA5	40W	1,997			
Siemel TU10	£	1,599	Unison Dream	£	11,995	Lexicon 212	120W	1,850			
Siemel TR20	£	1,599	Woodside SC26 Line & Phono	£	2,233	LFD PA1 Powerstage	60W	999			
Sonic Frontiers Anthem Pre 1P	£	895	YBA 1	£	3,500	LFD PA2 Powerstage	75W	1,599			
Sonic Frontiers Anthem Pre 1	£	1,495				LFD PA2M Powerstage	90W	1,999			
Sonic Frontiers Phono 1	£	1,995				Linn LK100	50W	650			
Sonic Frontiers Line 1	£	1,995				Linn LK240	120W	750			
Sonographe SC26	£	995				Linn AV5105	100W	1,200			
Sumo Athena II Line	£	767				Lynwood Ruby	120W	985			
Sumo Athena IIB/II LS	£	987				Magnum MF330	150W	685			
Sumo Athena III	£	987				Magnum MF660	125W	825			
Sumo Artemis uP	£	1,595				Magnum A500SE	200W	1,485			
T+A P1200R	£	890	AMC CVT 2030A	£	30W	400	Magnum A50SE	200W	1,595		
Talk Electronics Hurricane 2	£	650	Arcam Alpha 8P	£	50W	250	Meracur Clere	60W	1,095		
Talk Electronics Hurricane 3	£	900	Arcam Alpha 9P	£	70W	400	Meridian 555	60W	750		
Talk Electronics Hurricane 4	£	1,550	Arcam Delta 290P	£	75W	400	Meridian 556	100W	895		
Talk Electronics Hurricane 5	£	1,900	Creek A43	£	50W	399	Meridian 557	200W	1,400		
Technics SU-C2000	£	700	Creek AS2	£	70W	499	Meridian 505	160W	1,590		
Tesserac TAADA	£	1,500	Crimson CS620C	£	50W	450	Michell Alecto Stereo	50W	1,150		
Tesserac TALA	£	1,500	Earmax Headphone	£	0.1W	375	Michell Alecto Mono	100W	1,989		
Tesserac TAHA	£	1,800	Earmax Headphone Pro	£	0.1W	475	Michi RHB-05	100W	1,100		
Thorens TTP-2000F	£	699	LFD Mistral Powerstage	£	60W	449	Michi RHB-10	200W	2,000		
Trilogy 901	£	750	LFD PAO Powerstage	£	50W	499	Micromega Amp	100W	1,250		
Trilogy 906	£	995	Magnum MF120	£	85W	365	Monrio Cento	135W	1,495		
			Marantz MA-500	£	125W	250	Monrio NP1	135W	1,750		
			Marantz MA-700	£	200W	400					

**Power Amps**  
**KEY**  
**'20W' - output power per channel**  
**into nominal load of**



DNM PA3S	23W	3,750
DPA DAP500S	250W	3,000
Dynavector HX75	75W	2,195
Dynavector HX1.2	130W	3,995
EAR 861	32W	3,299
EAR 509 Mk II	100W	3,699
EAR 519	100W	4,999
EAR 549	200W	6,499
Electrocomplanet AW100DMB	100W	2,095
Electrocomplanet AW120DMB	120W	2,695
Electrocomplanet AW250DMB	250W	3,995
Electrocomplanet AW180MB	180W	4,595
Exposure IV	80W	2,199
Exposure XVI	125W	4,000
Gamma Aeon	20W	4,999
Gamma Space Ref	18W	7,999
Gamma Aeon Ref	70W	49,999
Graaf 5050	50W	2,150
Graaf GM2	60W	2,750
Graaf GM100	100W	4,490
Graaf GM200	200W	8,000
Jadis DA8	80W	3,333
Jadis DA7	100W	5,290
Jadis JA30	30W	5,980
Jadis JA300B	10W	9,000
Jadis JA80	60W	9,912
Jadis JA200	160W	15,518
Jadis JA500	400W	21,500
Krell KAV500/2	100W	3,485
Krell FPB200	200W	6,490
Krell FPB300	300W	9,500
Krell FPB600	600W	12,900
Krell KASZ	200W	20,000
Lexicon 225	250W	2,500
Lexicon 501	500W	5,000
Linn Klout	80W	2,400
Lumley M125	120W	3,750
Lumley M250	250W	7,500
Magnum Glass A mono	180W	2,450
Magnum A200SE	275W	3,750
Mark Levinson 331	100W	4,495
Mark Levinson 332	200W	6,495
Mark Levinson 333	300W	8,495
Mark Levinson 33H	150W	19,395
Matisse Ref Monoblocks	180W	8,000
Meracut Tentare	75W	2,245
Meracut Cantare	-W	8,995
Muse Model 160 Ser. II	160W	2,290
Muse Model 150	125W	2,690
Muse Model 175 Ser. II	175W	3,490
Muse Model 300 Ser. II	300W	3,990
Musical Fidelity F16	200W	2,500
Musical Fidelity F19	300W	4,000
Papworth M100	100W	2,645
Papworth M200	200W	3,825
Roksan ROK-M1.5	160W	2,250
Shearpe Phase 1 Pwr Ref	100W	2,199
Siemel TA20	2,350	
Sonic Frontiers Power 1	55W	2,495
Sonic Frontiers Power 2	110W	4,995
Sonic Frontiers Power 3	220W	9,995
Sumo Model Ten/M	240W	4,200
Sunfire Sunfire	300W	2,170
T+A A3000	190W	3,000
Talk Electronics Tornado 5	200W	2,100
Tesserae TAMP-60	60W	7,350
Trilogy 958T	45W	3,395
Trilogy 958	100W	3,395
Tube Tech Genesis Sig.	100W	4,700
Tube Tech Synergy DMA	150W	6,400
Unison Smart 845	24W	3,250
Unison Palladio	32W	11,995
Van Den Hul Power amp	65W	2,500
XTC POW-1	200W	2,250
YBA 2 stereo		2,200
YBA 1 HC stereo		4,999



**CABLES**  
**ANALOGUE INTERCONNECTS**

**KEY**  
 ⊗ - stranded construction.  
 ⊙ - solid-core construction.

Prices of interconnects are for a one-metre terminated pair.

Apertura Model B	260.00
Apertura Model A	469.00

Art Yam Church 5000	⊗	515.00
Audio Note AN-A	⊗	18.00
Audio Note AN-C	⊗	35.00
Audio Note AN-S	⊗	99.00
Audio Note AN-Y	⊗	179.00
Audio Note AN-Vx	⊗	450.00
Audioquest Jade	⊗	30.00
Audioquest Turquoise 2	⊗	40.00
Audioquest Topaz 2	⊙	59.95
Audioquest Ruby 2	⊗	80.00
Audioquest Quartz	⊗	125.00
Audioquest Opal	⊗	200.00
Audioquest Emerald	⊗	260.00
Audioquest Lapis	⊗	399.00
Audioquest Diamond	⊗	549.00
Cable Talk Improved 2/CD	⊗	26.00
Cable Talk Advanced 2	⊗	34.95
Cable Talk Improved 2/Tape	⊗	47.00
Cable Talk Monitor 2.1	⊗	50.00
Cable Talk Studio 2	⊗	65.00
Cable Talk Professional 2	⊗	85.00
Cable Talk Broadcast 2	⊗	100.00
Cable Talk Reference 2	⊗	150.00
Cable Talk Signature 2 Gold	⊗	300.00
Cambridge Atlantic	⊗	10.00
Cambridge Arctic	⊗	20.00
Cambridge Pacific	⊗	30.00
Cambridge Studio Reference	⊗	40.00
Cambridge Silver Spirit 40	⊗	70.00
Cambridge Silver Spirit 60	⊗	100.00
Cardas Audio 300B-Microtwin	⊗	115.00
Cardas Audio Quadlink-Five	⊗	200.00
Cardas Audio Cardas Cross	⊗	360.00
Cardas Audio Hexlink-Five C	⊗	530.00
Cardas Audio Hexlink Golden-5 C	⊗	600.00
Cardas Audio Golden Cross	⊗	700.00
ChordCo Chrysalis	⊗	33.00
ChordCo Cobra 2	⊗	50.00
ChordCo Siren	⊗	65.00
ChordCo Chameleon	⊗	85.00
ChordCo Solid	⊙	99.00
ChordCo Chorus	⊗	185.00
Connections UK Ultra	⊗	28.00
Connections UK Midas	⊗	39.00
Connections UK HD	⊗	46.00
DBF Acoustics Black Velvet	⊗	30.00
DBF Acoustics Black Velvet SE	⊗	40.00
DBF Acoustics Azure SE	⊗	75.00
DNM-Reson TCC75	⊙	34.00
DPA Slink	⊙	41.00
DPA White Slink	⊙	75.00
DPA Black Slink	⊙	245.00
Expressive Tech IC-1	⊗	700.00
Gamma Wow Balance	⊗	799.00
Goertz M1 Interconnect	⊙	145.00
GT Audio Intercon	⊙	130.00
Henley HSP10	⊗	20.00
Henley HSP50	⊗	35.00
Henley HSP100	⊗	65.00
Henley HSP200	⊗	95.00
Heybrook Black Flash	⊙	49.95
Insert Audio Focus 1.2	⊗	21.50
Insert Audio IC100 Mk II	⊗	46.95
Insert Audio Status 3.4	⊗	160.00
Ixos 104	⊗	20.00
Ixos 1003	⊗	30.00
Ixos Gamma 1002	⊗	39.95
Ixos 103	⊗	45.00
Ixos 102	⊗	60.00
Ixos 101	⊗	100.00
Ixos 100.X03	⊗	150.00
Kimber PBJ	⊗	68.00
Kimber KC1	⊗	96.00
Kimber Hero	⊗	110.00
Kimber Silver Streak	⊗	180.00
Kimber KCAG	⊗	390.00
Kimber KCTG	⊗	720.00
Kronos Konnekt 3	⊙	49.00
Kronos Konnekt 2	⊙	99.00
Kronos Konnekt 1	⊙	199.00
LAT International IC-50	⊗	37.00
LAT International IC-80	⊗	60.00
LAT International IC-100-D	⊗	89.00
LAT International IC-200 Mk II	⊙	151.00
Lieder Chanson	⊗	340.00
Lieder Lek	⊗	420.00
Lieder Het Lied	⊗	420.00
Lieder Song	⊗	580.00
Lieder Maas	⊗	620.00
Lieder Rijn	⊗	1,000.00
Lieder Waal	⊗	1,400.00
Lumley Silver 12/2	⊗	115.00
Lumley Silver 14/4	⊗	175.00
Moth Leyline/Black	⊗	100.00
Moth Leyline/Grey	⊗	200.00
Nordost Magic	⊗	35.00
NordostBlack Knight	⊗	60.00
Nordost Blue Angel	⊗	98.00
Nordost Blue Heaven I/C	⊙	144.95
Nordost Red Dawn	⊗	285.00
Nordost SPM	⊗	825.00
Ortofon 7N interconnect	⊗	250.00
Precious Metals Silver Signal 35	⊗	40.00

Precious Metals Silver Signal 50	⊗	50.00
Precious Metals Silver Signal 52	⊗	70.00
Precious Metals Silver Signal 53	⊗	90.00
Precious Metals Silver Signal 100	⊗	100.00
Precious Metals Silver Signal 102	⊗	130.00
Precious Metals Silver Signal 103	⊗	160.00
Precious Metals Silver Signal 104	⊗	190.00
Precious Metals Silver Signal 200	⊗	220.00
Precious Metals Silver Signal 202	⊗	290.00
Precious Metals Silver Signal 203	⊗	360.00
Precious Metals Silver Signal 204	⊗	430.00
Prowire Silver	⊗	60.00
PAD Elementa	⊗	145.00
QED Qneet 2	⊗	30.00
QED Qneet 4	⊗	60.00
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
Sonic Link Red	⊗	25.00
Sonic Link Silver pink	⊗	35.00
Sonic Link Black	⊗	49.00
Sonic Link White	⊗	65.00
Sonic Link Brown	⊙	70.00
Sonic Link Violet	⊗	85.00
Sonic Link Maroon	⊗	125.00
Sonic Link Blue Nickel	⊙	150.00
Sonic Link Vermillion	⊙	195.00
Sonic Link Red earth	⊙	300.00
Sonic Link Black earth	⊙	450.00
Sonic Link Blue earth	⊙	695.00
Sonic Link Black Rhodium	⊙	995.00
Straightwire Chorus	⊗	40.00
Transparent Cable Musichord Int	⊗	48.00
Transparent Cable The Link	⊗	92.00
Transparent Cable Music Link	⊗	119.00
Trichord Pulswire 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 Al/2	⊗	259.00
Vampire Wire SL	⊗	412.00
Van Den Hul Storm	⊙	25.00
Van Den Hul Source HB	⊙	50.00
Van Den Hul D102 III	⊗	69.99
Van Den Hul Thunderline HB	⊗	130.00
Van Den Hul First	⊗	210.00
Van Den Hul Second	⊗	240.00
Van Den Hul MC Gold	⊗	400.00
Van Den Hul MC Silver IT	⊗	1,240.00
Van Den Hul MC Silver IT Bal	⊗	1,560.00
Wireworld Orbit	⊗	30.00
Wireworld Solstice II	⊗	40.00
XLO Type 150	⊗	50.00
XLO Type 0.1	⊙	180.00



**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
Apogee Digital Wyde Eye	20.00
Apogee Digital Wyde Eye Bal.	30.00
Art Yam Church 5000	275.00
Audioquest Digital/video 1	30.00
Audioquest Digital/video 2	60.00
Audioquest Optilink X	90.00
Audioquest Digital PRO	100.00
Audioquest Optilink Pro	149.00
Audioquest Optilink Z	179.00

Cable Talk Digital 2	⊗	78.00
Cardas Audio Lightning	⊗	190.00
ChordCo Codac	⊗	36.00
ChordCo Prodac	⊗	50.00
DNM-Reson DIG100	⊙	26.00
DPA Opti-link	⊗	20.00
DPA Digi-link	⊗	28.00
Insert Audio Dataline 500	⊗	24.95
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
Moth Leyline Datalink	⊗	140.00
Nordost Moonglo	⊗	155.00
Precious Metals Silver Dig 35	⊗	20.00
Precious Metals Silver Dig 100	⊗	50.00
Precious Metals Silver Dig 200	⊗	110.00
Precious Metals Silver Dig 202	⊗	145.00
QED DigiFlex	⊗	20.00
QED Optiflex	⊗	25.00
Roksan ROK-Intercon	⊗	45.00
Shinpy Digital	⊗	265.00
Siltech HF-6	⊗	145.00
Sonic Link Green	⊙	60.00
Transparent Cable PDL	⊗	199.00
Trichord Pulswire 75D	⊙	75.00
Trichord Pulswire 110D	⊙	145.00
Vampire Wire DI/1	⊙	150.00
Van Den Hul Source HB	⊗	30.00
Van Den Hul Videolink	⊗	60.00
Van Den Hul AES-EBU 110	⊗	65.00
Van Den Hul First	⊗	125.00
Van Den Hul Second	⊗	130.00

**SPEAKER CABLES**

**KEY**  
 ⊗ - stranded construction.  
 ⊙ - solid-core construction.

Price per mono metre untermated.

Acoustic Energy AESC-C3	⊗	11.95
Apertura Silver	⊗	82.50
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
Bandridge LC7409	⊗	4.00
Bandridge LC4110	⊗	28.00
Bandridge LC3410	⊗	40.00
Bandridge LC3210	⊗	75.00
Bandridge LC3219	⊗	75.00
Bandridge LC3220	⊗	90.00
Bandridge LC3310	⊗	95.00
Bandridge LC3240	⊗	125.00
Cable Talk Theatre 2	⊗	1.50
Cable Talk The Flat One	⊗	2.00
Cable Talk Talk 3.1	⊗	2.25
Cable Talk Overture 2.1	⊗	3.25
Cable Talk Talk 4.1	⊗	4.25
Cable Talk Talk 3.1 Biwire	⊗	4.50
Cable Talk Concert 2.1	⊗	7.00
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 Myth	⊙	6.00



ChordCo Legend	15.00
DNM-Reson LSC	6.95
DNM-Reson LSCB	11.95
DPA Black Sixteen	100.00
Electrocompaniet EC-K2	30.00
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
Ixos 607	2.00
Ixos 6004	3.00
Ixos 6003	3.00
Ixos 605	3.00
Kimber 4PR	3.90
Kimber 4VS	9.00
Kimber 4TC	19.60
Kimber 8TC	32.70
Kimber 4AG	394.00
Kimber 8AG	656.00
LAT International SS 800	21.00
LAT International BIWIRE	27.00
LAT International SS 1000	42.50
Lieder Pad	340.00
Lieder Bel Canto	450.00
Lieder Spoor	580.00
Lieder Straat	1,000.00
Lieder Weg	1,400.00
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
Naim NACA 5	5.50
Nordost Octava	3.00
Nordost 4-Flat	12.00
Nordost Blue Heaven Spkr	55.00
Nordost Red Dawn	110.00
Nordost SPM	325.00
Ortofon SPK100	3.00
Ortofon SPK200	5.00
Ortofon SPK300	8.00
Precious Metals Silver L'r 32	7.50
Precious Metals Silver L'r 102	10.00
Precious Metals Silver L'r 34	15.00
Precious Metals Silver L'r 104	20.00
Precious Metals Silver L'r 106	30.00
Precious Metals Silver L'r 108	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	4.95
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 Mkl	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
Sonic Link AST50	1.95
Sonic Link AST75	2.75
Sonic Link AST200	5.95
Sonic Link AST200x2	10.00
Sonic Link S300	18.00
Sonic Link S130x2	20.00
Sonic Link S300x2	35.00
Sonic Link S900	50.00
Sonic Link S600x2	70.00
Sonic Link RE3.1	90.00
Sonic Link RE3.4	330.00
Tech + Link SPC 79	1.20

Transparent Cable Musicchord Spkr	11.00
Transparent Cable The Wave	23.00
Transparent Cable Music Wave Spkr	25.00
Vampire Wire SC-384	11.00
Vampire Wire SC-554	15.00
Vampire Wire ST-I	30.00
Vampire Wire SC-1108	38.00
Vampire Wire ST-II	48.00
Vampire Wire ST-III	73.00
Van Den Hul Skyline HB	3.50
Van Den Hul Snowline	5.00
Van Den Hul Skytrack HB	5.50
Van Den Hul Clearwater	7.00
Van Den Hul Snowtrack	10.00
Van Den Hul CS122 HB	12.00
Van Den Hul Cleartrack	13.00
Van Den Hul D352 HB	20.00
Van Den Hul Teatrack HB	22.00
Van Den Hul SCS12	34.00
Van Den Hul Magnum HB	38.00
Van Den Hul The Wind HB	40.00
Van Den Hul Revolution HB	76.00
Van Den Hul Revelation HB	120.00
Van Den Hul The Third	900.00
XLO Pro 625	4.00
XLO Pro 600	16.60

**KEY**  
**MM** - moving-magnet type.  
**MC** - moving-coil type.

**CARTRIDGES**  
**Up to £100**

Audio Note I01	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 MC20EII	MC	70
Denon DL110	MC	70
Denon DL160	MC	90
Denon DL103	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 ZFL+	MM	83
Grado Prestige Red	MM	99
N'ham Tracer I	MM	98
Ortofon VMS2	MM	14
Ortofon OM 5E	MM	20
Ortofon OM 10	MM	30
Ortofon 510	MM	38
Ortofon OM DJ	MM	50
Ortofon 520	MM	65
Ortofon OM 20	MM	70
Ortofon MC1 Turbo	MC	70
Ortofon Concorde DJ	MM	80
Ortofon OM 30	MM	90
Ortofon MC10 Super	MC	100
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 KEV-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	44
Stanton 680AL/X	MM	59
Stanton 680EL/X	MM	74
Sumiko Oyster	MM	30
Sumiko Black Pearl	MM	50
Sumiko Pearl	MM	70
Sumiko Blue Point	MM	100
<b>Over £100</b>		
Audio Note I02	MM	139
Audio Note Soara	MC	795
Audio Note IO1V	MC	1,095
Audio Note I0LTD	MC	4,500
Audio Technica AT-OC9	MC	330
Benz-Micro The Glider	MC	650
Benz-Micro M090	MC	700
Benz-Micro L040	MC	700
Benz-Micro H200	MC	700
Benz-Micro Reference	MC	1,100
Benz-Micro Reference Ruby	MC	1,500
Benz-Micro Ruby Open Air	MC	1,600
Clearaudio Aurum-Alpha	MM	135
Clearaudio Aurum-Beta	MM	195
Clearaudio Aurum-Beta/S	MM	265
Clearaudio Gamma-S	MM	265
Clearaudio Signature	MC	745
Clearaudio Accurate	MC	1,495
Clearaudio Insider	MC	2,500
Denon DL304	MC	4,900
Dynavector 10X4II	MC	200
Dynavector 23RS	MC	189
Dynavector 17D2	MC	375
Dynavector XX-1L	MC	450
Dynavector XX-1	MC	998
Dynavector Te-Kaitora	MC	998
Goldring Eroica LX	MC	1,698
Goldring Eroica	MC	110
Goldring 1042	MC	110
Goldring Elite	MM	120
Goldring Excel VX	MC	220
Grado Prestige Silver	MM	525
Grado Prestige Gold	MM	119
Grado Signature Junior	MM	149
Grado Signature 8M2	MM	150
Grado Signature MCZ	MM	250
Grado Signature TLZ	MM	375
Grado Signature XTZ	MM	650
Grado Reference	MM	975
Koetsu Red T	MM	995
Koetsu Red K Sig	MC	1,550
Koetsu Urushi	MC	1,998
Koetsu Signature	MC	2,297
Koetsu Gold PR	MC	3,218
Linn K9	MC	5,498
Linn Klyde	MM	125
Linn Arkiv	MC	500
London Decca Maroon	MM	1,000
London Decca Gold	MM	259
London Decca Maroon Dp	MM	299
London Decca Gold Dp	MM	339
London Decca S Gold	MM	379
London Decca S Gold Dp	MM	399
London Decca Jubilee	MM	479
Lyra Lydian	MM	999
Lyra Clavis Da Capo	MC	649
Lyra Parnassus DCT	MC	995
N'ham Tracer II	MC	995
N'ham Tracer III	MM	1,895
N'ham Tracer IV	MM	310
Ortofon MC3 Turbo	MM	410
Ortofon MC15 Super II	MM	660
Ortofon 540	MC	130
Ortofon MC25E	MC	130
Ortofon MC25E	MC	180
Ortofon MC25FL	MC	180
Ortofon MC10 Supreme	MC	250
Ortofon SPU mono	MC	300
Ortofon MC20 Supreme	MC	350
Ortofon SPU Classic	MC	425
Ortofon MC30 Supreme	MC	450
Ortofon MC2000II	MC	525
Ortofon MC Rohmann	MC	750
Ortofon MC3000 II	MC	1,000
Ortofon MC5000	MC	1,100
Ortofon MC7500	MC	1,500
Pickering TL-3003	MM	2,000
Pickering XLZ-4500	MM	145
Pickering TL-4004	MM	150
Pickering XSV-5000U	MM	175
Pickering XLZ-7500	MM	200
Pickering TLZ-7500-S	MM	200
Reson Mica	MM	200
Reson Reza	MM	185
Reson Aciore	MC	250
Reson Etile	MC	299
Reson Lexe	MC	455
Roksan Corus Black	MM	1,300
Roksan Shiraz	MM	130

Shure V15XMR	MM	295
Stanton 890AL/X	MM	120
Sumiko BPS	MC	250
Transfiguration Spirit	MC	1,000
Transfiguration Temper	MC	1,950
Van Den Hul MM-1	MM	250
Van Den Hul MM-2	MM	300
Van Den Hul DDT-II	MC	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 Grasshopper IIISLA	MC	2,000
Van Den Hul Grasshopper IIIGLN	MC	2,800
Van Den Hul Grasshopper IIIGLA	MC	2,800
Van Den Hul Grasshopper IIICMN	MC	2,800
Van Den Hul Grasshopper IIICHN	MC	2,900
Van Den Hul Grasshopper IVGLA	MC	3,000
Wilson Benesch Matrix	MC	786
Wilson Benesch Carbon	MC	1,573
Wilson Benesch Analog	MC	1,850

**CASSETTE DECKS**  
**KEY**  
 ⇌ - Autoreverse - no need to remove and turn round the tape.  
 3-H - 3 heads, i.e. separate record and replay heads.  
**Up to £200**

Aiwa ADS750	MM	100
Aiwa AD-F460	MM	120
Aiwa AD-WX727	MM	170
Akai DXW1100	MM	200
Akai DX1200	MM	200
Ariston WX-510	MM	80
Denon DRM-550	MM	160
Denon DRW-580	MM	200
Denon DRS-640	MM	200
Goodmans Delta 801	MM	130
JVC TD-X372BK	MM	170
JVC TD-R472BK	MM	200
Kenwood KX-W4080	MM	160
Kenwood KX-3080	MM	160
Kenwood KX-W6080	MM	200
Kenwood KX-5080S	MM	200
Marantz SD-455	MM	169
Marantz SD-57	MM	199
Onkyo K 185	MM	200
Pioneer CT-S250	MM	150
Pioneer CT-W205R	MM	160
Pioneer CT-W505R	MM	180
Pioneer CT-S450S	MM	200
Pioneer CT-W606DR	MM	200
Sony TC-KE200	MM	120
Sony TC-WE405	MM	150
Sony TC-KE400S	MM	180
Sony TC-WE505	MM	180
TEAC W-416	MM	100
TEAC V-610	MM	170
TEAC W-780R	MM	100
TEAC R-560	MM	180
TEAC R-H500	MM	200
Technics RS-BX501	MM	170
Technics RS-TR373	MM	180
Technics RS-TR474	MM	200
Technics RS-A26	3-H	200
Yamaha KX-390	MM	150
Yamaha KX-W392	MM	180
Yamaha KX-490	MM	200
<b>Over £200</b>		
Aiwa AD-F850	3-H	230
Aiwa AD-S950	3-H	300
Carver TRD-1550	MM	629
Denon DRM-650S	MM	230
Denon DRM-740	3-H	270
Denon DRS-810	3-H	310
H/K TD420	MM	250
H/K TD450	3-H	350
JVC TD-V662BK	3-H	270
JVC TD-W718BK	3-H	300
NAD 613	MM	230
NAD 614	MM	270
NAD 616	MM	300
Onkyo TA 6210	MM	230
Onkyo TARW 211	MM	270
Onkyo TARW 311	MM	320



Onkyo TA 6310	330
Onkyo KR 609	350
Onkyo KW 606	370
Onkyo TARW 411	370
Onkyo K 611	460
Pioneer CT-S550S	250
Pioneer CT-W806DR	300
Pioneer CT-S550S Precision	340
Pioneer CT-S830S	500
Pioneer CT-95	1,000
Rotel RC960BX	250
Sony TC-WE805S	250
Sony TC-KA6ES	990
T+A CC1200R	250
TEAC W-850R	250
TEAC V-1030	450
TEAC W-8000R	550
TEAC V-6030S	650
TEAC V-8030S	270
Technics RS-A27	280
Technics RS-TR575	250
Yamaha KX-580SE	280
Yamaha KX-W592	400
Yamaha KX-690	

Sherwood CDC6050R	180
Sony CDP-M205	110
Sony CDP-XE210	120
Sony CDP-M305	130
Sony CDP-XE310	140
Sony CDP-CE105	150
Sony CDP-XE510	180
Sony CDP-CE315	200
Sony CDP-C325M	200
Synergy CDJ1210	120
TEAC CD-P1800	130
TEAC CD-P3450SE	200
TEAC PD-H500	240
TEAC PD-D2200	250
Technics SL-PG380A	100
Technics SL-PG480A	130
Technics SL-PG580A	150
Technics SL-PD687	160
Technics SL-PD887	180
Technics SL-PS670D	200
Technics SL-PS770D	250
Yamaha CDX-390	130
Yamaha CDC-565	170
Yamaha CDX-490	220
Yamaha CDC-665	170
Yamaha CDX-590	230

TEAC VRDS-7	599
TEAC VRDS-9	700
TEAC VRDS-10SE	850
Technics SL-P2000	1,000
Trichord Genesis	549
Trichord Digital Jukebox 25	599
Trichord Digital Jukebox 50	649
Trichord Digital J'box 100	699
Trichord Revelation	799
YBA Special	625

Micromega Drive 3	750
Micromega Data	2,250
Monrio Bitmatch	950
Muse Model 5	1,800
Oracle CD Drive	4,680
Sonic Frontiers SFT-1	909
PS Audio Lambda TR	2,250
PS Audio Lambda AT&T	2,778
Rogers SC-8t	2,699
Roksan Attessa-DP3	1,295
Sonic Frontiers SFT-1	2,295
Sonic Frontiers Transport 3	5,995
T+A CM1200R	990
TEAC VRDS-T1	550
TEAC P-30	2,500
Theta Digital Data Basic II	2,397
Theta Digital Data III NTSC/PAL	5,455
Thorens TCD-2000	999
Trichord Digital Turntable	699
Tube Tech Fulcrum	1,000
Wadia 8	3,195
Wadia 20	4,370

£251 to £500

Aiwa DX-C100M	500
Arcam Alpha 7	330
Arcam Alpha MCD	450
Aura CD100	400
Carver MV-5	469
Denon DCM-260	300
Denon DCD-1550AR	350
Denon DCD-1015	350
H/K HD730	300
H/K FL8300	300
JVC XL-Z674BK	300
Kenwood DP-R7080	300
Kenwood DP-9090	300
Kenwood DP-7090	400
Marantz CD-67SE	350
Marantz CC-870	400
Marantz CD-63IKI	400
Musical Fidelity E60	300
Musical Fidelity A2 CD	500
NAD 513	290
NAD 515	350
NAD 514	370
NAD 517	400
Onkyo DX 7210	260
Onkyo C721	290
Onkyo DXC 320	380
Onkyo DX 7510	400
Onkyo CM 716	450
Pioneer PD-F805	300
Pioneer PD-S705	300
Pioneer PD-F906	350
Pioneer PD-S904	400
Pioneer PD-S505 Precision	460
Sony CDP-CX55	280
Sony CDP-XE900E	300
Sony CDP-CX200	380
Sony CDP-XA20ES	450
Sony CDP-X3000ES	500
TEAC CD-5	350
Technics SL-MC410	300
Yamaha CDX-890	350

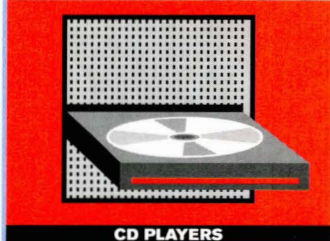
Over £1000

Acoustic Precision Eikos	1,850
Alchemist Forseti	1,950
Audio Research CD1	3,290
Audio Research CD2	4,100
Audiomeca Talisman	2,150
Audiomeca Talisman SE	2,300
AVI S2000MC	1,399
Cary CD-301	2,495
Conrad-Johnson DF-2	1,695
Conrad-Johnson DV-2b	2,495
Copland CDA-266	1,199
Copland CD277	1,800
Copland CDA288	2,199
Symbol CDP12	1,299
Helios Model 1	1,250
Helios Stargate	2,250
Krell KPS30i	5,490
Krell KPS-20j	9,990
Marantz CD-17KIS	1,100
Mark Levinson 39	4,995
Meracur Tanto	1,395
Meracur Imago Player	4,495
Meridian 506	1,100
Meridian 508	1,995
Micromega Solo	2,750
Myryad MCD500	1,300
Naim CD2	2,000
Naim CDX	2,200
Naim CDS	3,940
Oracle CD Player	7,300
Pink Triangle Numeral	1,049
Pink Triangle Litaural	2,200
Primare 302	1,800
Roksan Attessa-DP3P	1,495
Sherwood CD1	1,100
Sonic Frontiers Anthem CD1	1,595
Sonic Frontiers SFCD-1	3,495
TEAC VRDS-25	1,300
Theta Digital Miles	2,495
XTC CDP-1	1,250
YBA Integre	1,250
YBA CD3	2,250
YBA CD2	3,350
YBA CD1	4,500
Altis CDT III	4,995

**DIGITAL TO ANALOGUE CONVERTERS (DACs)**

**KEY**  
4 - number of digital inputs

Altis Reference	4,995
AMC CDM7DAC	100
AMC DAC8	130
AMC CDM7VAC	200
Apogee Digital DA-1000	3,395
Arcam Black Box 50	350
Arcam Black Box 500	500
Audio Note DAC1	675
Audio Note DAC2	1,099
Audio Note DAC3	1,750
Audio Research DAC5	2,148
Audio Research DAC5	2,335
Audio Research DAC3	4,195
Audio Research DAC3	4,555
Audio Synthesis DA Decade	2,795
Audiolab 8000DAX	1,000
Audiomeca Elixir	799
Audiomeca Ambrosia Boulder 2020	17,750
Cambridge Dacmagic 2 Mk II	150
Chord DSC1100	2,575
Chord DSC1500	3,850
Conrad-Johnson D/A-3	1,995
Conrad-Johnson D/A-2b	1,990
Denon DCD-425	150
DPA Little Bit 3	325
DPA Renaissance DAC	570
DPA Enlightenment DAC	825
DPA SX128	2,000
DPA SX256	4,000
DPA SX512	8,000
Jadis JS3	2,129
Jadis JS1	8,068
LFD DAC2	1,950
LFD DAC3	3,000
Linn Numerik	1,500
Manley Professional DAC-20	6,950
Mark Levinson 36	3,995
Mark Levinson 30.5	15,350
Meracur Auriga	1,295
Meracur Flagrare	2,495
Meridian 566	1,095
Micromega DAC 2	750
Micromega Dialog	2,000
Monrio 18B2	795
Muse Model 2	2,190
Muse Model 2 Plus	2,500
Musical Fidelity X-ACT	200
Musical Fidelity X-DAC	300
Onkyo DX 7310	330
PS Audio DL3	777
PS Audio SL3	1,449
PS Audio UltraLink 2 HDCD	2,590
PS Audio Ref Link	4,550
Rogers SC-8m	1,899
Roksan Attessa-DA2	595
Sonic Frontiers SFD-2 Mk 2	5,295
Sonic Frontiers Processor 3	6,995
Sumo Theorem II	945
Sumo Theorem IIB	1,155
Talk Electronics Thunder 3	1,000

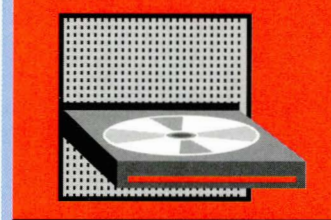


**CD PLAYERS**

**KEY**  
 ⇨ ⇨ ⇨ - multiplayer: can be loaded with more than one disc.  
 □□10 - electrical (coaxial) digital output.  
 Many players also include an optical (Toslink) output.

Up to £250

Aiwa XC-300	150
Akai CD1100	180
Akai CDM1200	230
AMC CD9	120
AMC CD8A	150
AMC CD6	250
AMC CDM7	250
Ariston CDX700	60
Ariston CDX710	100
Ariston CDX910	120
Ariston CDC610	140
Cambridge CD4	150
Cambridge CD4SE	200
Cambridge CD6	250
Denon DCD-635	180
Denon DCD-625	200
Denon DCD-715	235
Denon DCD-825	240
H/K HD710	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 DP-R6090	200
Kenwood DP-4090	250
Marantz CD-38	130
Marantz CC-38	200
Marantz CD-48	200
Marantz CD-57	230
Marantz CD-67II	250
NAD 510	200
NAD 512	250
NAD 522	169
Philips CD711	120
Philips CD721	130
Philips CD751	150
Philips CDC751	180
Pioneer PD-106	130
Pioneer PD-206	150
Pioneer PD-F606	200
Pioneer PD-M603	200
Pioneer PD-S505	200
Pioneer PD-F706	250
Rotel RCD-930AX	180
Rotel RCD950	250
Sansui CD220	100
Sherwood CD-4030R	180
Sherwood CDC680	180



**CD TRANSPORTS**

**KEY**  
 □□10 - electrical (coaxial) digital output.  
 Many players also include an optical (Toslink) output.

Arcam Delta 250	800
Audio Research CDTI	3,290
Audio Synthesis Transcend Decade	2,995
Audiolab 8000CDM	1,400
Audiomeca Damnation	999
Audiomeca Damnation SE	1,100
Audiomeca Talisman	1,850
Audiomeca Talisman SE	1,999
Audiomeca Talisman DOB	2,250
Audiomeca Mephisto	2,350
Audiomeca Mephisto SE	2,500
Audiomeca Mephisto	2,750
Cambridge Discmagic One	300
Conrad-Johnson DR-1	1,795
DPA Enlightenment Drv	725
Jadis JD3	4,850
Jadis JD2	4,990
Jadis JDI	12,500
Krell KPS-20t	8,490
Linn Karik	1,850
Mark Levinson 37	3,995
Mark Levinson 31.5	9,295
Meracur Imago	3,995
Meridian 500	1,245





Sennheiser HD545 Reference.

TEAC D-T1	500
TEAC D-700	600
Theta Digital Chroma Std	849
Theta Digital Pro Geny	1,145
Theta Digital Pro Prime II	1,800
Theta Digital Pro Basic III	2,990
Theta Digital Gen V SE	4,300
Theta Digital Casablanca LS	5,910
Thorens TDA-2000	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

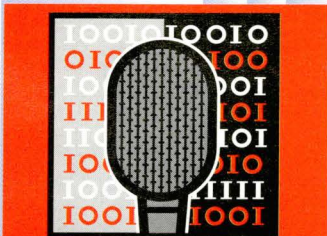


HEADPHONES

**KEY**  
 'D' - dynamic type, compatible with virtually all normal headphone sockets.  
 'E' - electrostatic type; generally includes a separate power supply.  
 - open-back construction.  
 - closed-back construction.

Up to £40

Aiwa HP-X301	D	20
Aiwa HP-VX303	D	25
Aiwa HP-X705	D	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
JVC HA-CD88	D	18
JVC HA-D525	D	20
JVC HA-F85	D	20
JVC HA-D626	D	25
Kenwood KPM-310	D	18
Kenwood KPM-410	D	25
KLH KHP-201TW	D	21
KLH KHP-300V	D	25
KLH KHP-420V	D	33
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-E837	D	18
Sony MDR-P70	D	18
Sony MDR-ED238	D	20
Sony MDR-009TV	D	20
Sony MDR-A34L	D	20
Sony MDR-E848	D	20



DIGITAL RECORDERS

**KEY**  
 MD - MiniDisc  
 DAT - Digital Audio Tape  
 - portable

Denon DMD-1300	MD	500
Kenwood DM-7090	MD	500
Onkyo MD 122	MD	700
Philips CDR870	MD	499
Pioneer PDR-04	MD	700
Pioneer D-05	DAT	900
Pioneer PDR-05	DAT	1,000
Pioneer D-C88	DAT	2,000
Sharp MD-R1E	MD	300
Sharp MD-MS200H	MD	350
Sharp MDXV300H	MD	1,000
Sony MZ-E20	MD	180
Sony MDS-JE510	MD	250
Sony MZ-E30	MD	280
Sony MDS-S38	MD	300
Sony MZ-R30	MD	300
Sony MDS-JA30ES	MD	699
TEAC MD-H500	MD	650
TEAC MD-10	MD	950

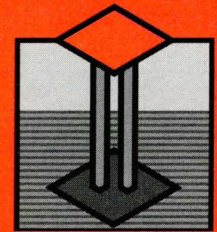
Sony MDR-P1TV	D	25
Sony MDR-CD270	D	30
Sony MDR-E868	D	35
Sony MDR-V400	D	40
Sony MDR-D11	D	40
Stanton ST Pro	D	25
Technics RP-F200	D	30
Technics RP-HT300	D	40
Vivanco SR150	D	20
Vivanco SR200	D	25
Vivanco SR250	D	25
Vivanco SR300	D	30
Vivanco IR5700	D	40

Over £41

AKG K301	D	80
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 ATH40FS	D	120
Audio Technica ATHM40FS	D	120
Audio Technica ATH911	D	120
Beyer DT311	D	50
Beyer DT411	D	63
Beyer DT511	D	106
Beyer DT801	D	125
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-D650	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
Jacklin Float Model 1	D	79
Jacklin Float Model 2	D	99
Jacklin Float ELS	E	399
JVC HA-D727	D	43
JVC HA-W60	D	49
JVC HA-D910	D	65
JVC HA-D1000	D	250
JVC HA-F25	D	699
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 IS 380	D	55
Sennheiser HD455	D	55
Sennheiser HD465	D	65
Sennheiser HD570	D	80
Sennheiser HD475	D	80
Sennheiser HD25 SP	D	90
Sennheiser IS450	D	110
Sennheiser HD545 Ref	D	125
Sennheiser HD265 Linear	D	125
Sennheiser HD250II	D	150
Sennheiser HDC 451-1	D	150
Sennheiser HD565 Ovata'n	D	150
Sennheiser HD25-13	D	160
Sennheiser HD25	D	160
Sennheiser HD 580 P'cision	D	200
Sennheiser HD600	D	250
Sennheiser Lucas	D	280
Sennheiser IS850	D	859
Sennheiser HE60/HEV70	E	998
Sennheiser Orpheus	E	9,652
Sony MDR-IF120K	D	50
Sony MDR-E888	D	55
Sony MDR-IF125SRK	D	60
Sony MDR-V600	D	70
Sony MDR-F1	D	100
Sony MDR-NC5	D	100
Sony MDR-IF420RK	D	100
Sony MDR-CD770	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-0001	E	280
Stax SR-Lambda Nova C	E	370
Stax Lambda Nova Basic	E	449
Stax SR-Lambda Nova S	E	450
Technics RP-F800	D	50
Technics RP-HT600	D	60

Technics RP-DJ1200	D	130
Vivanco IR5800	D	50
Vivanco SR850	D	50
Vivanco SR650	D	50
Vivanco FMH 3000	D	60
Vivanco SR750	D	60
Vivanco IR6000	D	70
Vivanco SR909	D	70
Vivanco IR7600	D	100
Vivanco SR1000IFL	D	100
Vivanco SR2000IFL	D	120

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 Akros II	60	59
Alphason NCI	60	84
Alphason HDS-40/M	60	85
Alphason Titan S	60	125
Apollo AZ6	66	80
Arcici Q-1	30	299
Arcici Q-2	30	299
Atacama BD21	56	55
Atacama BD17	55	55
Atacama BD25	60	60
Atacama SE16	65	65
Atacama SE12	65	65
Atacama SX500	67	67
Atacama F2	70	70
Atacama F1	70	70
Atacama SX600	70	70
Atacama SL200	70	70
Atacama SE24	61	70
Atacama SE20	70	70
Atacama SX700	73	73
Atacama SL300	73	73
Atacama TP600	75	75
Atacama TP500	75	75
Atacama SE615	75	75
Atacama SE515	75	75
Atacama SE415	75	75
Atacama SL400	76	76
Atacama SE1000S	80	80
AVF Tower PG144BP	60	35
BCD Model 1010	60	495
Credo STD 001	284	284
Custom Design CD 500	50	35
Custom Design AS 130	25	35
Custom Design AS 630AV	65	40
Custom Design Tri 100	50	50
Custom Design R/S 200	50	50
Custom Design R/S300	60	70
Custom Design Tri 300	55	85
Custom Design SCS 24	60	85
Custom Design X24	61	109
Custom Design C 20	50	109
Custom Design H1	50	275
Deadrock 903	60	60
Deadrock 902	47	60
Deadrock 901	39	60
Dynaudio Trophy	60	120
Dynaudio Master	60	200
Dynaudio Ultima	60	290
Harbeth HL-Stands	21	249
Heybrook Stand-ULT	3	55
Heybrook Stand-S6	63	69
Heybrook Stand-S4	48	69
Heybrook Stand-S1	47	119
JPW MS2	45	45
JPW MS3	61	55
JPW MS1	46	80
JPW HS1	58	120
JPW HS2	45	120
Kudos Audio Arrow	60	50
Kudos Audio S-50	60	100
Kudos Audio S-100	63	270
Mission Micrometer	58	70
Mission Entasis	58	98
Opera S1	60	345
Pioneer CP-7	50	50
Pioneer CP-8	80	80
Projekt Signature	55	80
Revolver RS1	50	70



Royd Royd	55	99	Impulse Iso-plate	190
SD Acoustics SD Alexandra	50	369	JPW 3 Tier	80
Silverado Silverado 1 Stand	60	350	JPW 5 Tier	100
Sonus Faber Ironwood	475	800	Kudos Audio Corinthian	14
Sonus Faber Stonewood	497	85	Linn K3000	9
Sound Org Z037	55	125	Mana Sound Frame	16
Sound Org Z027	55	150	Mana Mini Table	1
Sound Org Z026	55	150	Mana Power supply table	1
Sound Org Z518	45	150	Mana Reference flat top	1
Soundstyle X6118	42	100	Mana Sound Shelf	1
Stands Unique Speaker support	59	159	Mana Sound Base	175
Stands Unique Tuned Spkr Support	59	220	Mana Sound Stage	175
Stands Unique Tuned Carbon Fibre	59	299	Mana Sound Stage	200
Stands Unique Vivas CF Spkr Supp	60	349	Mana Sound Table	235
Target TR60	60	68	Mana Ref Shelf	325
Target R1	53	280	Mana Reference Table	350

**EQUIPMENT SUPPORTS**  
**KEY**  
**3 - number of shelves**

Alphason SM17	1	49	Optimum G2	2	69
Alphason VSM17	1	85	Optimum G2/Pedestal	2	99
Alphason GSM17	1	85	Optimum G4/Pedestal	5	130
Alphason GMV1P	1	110	Optimum OPT 3406	3	149
Alphason R17/17	3	120	Optimum G5/Pedestal	6	150
Alphason GMH1P	1	150	Optimum OPT 4906	4	199
Alphason GR17/17	3	150	Optimum OPT 6606	5	249
Alphason VR17/17	3	190	Optimum OPT 340	3	249
Audiophile Base 01	1	79	Optimum OPT 490	4	299
Audiophile S4120P	4	280	Optimum OPT 440	4	299
Audiophile S4120P	4	560	Optimum OPT 10206	6	299
BCD Model 1006/8	1	795	Optimum AV 300	3	329
BCD Model 1000	3	1,250	Optimum OPT 700	5	349
Custom Design G3	3	130	Optimum OPT 610	5	349
Custom Design Aspect 650	4	240	Optimum OPT 660	5	349
Custom Design Aspect 500AV	3	270	Optimum OPT 1020	6	399
Custom Design Aspect 850	5	270	Optimum OPT 1190	7	450
Deadrock 701	1	60	Projekt A3	7	145
Deadrock 802	2	90	Projekt A4	4	190
Deadrock 703	3	130	Projekt A5	5	235
Deadrock 704	4	190	Projekt B3	6	255
Deadrock 705	5	230	Projekt A6	6	280
FI-Rax R4	6	399	Projekt B3i	6	300
Frameworks H175	1	130	Projekt B4	8	340
Frameworks FS1	1	150	Projekt B Multi	8	345
Frameworks FT2	2	285	Projekt B3ii	7	345
Frameworks FT3	3	350	Projekt C3	9	375
Frameworks H700	3	355	Projekt D3	12	420
Frameworks H900	3	389	Projekt C3i	8	420
Frameworks H500/H175	3	404	Projekt B5	10	425
Heybrook Stand-Signature	4	249	Projekt C3iii	11	465
			Projekt C3ii	10	465

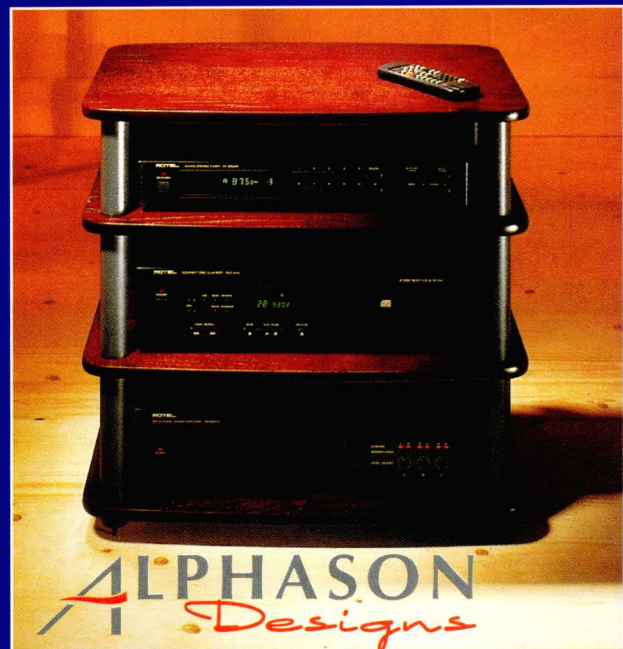
Projekt D3i	12	500	Townshend Seismic Sink 1-CD	110	
Projekt C4	12	500	Townshend Seismic Sink 1-3D	400	
Projekt C3iv	10	510	Townshend S/Sink Stand 1-4	4	999
Projekt D3ii	14	545	Townshend Seismic Sink 3-4	4	1,250
Projekt C Multi	9	555	Wilson Benesch Standard Shelf	1	130
Projekt D4	16	560	Wilson Benesch Mono Block	1	265
Quadraspire Q4S mini shelf	1	60	Wilson Benesch Kevlar Shelf	1	270
Quadraspire Q4S shelf	1	60	Wilson Benesch Asside Basic	4	590
Quadraspire QKS Cabinet shelf	1	80	Wilson Benesch Asside	4	720
Quadraspire QAV shelf	1	120	Wilson Benesch Triptych	1	990
Quadraspire Q4M mini table	4	200			
Quadraspire Q4 table	4	200			
Quadraspire QAV table	3	300			
Quadraspire Q4SP Table	4	320			
Quadraspire QAVSP Table	4	400			
Quadraspire QK Cabinet	4	400			
Reson DOMOPS	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 Z545	4	140			
Sound Org Z560	5	160			
Sound Org Z530	3	170			
Soundstyle X300	3	180			
Soundstyle X305	3	210			
Soundstyle X053	4	210			
Soundstyle X050	4	210			
Soundstyle X6300	3	215			
Soundstyle X100	4	220			
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 X6058	5	290			
Soundstyle X6105	5	300			
Soundstyle Finewoods W105	5	320			
Stands Unique Isolation Platform	1	52			
Stands Unique Sound Support	4	249			
Stands Unique Sound Tower	5	289			
Stands Unique Compact Sound Supp	4	315			
Stands Unique Sound Support 10	4	315			
Stands Unique Sound Twr Cabinet	5	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 3-4	4	1,250			
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			

Ariston MSX 05	80
Celestion 12i	119
Denon SC-M2	80
Gale Mini Monitors	70
Gale Gold Monitors	90
Genexa GX300	80
Genexa GX330	80
GLL Arena	90
Goodmans Active 75	65
Interaudio XL1000	130
Jamo Studio-80	70
Jamo SAT-90	90
Jamo Cornet 25	100
Jamo D-110	100
Jamo SAT-170	110
Jamo Studio-110	110
Jamo Cornet 35	120
Jamo Artina	120
Jamo D-115	120
Jamo 28	125
JBL TLX111	120
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 731i	130
Mordaunt-Short VS-100	100
Mordaunt-Short MS05i	100
NAD 801	100
Paradigm Micro	100
Paradigm Atom	130
Pioneer CS-3030	120
Polk AB410	100
Realistic Minimus 26	56
Realistic Minimus Pro-77	100
Revolver Beretta	100
R Allen Minette 2	129
Solid HCM2	130
Sony SS-86E	100
Tangent Monitor 3	60
Tangent Monitor 5	80
Tangent Monitor 7	100
Tannoy Mercury M1	120
TDL Nucleus 1	75
TDL Nucleus 2	80
TEAC LS-X8 Mk II	130
Technics SB-CS55	80
Technics SB-CS65	100
Technics SB-CS75	100
Visionik 5202	129
W'dale Valdis 100	80
W'dale Diamond 7.1	100
W'dale Valdis 200	110
W'dale Modus Micro	110

**£131 to £200**

Acoustic Energy AE100	200
Allison Model 4A	170
B&W DM302	150
B&W CWMS	170
B&W DM601	199
Bose 101	190
Bose 141	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
Denon SC-E313	160
Gale 2i	140
Gale 4i	140
Gale 3i	150
Genexa GX650	140
GLL Imagio IC100	170
Heybrook Prima 2	159
Infinity SM65	150
Infinity Reference 1i	150
Infinity Reference 11i	200
Interaudio XL2000	200
Jamo 38	150
Jamo 525	150
Jamo 560	150
Jamo 660	170
Jamo Cornet 65	170
Jamo Studio 180	180
Jamo D165	200
Jamo 68	200
JBL TLX121	150
JPW ML610	170

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**KEY**  
 ↓ - floorstander; larger models requiring no separate stand.  
 □ - stand mount; smaller models designed to be raised above the floor.  
 ⇩ - wall mount; designed to be hung on the wall or mounted in-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.

Up to £130  
 Allison Micro Monitors 95  
 Allison Mini References 120



JPW SS551	200	Boston Voyager	299	R Allen Dimension Five 2	269	GLL Imagio IC130	500
KEF Coda 8	189	Castle Isis	250	Rogers db101	250	Heybrook Heylios	389
KEF Q15	199	Celestion 23i	299	Rogers GS3	279	Heybrook Heylo	439
KEF Model 60S	199	Cerwin-Vega VS-8	250	Royd The Envoy	249	Infinity SM105	350
Kenwood LS-200G	200	Cerwin-Vega CT-330	300	Royd Minstrel	275	Infinity SM115	400
KLH Model 21	155	Chario Syntar 100	250	Ruark Epilogue	239	Infinity SM125	500
KLH Model 11	155	Dali 102B	260	Sequence 300	249	Jamo Classic 6	330
KLH Model 31	185	Dali 150	300	Solid HCM1	250	Jamo Cornet 75	330
Mission 731i Pro	140	Faraday FS1	245	Sony SS-176E	250	Jamo BX-100A	350
Mission 732i	200	Gale 5i	220	Tannoy Mercury M3	230	Jamo 98	350
Mordaunt-Short MS10i Pearl	150	GLL Imagio IC110	260	Tannoy Precision P10	300	Jamo 407A	350
Mordaunt-Short VS-200	150	GLL Imagio IC115	300	Visonik 7003	203	Jamo D365	400
Mordaunt-Short MS20i Pearl	200	Heybrook Optima	259	Visonik SUB5	259	Jamo Cornet 95	400
Mordaunt-Short VS-300	200	Heybrook Heylette	269	W'dale Modus Music Four	230	Jamo Classic 8	400
Paradigm Titan	150	Heybrook HB1	269	W'dale MFM1	250	Jamo Graphic	400
Pioneer CS-5030	170	Infinity SM85	250	W'dale Valdis 500	300	Jamo 128	450
Polk M2	180	Interaudio XL3000	230	Yamaha NS10M	300	Jamo BX-150A	450
Polk RT3	200	Interaudio XL4000	295	ZYP A1T	219	Jamo Atmosphere	480
Polk AB610	200	Jamo 892	220	ZYP A2S	275	Jamo 477A	500
Rega KYTE	198	Jamo Classic 4	250	ZYP AZST	295	JBL Lx6	350
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Revolver The 230	169	Jamo D265	300	£301 to £500		JBL PS8	500
Revolver Purdey MkII	199	Jamo 307A	300	Acoustic Energy AE109	350	JBL TLX171	500
R Allen Minette 3	159	JBL LX2	250	Acoustic Energy AE209	450	JM Lab Micron	395
R Allen Dim'n 5/1 Compact	179	JBL TLX151	300	Acoustic Energy AE120	500	JM Lab Megane	495
R Allen RA6	199	JPW ML710	230	Allison Model 2A	420	Jordan Watts JHFLG	380
Rogers GS1	179	JPW ML810	260	AVI Neutron	499	JPW SS553	400
Royd A7X	155	JPW ML910	300	B&O Beovox CX50	325	JPW ML1010	400
Sequence 200	199	JVC SX-SW10	300	B&O Beovox CX100	425	JPW Ruby 1	400
Solid Monitor	200	KEF Coda 9	299	B&W CWM8i	350	JPW Ruby 2	500
Sony SS-126EB	150	KEF Model 70S	299	B&W DS6	400	KEF Q35	349
Sony SS-176E	200	KLH 83A	205	B&W CDM2	400	KEF Q55	499
Tangent Monitor 9	150	KLH 183A	265	B&W DM503	500	KEF RDM One	499
Tangent Monitor 11	180	KLH Soundbites System	276	B&W Signature 7	500	Keswick Aria II	379
Tannoy Mercury M2	140	KLH Model 81	280	Bandor Pictures	352	KLH 283A	310
TDL Nucleus 3	200	KLH Model 41	290	Blue Room Mini Pod	400	KLH 383A	335
Technics SB-CS95	150	M-A Monitor 1	250	Bose 301	380	KLH Model 51	375
Technics SB-M20	200	M-A Monitor 2	300	Bose 171	386	KLH Model 71	420
Visonik 6003	143	Mordaunt-Short MS30i	275	Bose A'mass AM3 II	500	KLH Model 62T	486
Visonik 5001	170	Mordaunt-Short MS10i Classic	280	Boston Micro 90 Sat	369	Linn Sekrit	395
W'dale Diamond 7.2	140	Mus Tec Kestrel SE	300	Boston Micro 80 Sys	369	Mission 733i	330
W'dale Valdis 300	150	NAD 802	280	Boston VR20	380	Mission 751i	348
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W'dale Valdis 400	200	Paradigm Mini Monitor	220	Castle Kendal	450	M-A Monitor 3	400
W'dale Diamond 7.3	200	Pioneer CS-7030	230	Castle Eden	470	M-A Monitor 4	500
ZYP A1	199	Pioneer CS-9030	280	Celestion 25i	399	Mordaunt-Short MS25i Pearl	330
		Pioneer S-LC1	300	Celestion 30i	449	Mordaunt-Short MS40i	450
Acoustic Energy AE200	250	Polk AB505	220	Celestion 35i	499	Mus Tec Harrier	400
Audio Gem Opal	230	Polk M3 II	220	Cerwin-Vega VS-10	350	NAD 804	400
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B&W DM602	300	Polk RT7	300	Dali 104B	370	NHT SuperOne	338
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Bose 201	290	Rega EL8	290	Def Tech Celsius	395	Origin Live OL-1AS	399
Boston 361	219	Revolver The 250	250	Epos ES12	499	Origin Live Monarch	399
Boston CR8	239	R Allen Dimension Five 1	239	Faraday SG	345	Paradigm Monitor 7	330
Boston 381	259	R Allen RA8	249	Faraday Siren	445	Paradigm Monitor 9	400
Boston CR9	279	R Allen RA8M	249	GLL Imagio IC120	400	Pentachord A	469
						Pioneer S-LC2	450
						Polk AB705	330
						Polk RT8	400
						Polk RT10	500
						Polk AB805	500
						Prof Monitor Co TB1S	366
						Prof Monitor Co TB1SM	403
						Prof Monitor Co TB1	410
						Prof Monitor Co TB1M	447
						Prof Monitor Co XB1	499
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						Rega ELA MkII	498
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						R Allen Dimension Five 3	349
						R Allen Dimension Five 4	429
						Rogers GS5	379
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						Sequence 400	329
						Solid Verticale	400
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						Spendor 2020	399
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						Tannoy Precision P20	400
						TDL RTL2 SE	330
						TDL RTL 3SE	450
						TDL Chiltern CF100	450
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KEF RDM Two	699				
KEF Q65	799				
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Keswick Volante	729				
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Spendor 2030	599				
Spendor LS3/5A	630				
Spendor SP3/1P	795				
T+A TB 100	690				
Tannoy Precision P30	600				



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Cary SP-301	2,295
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Triangle Extan	2,950
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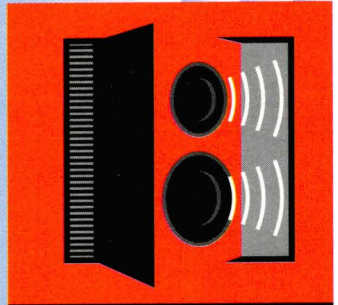
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Dynaudio Contour 3.3	4,815
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L Voice Air Partner S	37,200
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Lumley L/M 2 Sig. Mk3	4,500
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Magneplanar MG-20 SE P	10,300
Magneplanar MG-20 SE A	11,000
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Martin-Logan CLS Ilz	4,555
Martin-Logan Re-Quest	5,875
Martin-Logan Monolith S	7,440
Martin-Logan Monolith IIP	8,550
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M-A Studio 50	4,000
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Proac Response 3.5	4,250
Proac Response 5	9,000
Proac Response 4	12,000
Prof Monitor Co MB1P	4,370
Prof Monitor Co BBS A	16,688
Quad ESL63	3,450
Rehdeko RK125	3,200
Rehdeko RK145	4,800
Rehdeko RK175	8,800
Revel Gem	5,295
Rockport Syzygy	15,000
Rockport Procyon	32,500
Shahinian Hawk	4,995
Shahinian Diapason	8,895
Shinpy Enigma	3,995
Shinpy Euphonia	5,995
Shinpy Magnifica Suprema	14,500
Shun Mook Bella Voce	6,800
Sonus Faber Electa Amator	3,293
Sonus Faber Extrema	6,500
Sound-Lab Dynastat	3,790
Sound-Lab Aura	6,490
Sound-Lab Pristine III +	7,990
Sound-Lab A-3	11,990
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Sound-Lab Ultimate III	18,950
Sound-Lab Ultimate I	23,950
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T+A AD4	3,940
T+A AD3	4,660
T+A AD2	8,590
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Tannoy Definition D900	3,999
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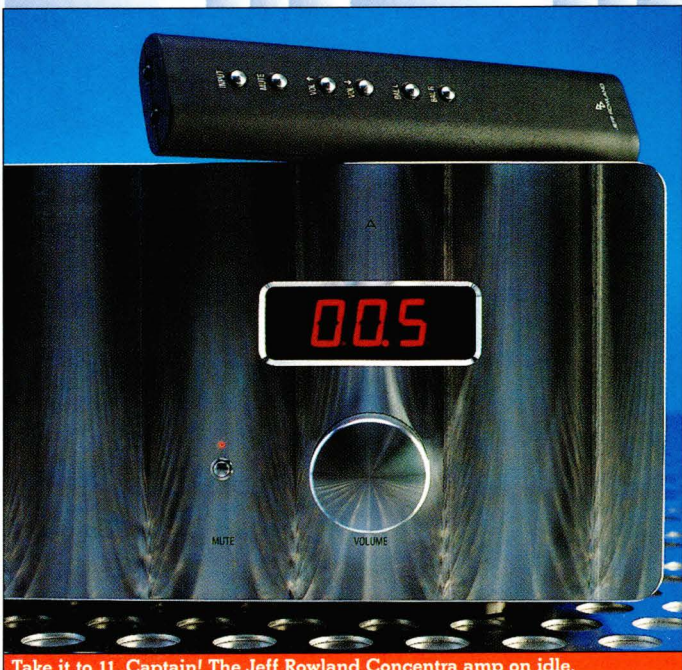
Wilson Audio WATT 5	8,750
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Wilson Benesch Actor	3,800
Wilson Benesch ACT1 spkr	6,857

Wilson Audio WATT 5	8,750
Wilson Audio WITT	8,888
Wilson Benesch Actor	3,800
Wilson Benesch ACT1 spkr	6,857



**KEY**  
 (A) - active; includes a dedicated power amplifier.  
 (THX) - THX approved by LucasFilm for use in Home THX installations.

Acoustic Energy AE108S	300
Allison Mini Ref Sub	210
Alon Poseidon	12,000
AMC B1-20	350
ATC SCM 0.1/1.5	2,750
Audio Physic Terra	3,499
B&W ASW1000	500
B&W AS6	500
B&W ASW2000	800
B&W ASW3000	1,000
B&W Matrix 800ASW	1,500
B&W Matrix 800ASW	1,500
Boston CR400	300
Boston VR500	400
Boston VR2000	800
Celestion CS135	139
Celestion CSW MkII	329
Celestion S1i	349
Cerwin-Vega HT-10D	200
Cerwin-Vega HT-12D	250
Creo SDC 001	3,054
GLL LE Bass	350
H/K Citation 7.4	875
Infinity SSW-10	500
Jamo SW303E	220
Jamo SW400E	330
Jamo SW505E	400
Jamo Sub One	400
Jamo SW600E	530
JBL Control Sub 6	200
JBL PSW800	275
JBL Sub 10	300
JBL PSW1000	325
JBL PSW1200	375
JPW Subwoofer	130
JPW SW40	199
JPW SW60	350
JPW SW-120	500
KEF Model 20B	349
KEF Model 30B	499
KEF Model AV1	2,499
Kenwood SW500	250
Keswick Alto	1,299
KLH ASW10-100	350
KLH ASW12-120	380
Linn AV5150	2,850
L Voice RW24	11,500
Meridian M2500	1,595
M&K VX-7MkII	450
M&K V-75 MkII	650
M&K V-125	800
M&K V-125 (THX)	800
M&K MX-70	900
M&K MX-150 (THX)	1,500
M&K MX-200	1,800
M&K MX-300	2,500
M&K MX-5000 (THX)	2,900
Mission 73AS	450
Mission 75AS	548
Mordaunt-Short T2000	500
Mus Tec Sub	650
Muse Model 22	1,890
Muse Model 18	3,790
Neat Gravitas	1,095
NHT SW2Pi	699
Polk PSW50	350
Polk PSW150	500
Polk PSW300	750
REL Q50	375
REL Q-100E	495
REL Strata II	575

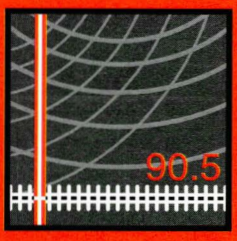


Take it to 11, Captain! The Jeff Rowland Concentra amp on idle.



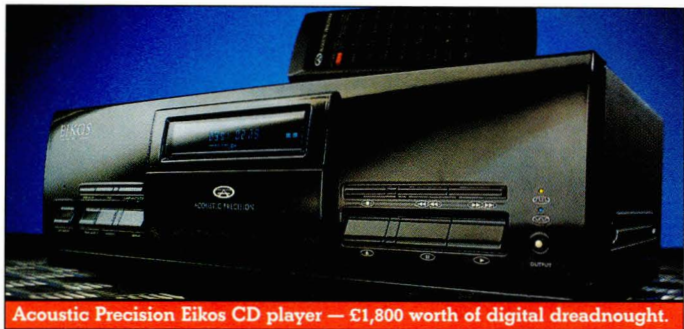
REL Storm	Ⓐ	695
REL Stadium II	Ⓐ	995
REL Stentor II	Ⓐ	1,800
REL Studio II	Ⓐ	4,000
Revel Sub-15	Ⓐ	2,195
Revolver The Recoil	Ⓐ	100
R Allen Gold Sub	Ⓐ	149
R Allen Dim'n Active	Ⓐ	499
R Allen Magnum Active	Ⓐ	699
Rogers AB1	Ⓐ	549
Rogers Sub-bass	Ⓐ	679
Roksan Ojan 3S	Ⓐ	795
Sequence FW120	Ⓐ	249
Solid PB100	Ⓐ	350
Sony SA-W101	Ⓐ	230
Sunfire True Sub	Ⓐ	1,450
TDL Nucleus SBR	Ⓐ	200
Triangle Sat III	Ⓐ	650
Velodyne VA-68XII	Ⓐ	399
Velodyne VA-810XII	Ⓐ	599
Velodyne VA-1012XII	Ⓐ	699
Velodyne VA-1215XII	Ⓐ	999
Velodyne FSR-12	Ⓐ	1,099
Velodyne FSR-15	Ⓐ	1,299
Velodyne F-1800II	Ⓐ	1,999
W'dale Modus Sub Bass	Ⓐ	180
W'dale Modus Powered Sub	Ⓐ	350
Wilson Audio Puppy 5.1	Ⓐ	8,450
Wilson Audio Whow III	Ⓐ	12,500
Yamaha YST-SW40	Ⓐ	140
Yamaha YST-SW80	Ⓐ	180
Yamaha YST-SW150	Ⓐ	280
Yamaha YST-SW300	Ⓐ	350

SME Series IV	Ⓐ	983
SME Series V	Ⓐ	1,461
Wheaton Music Tri-Planar 4i	Ⓐ	3,000
Wheaton Music Tri-Planar 5i	Ⓐ	3,250
Wilson Benesch Act 0.5	Ⓐ	795
Wilson Benesch ACT2	Ⓐ	1,350
Zeta AS	Ⓐ	469
Zeta VDH	Ⓐ	549



**TUNERS**

**KEY**  
 'P20' - (etc.) number of presets.  
 RDS - Radio Data System; receives text information on station, programme type etc.



Acoustic Precision Eikos CD player — £1,800 worth of digital dreadnought.

Yamaha TX-492RDS	P40	RDS	130
Yamaha TX-590RDS	P40	RDS	180

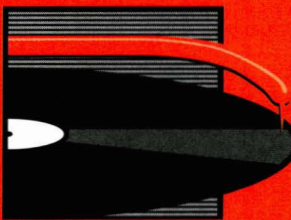


**TURNTABLES**

**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
Genexxa Lab-710	Ⓞ	60
Genexxa Lab-810	Ⓞ	70
Kenwood KD-492F	Ⓞ	100
Michell Mycro	Ⓞ	455
Moth Alamo	Ⓞ	199
Moth Kanoot Mk1 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	Ⓞ	160
Pro-Ject 1/510	Ⓞ	200
Pro-Ject 2/520	Ⓞ	300
Pro-Ject 6/MC15	Ⓞ	450
Rega Planar 78	Ⓞ	214
Rega Planar 2	Ⓞ	214
Rega Planar 3	Ⓞ	274
Roksan Radius	Ⓞ	470
Sherwood PM8550	Ⓞ	130
Sony PS-LX150H	Ⓞ	90
Sony PS-LX300H	Ⓞ	150
Systemdek I/920	Ⓞ	136
Systemdek IIX/900	Ⓞ	230
Systemdek I/920/Moth	Ⓞ	235
Systemdek IIXE/900Ap	Ⓞ	388
Systemdek 960	Ⓞ	500
Systemdek 2X2	Ⓞ	500
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

Linn LP12 Basik	Ⓞ	1,100
Linn LP12 Lingo	Ⓞ	1,750
Manticore Mantra 97	Ⓞ	595
Manticore Mantra	Ⓞ	895
Manticore Magister	Ⓞ	4,400
Michell Gyrodek	Ⓞ	875
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 Anna Log	Ⓞ	5,500
Oracle Paris	Ⓞ	1,100
Oracle Delphi	Ⓞ	3,370
Oracle Delphi 15th Anniv	Ⓞ	3,800
Pink Triangle Tarantella	Ⓞ	680
Pro-Ject 6/Sumiko	Ⓞ	850
Rega Planar 9	Ⓞ	1,598
Reson RS1M	Ⓞ	600
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	Ⓞ	1,850
Well Tempered Classic	Ⓞ	2,980
Well Tempered Super	Ⓞ	3,900
Well Tempered Reference	Ⓞ	5,300
Wilson Benesch Circle	Ⓞ	795
Wilson Benesch WB Turntable	Ⓞ	1,775
Wilson Benesch Full Circle	Ⓞ	1,995



**TONEARMS**

**KEY**  
 Ⓞ - pivoted.  
 ☐ - parallel tracking.

Air Tangent IC	Ⓞ	3,333
Air Tangent 10B	Ⓞ	7,777
Air Tangent Ref. Sig.	Ⓞ	11,000
Audio Note AN-ARM 1	Ⓞ	169
Audio Note AN-0s	Ⓞ	795
Audio Note AN-1s	Ⓞ	995
Audiomeca SL5	Ⓞ	2,500
Clearaudio TQ-1 Improved	Ⓞ	1,950
Dynavector 507	Ⓞ	1,995
Graham 1.5 Basic	Ⓞ	1,695
Graham Mk 2.0	Ⓞ	2,650
Helius Orion 4 Copper	Ⓞ	549
Helius Cyalene 2	Ⓞ	1,495
Kuzma Stogi	Ⓞ	750
Kuzma Stogi Ref	Ⓞ	1,250
Linn Akito	Ⓞ	500
Linn Ekos	Ⓞ	1,500
Manticore Musician II	Ⓞ	595
Manticore Magician II	Ⓞ	895
Manticore Magician 12	Ⓞ	995
Moth Mk I	Ⓞ	109
Moth MKIII Stainless	Ⓞ	146
Moth Mk III Tungsten	Ⓞ	174
Moth Moth 900	Ⓞ	598
Naim ARO	Ⓞ	1,040
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
Rega RB250	Ⓞ	109
Rega RB300	Ⓞ	174
Rega RB900	Ⓞ	598
Rockport Series 7000	Ⓞ	6,000
Roksan Tabriz	Ⓞ	320
Roksan Tabriz Zi	Ⓞ	420
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	Ⓞ	669
SME 310	Ⓞ	705
SME 312	Ⓞ	802

Akai AT1200	P30	170
AMC T7	P24	130
Arcam Alpha 7	P24	230
Arcam Alpha 8	P24	280
Arcam Delta 280	P20	300
Ariston TX-510	P20	60
Audiolab 8000T	P39	800
Aura TU80	P30	350
AVI S2000MT	P16	599
AVI S2000MT2	P99	899
Carver TX-8R	P20	469
Creek T43	P68	399
Day Sequerra FM Ref		5,937
Day Sequerra S B'dcast Mon		14,640
Denon TU-260L	P20	120
Denon TU-215RD	P40	150
Denon TU-425RD	P40	200
H/K TU930	P30	150
H/K TU950	P30	200
Kenwood KT-2080	P20	130
Kenwood KT-3080	P30	180
Linn Kudos	P50	775
Linn Kremlin	P80	2,600
Magnum Dynalab FT11		550
Magnum Dynalab FT-101A		825
Magnum Dynalab Etude		1,250
Magnum Dynalab 108		4,500
Marantz ST-48	P30	119
Marantz ST-17	P60	600
Meridian 504	P30	695
Michi RHT-10	P16	895
Micromega Minium FM MK2	P39	329
Micromega Tuner	P39	750
Mission Cyrus FM7	P29	400
Musical Fidelity E50	P20	300
NAD 412	P24	190
NAD 414RDS	P30	250
NAD 710	P24	270
NAD 712	P24	330
Naim NATO3		595
Naim NATO2		1,080
Naim NATO1		1,730
Onkyo T 4210RDS	P30	180
Onkyo T 409	P30	230
Onkyo T 411RDS	P30	260
Pioneer F-204RDS	P30	140
Pioneer F-504RDS	P40	250
Pioneer F-504RDS Precision	P40	300
Quad 77FM	P25	700
Rega Radio	P24	229
Roksan Caspian	P50	595
Rotel RT-935AX	P20	160
Rotel RT940AX	P20	200
Sansui AUX-310	P20	80
Sony ST-SE200	P30	100
Sony ST-SE300	P30	120
Sony ST-SE500	P30	140
Sony ST-SE700	P30	180
Sony ST-SA3ES	P30	250
T+A TI200R		745
TEAC T-R400	P20	120
TEAC T-H500	P30	170
TEAC TB-X10	P20	400
Technics ST-GT350L	P30	130
Technics ST-GT550L	P39	180
Technics ST-GT650L	P39	230
Thorens TRT-2000	P59	499
Yamaha TX-480L	P40	100

Over £500		
Audio Note AN-TT 2		995
Audio Note AN-TT 3		1,995
Audiomeca Romance		1,895
Audiomeca J1		3,500
Basis 2001		2,750
Basis Ovation II		4,800
Basis Debut Gold Std III		7,200
Basis Debut Gold Vacuum		9,250
Chantry QT Level 2		705
Clearaudio Evolution		1,790
Clearaudio Reference		3,990
DNM-Reson Rota 1		3,900
DNM-Reson Rota 2		5,600
Impulse Moskito		695
Kuzma Stabi		1,950
Kuzma Stabi Reference		3,750

Remember that all entries printed in **RED** refer to hi-fi products that we have reviewed. Turn to page 114 for a full summary of best results!





*Do you want to choose your hifi in a comfortable and relaxing environment . . . ?*

*Do you want friendly and helpful advice (and a cup of tea) . . . ?*

*Do you want to buy your system based on what you hear (and not what somebody tells you) . . . ?*

*Do you live in GUILDFORD . . . ?*

. . . or Addlestone, Aldershot, Ashford (Middx), Ashstead, Bagshot, Basingstoke, Bracknell, Camberley, Chertsey, Crowthorne, Cranleigh, Dorking, Epsom, Esher, Farnborough, Farnham, Fleet, Frimley, Godalming, Hartley Wintney, Haslemere, Hook, Horsham, Kingston, Liphook, Leatherhead, Molesey (East & West), New Malden, Odiham, Petersfield, Reading, Reigate, Redhill, Richmond, Shepperton, Virginia Water, Walton-on-Thames, West Byfleet, Weybridge, Windsor, Woking, Wokingham, Yateley?

**Nobody else** in these areas stocks all the following major brands: Acoustic Energy, Arcam, Audiolab, Aura, B&W, Cyrus, Epos, DPA, Harman Kardon, Heybrook, Infinity, JPW, KEF (Reference), Linn Products (including records), Marantz, Meridian, Mission, Musical Fidelity, NAD, Nakamichi, Onix, Pioneer, PROAC, QED (Systemline), Quad, Rega, Revox, Rogers, Rotel, Sony, Sound Org, Target, T.D.L., Yamaha (including Home Cinema Systems) & Top Tape.

**Visit us first** and you won't need to go anywhere else, we have superb demonstration rooms where you can decide in comfort, and we will deliver and install free of charge (and part exchange is possible).

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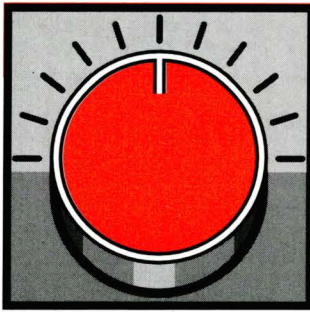
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# Amplifiers Brought to you in association with

**audio research**  
HIGH DEFINITION

The amplifier sits at the heart of the system, processing the outputs from the various music sources as necessary and then driving the loudspeakers. These two (quite separate) functions are integrated into a single box at the low-to-middle price points, but are separated in preamps and power amplifiers. Even separate power supplies become increasingly common as one moves upmarket.

Bear in mind that output power and sound quality are not necessarily related. Some of the finest amplifiers available have outputs as low as

12 Watts, but team them with high-efficiency loudspeakers and you can achieve loudness aplenty.

Please note: monoblok power amps are those in which the left and right channels are handled by physically separate units.



## KEY

**LINE INPUTS:** Number of input sockets for non-vinyl sources such as CD players, tuners and cassette decks.  
**MM PHONO INPUT:** If an amp has an input for moving magnet (normal output) phono pickup cartridges.

**MC PHONO INPUT:** If an amp has an input for moving coil (low output) phono pickup cartridges.

**REMOTE CONTROL:** If an amp is couch-potato ready.

**HEADPHONE SOCKET:** If an amp is can friendly.

**POWER OUTPUT (W):** Lab-tested power output in Watts per channel.

**RECEIVER:** If an amp has a built-in radio tuner.

**FACTSBACK NUMBER:** The Factsback reference for ordering a fax

copy of the review. Use the contents page to find the Factsback information page elsewhere in this section.

**ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which the original review appeared.

## INTEGRATED AMPLIFIERS

Product	Price(£)	Comments	LINE INPUTS	MM PHONO INPUT	MC PHONO INPUT	REMOTE CONTROL	HEADPHONE SOCKET	POWER OUTPUT(W)	RECEIVER	FACTSBACK NUMBER	ISSUE NUMBER
Alchemist Maxim	319	Vivid and colourful-sounding amp that's just too bold and brassy	5	●				30		1737	154
Alchemist Kraken APD6A	579	Compact, with Darth Vader styling, yet sound quality is surprisingly meek and mild, despite strong midband dynamics	5	●				55			175
Alchemist Nemesis	700	Good if ultimately undistinguished amplifier whose strengths include warmth, authority and distinctive aesthetics	6					80			168
AMC 3025a	140	Surprisingly potent and easy on the ear, if not especially analytical — classic bargain basement material in fact	4	●	●	●	●	30			171
AMC 3050a	170	Tremendous value for money, and a full, big, if rather uninformative sound	4	●	●	●	●	45			167
AMC CVT3030a	400	Beer-budget valve amp, with quintessentially valve-like virtues (euphony with dynamics) and vices (system dependency, noise)	6	●	●	●	●	30			168
Arcam Alpha 7	260	Decent, if slightly system-fussy amplifier that generally pulls all the right strings	5	●				40			167
Arcam Alpha 8	360	Enjoyably soft-centred amp, won't frighten the animals. Upgradeable via preamp output, and optional remote control	5	●				50		1853	162
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			168
Audio Analogue Puccini	450	Superbly finished, the entry-level Audio Analogue performs way out of its class	5	●	●			40			175
Audiogram MB1	493	The only flaws are the amateurish build, a number of technical problems and inconsistent sound quality. Other than that...	4	●		●	●	40			178
Audio Note Oto SE	1,200	Transparent, dynamic, clear and subtle, but offers limited power output	4					24			126
Audiolab 8000LX	470	Well built, minimalist entry level model ultimately lacks bottle and pizzazz	6					60			175
Audiolab 8000A	500	The 8000A remains a highly disciplined and mature-sounding amp	5	●	●		●	60		1581	140
Audiolab 8000S	700	Informative in every sense, only a slight lack of bite detracts. Perhaps Audiolab's best yet!	6			●	●	60		1740	154
AVI S2000MI	999	Fine, detailed amplifier with excellent timing and strong control of a wide range of loudspeaker loads	5			●		100			175
Bryston 860R	1,249	Build quality can't be faulted, but the lazy bass and opaque treble bracket an articulate midband. Comes with 20 year guarantee	5			●	●	60			175
Cambridge Audio A3i	200	"Maximum information" design, with plenty of usable and reasonably refined power. A snip!	4	●				60			167
Copland CSA8	945	Sophisticated yet transparent, this is one of those amplifiers that sounds good even when the gloss has worn off	5					60			168
Copland CSA14	1,199	Great sound and looks, but watch out for high capacitance speaker cables	4	●				60		1416	148
Creo IMP702	850	Old-fashioned looking, but bags of clarity and precision, though it can sound brash in the wrong system	5					70			175
Cymbal CA1	499	Lacklustre amplifier tends to underperform with complex material. Best with straightforward compact loudspeakers	6					40			178
Creek 4330	279	Compact, even pretty, but sounds dark and uninviting, with coarse treble and woomy bass	5					40			171
Denon PMA-250SE	160	This amp can sound rough when extended, but within its limits it is open, detailed and likeable	5				●	30			171
Denon PMA-350SE	200	Reinvented in the minimalist tradition, this SE model is a control freak, but can sound wonderful	5				●	50		1856	162
Denon PMA-425R	230	Well-equipped and generally enjoyable but slightly ragged performer	3	●		●	●	45			167
Denon PMA-725R	350	Warm, bold, up-front presentation, but musically unexciting	5	●	●	●	●	97		1802	157
Denon BeatB-100 MkII	650	High 'air guitar' factor, and can punch above its weight, but check to ensure it will complement the rest of your system	5					60			175
DPA Renaissance	595	DPA's first integrated amp is typically innovative, but a little too 'crisp 'n dry' for our tastes	5	●			●	40		1582	140
EMF Audio Sequel	450	Relaxed and restrained design from Mike Creek	5	●			●	50			109
Exposure XX Super	700	Rather transistorised, unexciting sound. Good coherence and rhythm. Best played loud	6					55		1743	154
Electrocompaniet EC1-2	995	A 50 watt amplifier which sounds more powerful, and makes real sounding music in real sounding acoustic spaces	4					50			175
Gamma Acoustics Gemini	699	Genuine single-ended triode design, but low power, mundane sound and poor build	3					12		1416	148
Goodmans Delta 900A	130	Coloured and raw sound offsets high power yield and remarkable pricing, but noisy fan cooling is a joy-killer	5	●		●	●	100			178
Harman/Kardon HK610	180	Lively and friendly sound, but could prove too exciting for the faint hearted	6	●			●	30		1465	149
Harman/Kardon HK620	250	Capable and musical amplifier which is among the nicest available at the price. Optional add-in MM/MC board available	6			●	●	40		1858	162
JoLida 202	695	Well-built and technically accomplished, affordable valve integrated with subtle and refined, if not quite gripping sonic performance	4					40			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 KA-3020SE	200	Not a brilliant phono stage, but this is a lively, exuberant-sounding amp via CD	5	●			●	50		1130	134
Kenwood KA-5090R	300	Large, well equipped and high tech integrated, but TRAITR output still gives a harsh, unsubtle performance	5	●	●	●	●	65			171
LFD Integrated Zero	549	Lively and brisk, but at the same time cold and unsympathetic	6					50		1584	140
Linn Majik (phono)	800	The cornerstone of Linn's modular hi-fi system is innovative, but sounds vague and confused	5	●	●		●	33		1013	129
Magnum IA120	265	Mirror finish amplifier with a bold, colourful delivery, but needs careful system matching to avoid loss of focus and clarity	6				●	65			171
Magnum IA170	330	Gives a realistic sense of instruments playing within a very believable acoustic, preserves colour and dynamics well	6				●	96		1260	142
Magnum IA-200	599	Sweet, valve-flavoured solid state amplifier flatters where it doesn't cast light	7					160		1860	162
Magnum Class A	690	Lashings of rich and compelling music, but the Class A circuits trade lushness for accuracy	4	●	●			60			116
Magnum Class A SE	795	A MOSFET amplifier drawing inspiration from the world of valves, this is an erratically refined, detailed amplifier	5	●				80			175
Marantz PM-57	200	Well equipped but ultimately anodyne amplifier which lacks for nothing but star quality	5	●		●	●	50			171
Marantz PM-66SE	230	A bit lush, and power output is limited, but it communicates well and gives airy, large-scale music. An excellent budget buy	5	●		●	●	50			167
Marantz PM66 KI-Signature	400	An amplifier that knows how to rock and roll with holographic detail and stereo, but prefers small/medium scale acoustic material	5	●		●	●	50			168
Mission Cyrus III	598	Beautifully presented, but mid-dominated balance and other anomalies were not liked. Upgradeable using PSX PSU unit	6	●		●		50		1854	162
Mission Cyrus SL	398	Sharp, articulate amplifier, and superb, outgoing midband with lean though well-extended bass — and build quality to die for	6					50			168
Monrio ASTY	400	Engaging, but ill-disciplined, even OTT amplifier that responds less than predictably to system changes	5					55			178
Musical Fidelity E11	299	Well built minimalist amp with a 5 year guarantee, but can sound congested when extended, and some colorations are evident	6					60			178



# INTEGRATED AMPLIFIERS

ISSUE NUMBER  
RECEIVER  
FACTSBACK NUMBER  
POWER OUTPUT(W)  
HEADPHONE SOCKET  
REMOTE CONTROL  
MM PHONO INPUT  
MC PHONO INPUT  
LINE INPUTS

Product	Price(£)	Comments	5	4	3	2	1	0	Power Output (W)	Headphone Socket	Remote Control	MM Phono Input	MC Phono Input	Line Inputs	Receiver	Issue Number
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 and source components.	5	●					50							168
Musical Fidelity E1	199	Vivid, richly flavoured tonality and realistically scaled imagery distinguish this new entry-level Richer Sounds special	6						30							171
Myrrad MI120	600	Well styled, well built and, well, a good, even tempered amplifier, though it can sound a bit brittle, and lacking in euphony	6					●	60							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 312	200	Another great budget price NAD, and a worthy all-round successor to the 302	6	●				●	25							171
NAD 314	260	Lively if coloured presentation that is musically engaging and easy on the ear	6	●				●	53						1807	157
Naim Nait 3	575	Distinctive and highly musical sounding integrated amp. Perhaps too distinctive for some tastes	5						30						1748	154
Orelle SA-100	499	A musically rewarding amplifier that grows on you. Trace of coarseness in treble	5						50						1749	154
Orelle SA-100RX	649	Fine, high resolution amplifier, but avoid very low impedance speakers, and check CD compatibility by ear	7					●	75							178
Pioneer A-204R	160	The A-204R makes no special claims beyond being well equipped and cheap, but it displayed unexpected talent on test	5	●				●	25							171
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-405R	250	Fully featured, open and dynamic sounding, more than makes up in enthusiasm what it occasionally lacks in refinement	5	●				●	45							178
Pioneer A-400X	300	On second audition, this amp was tonally unchanged but less compelling	6	●	●				50						1545	138
Pioneer A-300R Precision	400	Sophisticated, breathed-on variant of the A-300R. Not an obvious winner, but will slowly win you over with its subtle charms	5	●				●	35						1863	162
Pioneer A-605R	400	Intriguing technology, but execution is certainly impeded by excessive gadget count	5	●				●	80							168
Pioneer A-07	999	Curious mix of high end attributes and inconsistent, though undeniably detailed sound	5	●				●	80							175
Pro-ject Model 7	300	A minimalist amplifier brimming with good intent, but too quirky for its own good. Either MM or MC	5	●					40						1264	142
Quad 77 Integrated	700	Compact and sophisticated Quad system amp, limited range of inputs when used with 'foreign' components (optional system remote)	3						84							168
Rega Elex	398	Minimalist amplifier, derived from Elicit, is a little uninspiring, though at least it is well behaved	4	●					50						1865	162
Roksan Caspian	695	Well-built, open and articulate amplifier, which is also consistent from system to system, and well built	6					●	70							168
Rose Scion	615	Unique two-box integrated gives real subtlety and low level resolution, but the sound lacks scale and weight	5	●	●				65							168
Rotel RA-931	150	Rather dry and unforgiving sound from this internally well specified and attractively priced amplifier	4	●				●	35							171
Sony TA-F448BE	250	Classic minimalist interface is matched to carefully considered circuit to broadly satisfactory effect - but keep the volume in check	5	●				●	55							171
Sony TA-F3000ES	500	Champagne shoebox amp may lack power reserves, but is quick, polished and articulate. In every sense a knockout	5	●	●	●		●	35							178
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							175
TEAC A-BX7R	700	Characterful balance mars an otherwise meticulously designed amplifier. Includes a balanced input, optional MM/MC stage	5					●	50						1869	162
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-A800D Mk 2	300	Two-box amplifier looks great, has plenty of gadgets, and makes good, if slightly over-exuberant music	5	●				●	55							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							175
Woodside ISA230 Disc	1,249	Smooth and inoffensive valve amplifier, though it lacks the sparkle and euphony required for a truly entertaining sound	3	●					30							116
Yamaha AX-492	220	Powerful, well equipped amplifier at an attractive price, offers powerful and engaging music-making	5	●				●	85							178
Yamaha AX-592	280	Fine, middle ranking amplifier, with a detailed, dynamic midband but some performance falloff at the frequency extremes	5	●	●	●		●	100							171
<b>Preamplifiers</b>																
Audiolab 8000C	580	Distinctive, stark neutrality that will not appeal to all. Good value engineering	5	●	●			●								97
Audiolab 8000Q	1,250	Tested with 8000M monoblock power amps	6					●							1301	145
Copland CTA-301MKII	1,399	Sweet sounding - but never gets bogged down in audio treacle	4	●											1630	151
EAR 802MC	2,599	Tested with 509 Mk 2 power amp - see over leaf	4	●	●											63
ECA Vista	760	Wind up the volume and blow a breath of fresh music into your system (tested with Lectern power amp - see over leaf)	5												1302	145
Exposure XVII	850	Superbly rhythmical; maybe a bit overpowering in the midband. Tested in Sessions with XVIII Super	5	●	●											142
Jadis JP-30MC	5,978	French tubes, JP-30MC has beautiful build, nostalgic styling and delightful midrange. (Tested with JA 30 power amp)	5	●												60
LFD Mistral Linestage	449	Strong ergonomics, generally decent sound, but a little lacking in detail	6													165
Meridian 501	695	Tight, positive sound, but dispassionate; intense at high levels. Tested with 555 power amp	5	●				●							1303	145
Meridian 562V	995	Transparent and capable preamp, also features six digital inputs	9	●				●								140
Meridian 502	1,295	Extremely sophisticated analogue controller with tremendous flexibility and a fast and tidy presentation (Statements)	7					●								162
Moth 30 Passive	149	Modular system gives cracking results. Passive preamp and power amp warrant Best Buy (tested with 30/Stereo 60)	4													109
Moth 30 Active Line Stage	349	Excellent-sounding ultra-simple miniature preamp	4													165
Muse Model Three	1,990	Natural sounding tranny preamp with useful audiophile features. Works beautifully with 160 power amp (tested in Statements)	5					●								166
Musical Fidelity X-PRE	200	Cleverly configured preamp with many upgrade options, and open, lively and engaging sound. (Teasted with X-A50 monoblocks)	4													175
NAD 114	270	Beer-budget preamp, sounds focused, detailed and consistent	6	●	●			●								165
Naim NAC92R	630	Upgradeable preamp uses proprietary socketry. (Tested with NAP90 power amp )	5					●								165
Quad 77 Pre	850	Sophisticated design with 2-way remote control console; open colourful sound and very flexible	4	●	●	●										165
Rega Hal	998	Dedicated to Exon power amps - passive line stages	6	●	●	●										165
Rose RV-23	450	You can pay more to get a more transparent sound, but it's hard to criticise at the price	3	●												77
Rotel RC-971	150	Low price is offset by rather coarse sound quality with certain types of music. (Tested with RB-971)	5					●								178
Sumo Athena IIB	649	Big, natural and tidy-sounding with very natural reproduction of acoustic and electric instruments. (Tested with Polaris III)	6												1305	145
Talk Hurricane 2L	649	Design of integrity which gets to the heart, if not the soul, of the music	6													165
Thorens TTP2000F	699	Glamorous, shoebox-format, minimalist pre with fine detail and some granularity	3	●	●	●										165
Woodside SC26 Phono	2,233	Synergistic with STA35, with a cool, controlled sound, good focus and transparency. (Tested with STA35 power amp)	5	●	●											100
<b>Power amplifiers</b>																
Alchemist Kraken/Pwr	529	Hardly accurate, but entertaining nevertheless	1						60							124
Arcam Alpha 9P	400	Clear, colourful and well-disciplined, the Arcam is a strong all-rounder that can compete with conviction	1						60							165
Art Audio Quintet	1,393	Switchable triode, ultralinear output stage. In triode mode, these are 15 of the sweetest Watts around. Surprisingly gutsy	1						15							109
Audiolab 8000M	1,600	Strong, controlled sound; confident bass, but colourless	1						125						1301	145
Copland CTA-505	2,099	Grown-up amplifier with a refined, yet never over-civilised air	1						67						1630	151
EAR 509 Mk II	3,699	Combining sonic strengths of transistors and valves, this amp warrants attention. (Tested with 802 pre)	1						100							63
ECA Lectern	880	Tested with Vista. Wind up the volume and blow a breath of fresh music into your system	1						50						1302	145
LFD Mistral Power	449	Infectious upper band vitality, but LF dynamics lacking, and lacks 'grip' and transparency	1						60							165
Meridian 555	750	By providing an open window on the music, this amp is wide open to RF and low level IM distortions	1						60						1303	145
Michell Alecto	1,150	Open, well focused imagery with natural, refined textures	1						50							165
Moth 60 Watt Stereo	599	Miniature power amp lacks control and finesse, not comfortable with difficult speaker loads	1						60							165



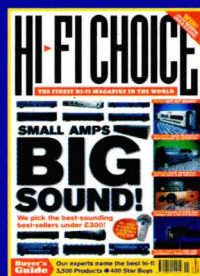
POWER AMPLIFIERS (CONTINUED)

Product	Price(£)	Comments	MM PHONO INPUT	MC PHONO INPUT	HEADPHONE SOCKET	REMOTE CONTROL	POWER OUTPUT (W)	FACTSBACK NUMBER	ISSUE NUMBER
Moth 30 Series Monobloks	879	Tested with Active Preamp. While demonstrating solid, even balance it proved adept at delivering vital musical qualities	1				100	155	
Musical Fidelity FX2	800	Quality build and imposing presentation is married to strong power yield, tonal colour and finesse	1				100	165	
Musical Fidelity X-A50	500	Cleverly configured and attractively packaged, open, lively and engaging sound. Reviewed with X-PRE	1				50	175	
Myryad MA120	450	Based in MI120 integrated – see latter for comments, but sounds significantly better when bi-amped with MI120	1				60	165	
NAD 214	370	A little lightweight, but detailed, consistent sound quality, and excellent value for money	1				80	165	
Naim NAP90	450	Power amp from a Nait integrated with some improvements	1				30	165	
Quad 77 Power	600	Open, bold and colourful, with mild compression	1				85	165	
Rega Exon	1,196	Monoblock, priced each, dedicated for Hal preamp. Bold, outgoing, in-command kind of sound	1				125	165	
Rotel RB-971	200	Somewhat better than the accompanying preamp - clean, mean and bridgeable. (Tested with RC-971)	1				70	178	
Rotel RB-980BX	450	Tames enthusiastically recorded material with a laid-back and occasionally smeared sound	1				120	155	
Sumo Polaris III	950	Tested with Athena IIB. Big, natural and tidy-sounding with very natural reproduction of acoustic and electric instruments	1				164	1305	145
Talk Tornado 2	600	Good, but slightly retiring sound which lacks the authority to stand out in a crowd	1				65	165	
Thorens TTA2000	599	Low power shoe-box format, but gutsy and surprisingly subtle and articulate	1				30	165	

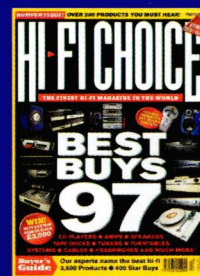
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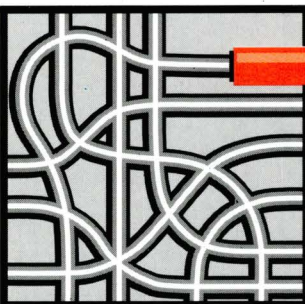
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**HI-FI CHOICE**

Cables



**C**ables — both to connect line-level devices to an amplifier, and to correct the latter to a speaker. — are not just accessories, but an integral part of a system. Though their prices may vary, the most expensive wires are not automatically the best. The best cable for your system will only be found through trial and error, but by combining our recommendations with those of a dealer, you will end up with something suitable. Generally speaking, budget to spend about 10 per cent of the total system cost on cables.

■ Analogue interconnects are the leads that connect between source components and amplifiers, and between pre and power amps. The cables in this section are priced for a one-metre terminated pair.

■ Digital interconnects connect CD transports to DACs, and are traditionally coaxial with a 75 Ohm impedance. 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 with brands.

**B** Best buy **R** Recommended

KEY	SOLID CORE:	FACTSBACK NUMBER:	ISSUE NUMBER:
<b>SYMMETRICAL:</b> A twisted pair of conductors.	Single or multiple, individually insulated strands.	The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this section.	The issue of <i>Hi-Fi Choice</i> in which the original review appeared.
<b>COAXIAL:</b> A central 'hot' conductor and a shield that carries the negative signal.	<b>COPPER:</b> Material used for conductor.		
<b>STRANDED:</b> Multiple strands with no intervening insulation.	<b>SILVER:</b> Material used for conductor.		
	<b>DIG CABLE TYPE:</b> O - optical digital, E - electrical digital.		

CABLES

Product	Price(£)	Comments	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	FACTSBACK NUMBER	ISSUE NUMBER
Analogue Interconnects										
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
Audio Note AN-S	99	Up-beat and enthusiastic sound with satisfyingly deep and grumbly bass	●			●		●	1687	131



CABLES (CONTINUED)

Product	Price(£)	Comments						ISSUE NUMBER	PAGE		
			SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER			FACTSBACK NUMBER	
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 2	60	Sounds flattened out, with poor imaging and grainy treble					●	●		176	
▲ CableTalk Advanced 2	35	Slight roughness in loud music barely detracts from a well-balanced performance with good imaging				●		●		176	
▲ 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			●	●		●		176	
▲ Cambridge Audio Studio Ref	40	Dynamic cable with strong soundstaging and only a slight lack of detail			●	●		●		160	
Chord Company Cobra 2	50	Good, strong sound with full-bodied music, less happy with smaller forces				●		●		176	
▲ Connections Midas HD	39	Canary yellow cable with excellent plugs and an open sound. Slight treble glare	●			●		●		160	
▲ DNM TCC75	34	Price for 0.75m length. High resolution cable, but best in short runs due to higher than average series impedance					●	●		1690	131
DPA Slink	41	Slightly bright and zingy sound with flat soundstaging and hollow sounding bass, vocals and strings sound convincing though					●	●		1690	131
DPA White Slink	75	Bass recedes as the music gets complex; midrange and treble better with quite good detail and imaging					●	●		176	
▲ DPA Black Slink	245	Initially dark and meaty but becoming lucid and transparent with running in. 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)	●				●	●		176	
Insert Audio IC100 MkII	47	Mostly good sound is let down by pervasive dryness				●		●		176	
▲ 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	●			●		●		176	
▲ 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
▲ Kimber Hero	110	Slight roughness detracts from some music; seems well suited to rock and jazz. Lively and detailed	●			●		●		176	
▲ Moth Ley Line Black	100	Offers a full and big sound, neutral yet very solid and confident in delivery. Expansive imaging retains music's energy	●			●		●		108	
Moth Ley Line Grey	200	Detailed enough but there's a sense of distance between the music and the 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	
▲ Nordost Blue Heaven	145	Very good bass and only slightly grainy treble add up to a well integrated, natural-sounding cable					●	●		176	
▲ Prowire Silver	60	A good cable in every way, with just the occasional hint of coloration and coarseness			●	●		●		176	
PAD Elementa	145	A fat, heavy and frankly rather lazy-sounding cable; best with music for small forces	●			●		●		176	
▲ QED Qnect 2	30	Very well balanced, refined and detailed, this is everything a good cable should be, and excellent value				●		●		176	
Silvertone Ex-Static	35	Pleasantly unfatiguing and competitively priced cable that lacks detail and insight			●	●		●		160	
▲ SonicLink Silver Pink	35	Dynamically sensitive and middle-free. We're unsure about the flesh-coloured finish though...	●			●		●		160	
▲ Sonic Link Black	49	Nickel-plated copper with a slight dryness in the bass and a hint of treble roll-off don't compromise integration.	●			●		●		176	
▲ Straight Wire Chorus	40	A very confident cable with good bass, though perhaps a shade of treble loss			●	●		●		176	
van den Hul The Storm	25	Price for 0.8m length. Rich and warm but bass is rolled off: however there's plenty of drive and high frequencies are clean			●	●		●		1701	131
▲ van den Hul Source HB	50	Price for 0.8m length. Hybrid carbon-fibre/copper cable that is a paragon of naturalness. Airy and well controlled			●	●		●		160	
▲ van den Hul D102 MkIII	70	A cable with everything: good bass, treble, imaging and naturalness				●		●		176	
▲ van de Hul The First	210	Using 12,000 carbon fibres, a gentle and subtle sounding cable that conveys oodles of information but lacks dynamic punch			●	●		●		1702	131
▲ van den Hu IT hSecond	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</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 impassive 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 colourations; plenty of weight, smooth vocals			●	●		●	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



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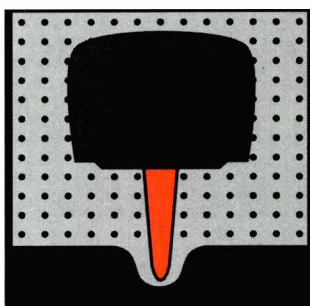
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CABLES (CONTINUED)

Product	Price(£)	Comments	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	FACTSBACK NUMBER	ISSUE NUMBER
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 very extended, but bass is less well resolved — a treat for high-end systems though			●			●	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 dark or cautious compared to some, plenty of subtle information and beautiful integration			●	●			E	1710 131
<b>Loudspeaker Cables</b>										
Audio Note AN-D	4.50	Supplied in linear, non-polarised lengths that should be 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 Type 4	5	Four 18-gauge OFHC copper conductors wound in a Litz-type fashion increases capacitance but restrains the cable's 'bite'	●			●		●		109
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 4.1	4.25	Smooth and cultured sound that lacks fine detail and is a bit too restrained				●		●		1800 157
DNM LSC350	6.95	Majors on midband and lower treble lucidity at the expense of bass and extreme treble extension	●				●	●		168
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 fine musical details, there's 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
Kimber 4TC	19.6	A well-balanced cable with good performance in all areas		●		●		●		168
Naim NACA 5	5.5	Described as a 'dinosaur of a cable', this stiff wire rod doesn't belong outside Naim systems. But it works a treat in them					●	●		109
Nordost Octava	3	Fair bass but confused treble and some coloration		●			●	●		168
Ortofon SPK100	3	Grey-sounding and strips instruments of their natural richness and resonance, a bit bass shy too					●	●		133
Ortofon SPK300	8	Tremendously open and atmospheric, with robust full blooded bass, and dynamic too — if slightly bright at times					●	●		133
Puresonic 7845	1.95	Big, weighty sound — but too messy and bloated for its own good					●	●		1800 157
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, the music failed to gel					●	●		1800 157
QED Profile 4x4	9	Good midrange and treble balance, but bass is rather slack and detail not outstanding					●	●		168
Silver Sounds 12 gauge	15	Basic 'homemade' construction gives fairly neutral sound, though not outstandingly competitive		●			●	●		168
Sonic Link S300	18	Happiest with simple music; tends to smudge detail in complex pieces		●			●	●		168
SonicLink AST50	1.95	It may look like bell-wire, but AST50 sounds detailed, ordered and balanced					●	●		1800 157
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 The Magnum	38	Touted as vdH's most prestigious twin-lead cable, Magnum sounds soft and old fashioned					●	●		109
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 designs need a transformer to cope with MC cartridges.

Cartridge/amplifier interfacing can be very subtle, but even basic high output MM designs benefit in overall balance from optimised amplifier capacitance loading.

**B Best buy** **R Recommended**

KEY

MM: Moving magnet cartridge with a normal output suitable for all vinyl disc amplifier inputs.  
MC: Moving coil cartridge with a low output only suitable for high-

sensitivity vinyl disc amplifier inputs.  
REPLACEABLE STYLUS: Most MM cartridges have a stylus that can be removed and replaced.

OUTPUT (MV): Cartridge output in millivolts.  
MASS (g): Cartridge mass can affect arm choice.  
FACTSBACK NUMBER: The Factsback reference for ordering a fax

copy of the review.  
ISSUE NUMBER: The issue of Hi-Fi Choice in which the original review appeared.

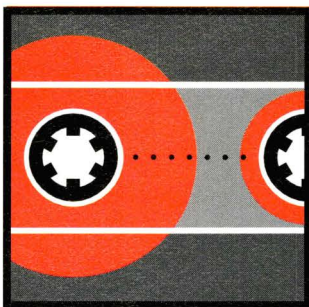
CARTRIDGES

Product	Price(£)	Comment	REPLACEABLE STYLUS	MM	MC	OUTPUT (MV)	MASS (g)	ISSUE NUMBER
Audio Technica AT-95E	20	Clear and dynamic, though richly balanced	●			2.8		48
Clearaudio Signature	1,495	A great all-round performer with fine dynamic vitality and a seductive midband intimacy		●		0.55	11.5	175
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
Denon DL304	200	Uncoloured, detailed, tracks superbly. Top notch altogether and a bargain too			●			103
Dynavector Karat 17D2 mk2	450	Clean and controlled sound with taut, tuneful bass. Detailed and musically cogent			●	0.15	5.3	158
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	175



# CARTRIDGES (CONTINUED)

Product	Price (£)	Comment	REPLACEABLE STYLUS		FACTSBACK NUMBER		ISSUE NUMBER	
			MM	MC	OUTPUT (mV)	MASS (g)		
<b>A</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>A</b> Goldring Elan	19	A lightweight and frisky-sounding MM apparently based on Nagaoka MM4 body	●	●	5.0	7		67
<b>A</b> Goldring 1012GX	79	Slightly harsh but plenty of life and detail. Some high frequency colouration apparent	●	●	6.5	7		85
<b>A</b> Goldring 1022GX	99	As with 1012, a touch harsh; detail and transient purity improved	●	●	6.5	7		85
<b>A</b> Goldring Eroica LX	110	Not the most subtle cartridge in the world: can sound edgy at times, but lively and informative	●	●	0.5	8		84
<b>A</b> Goldring 1042	120	Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively though	●	●	6.5	6		91
<b>A</b> Goldring Elite	220	The basics are right, and it will cheerfully tackle any source material, but its sound has a certain dirtiness	●	●	0.5	8		103
<b>A</b> 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		175
<b>A</b> Grado Prestige Gold	149	Rich sounding with an unusually refined top-end for a moving magnet-type cartridge	●	●	4	6		158
<b>A</b> Grado Reference	995	Loads of tracking headroom but treble is limited. A prospect for mid-oriented valve amp users	●	●	1.7	6.5		175
<b>A</b> Linn K9	125	Linn improved this model by beefing up the Basik's bodywork and adding a super stylus	●	●	4.5	5		Col
<b>A</b> London Decca Maroon	259	Now manufactured under the London brand name, this Decca cartridge is as iconic as ever	●	●	5.0	6		67
<b>A</b> London Decca S Gold	399	Immediate and detailed, but coloured, nonlinear with a questionable effect on records	●	●	5.0	6		84
<b>A</b> Lyra Lydian	649	Superbly capable all-round musical performer that improves markedly when its body cover is removed	●	●	0.3	7		158
<b>A</b> Lyra Clavis Da Capo	995	A stable tracker, and one of the finest cartridges we've heard	●	●	0.1	7		143
<b>A</b> 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		175
<b>A</b> Ortofon 510/P	38	For the price, a good blend of virtues – weight, clarity and neutrality	●	●	3.0	5		85
<b>A</b> Ortofon 520/P	65	Sensitive to load capacitance, the 520/P has a lively, effervescent sound	●	●	3.0	5		67
<b>A</b> Ortofon MC3 Turbo	130	The 3 Turbo is bright, cheerful and bouncy, but unsubtle – take it as it comes	●	●	3.3	4		103
<b>A</b> Ortofon MC15 Super II	130	A good all-rounder, with outstanding resolution, if slightly bright and close up	●	●	0.35	7		103
<b>A</b> Ortofon MC25E	180	An excellent upgrade for a mid-price turntable	●	●	0.5	11		139
<b>A</b> Ortofon MC25FL	250	A bit too stark and honest, but faithful to what's on the LP	●	●	0.5	11		139
<b>A</b> Ortofon MC30 Supreme	525	Highly detailed and even-sounding cartridge that has a special affinity with female vocal recordings	●	●	0.5	10.7		158
<b>A</b> 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		175
<b>A</b> Ortofon MC3000II	1,100	A real eye-opener. Nothing to criticise anywhere, one of the very best	●	●	0.12	10		84
<b>A</b> Ortofon MC5000	1,500	Limited tracking ability, bright and forward sound, but good stereo	●	●	0.12	10		91
<b>A</b> Rega Bias	39	Difficult to mount in some arms due to its shallow build, the Bias offers a gentle, refined sound	●	●	5	4		67
<b>A</b> Rega Elys	85	Clearly superior to the Bias, the Elys is more detailed, accurate and convincing	●	●	5.0	5		67
<b>A</b> Roksan Corus Black	130	Recognisably related to the Corus Blue, but smoother and more civilised	●	●	6.5	5		91
<b>A</b> van den Hul MM-1	250	If woody midrange could be tamed, imaging and security would pull it through	●	●	5.5	6		103
<b>A</b> 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
<b>A</b> van den Hul MC-10	750	A neutral, balanced performer, gives fine depth and focus and a firm, extended bass	●	●	0.4	6		60
<b>A</b> van den Hul MC-One	900	This extended all the positive qualities of the 10, but added greater authority and scale – worth all the extra money	●	●	0.4	6		60
<b>A</b> van den Hul MC-Two	1,200	MC-Two rewards with a highly detailed yet fluid and musically convincing portrayal	●	●	0.4	6		72
<b>A</b> van den Hul Frog	1,800	Seems to control/suppress surface noise better than its rivals, this delicate and subtle performer has great charm	●	●	0.65	7		175
<b>A</b> van den Hul G' hopper III/LA	2,800	Undoubtedly one of the finest cartridges available, it has tremendous bandwidth, energy and finesse	●	●	0.4	6		122
<b>A</b> Wilson benesch Matrix	786	Extraordinarily well balanced cartridge: neutral and detailed yet lively and rhythmically assertive	●	●	0.58	6		158
<b>A</b> 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		175



# Cassette Decks

The compact cassette is still the world's most versatile and ubiquitous music storage medium. Buffs may wrinkle their noses, but they all use it.

There should be no problems in connecting a cassette deck to any normal amplifier, but some care needs to be taken in choosing the best tapes for a specific machine. (Trial and error is one effective technique, but many decks have manual bias adjustment and some match up to the tape automatically.) Twin decks offer the option to dub tapes and play two cassettes

sequentially. Autoreverse is a useful feature, but usually implies some mechanical compromise. Useful facilities include tape monitor switching and Dolby S.

B

Best buy

R

Recommended

KEY			
DOLBY C:	A rather extreme noise-reduction system not usually associated with high sound quality.	3-HEAD:	If you want to monitor a recording while you are making it, a third head is essential.
DOLBY S:	A desirable derivative of the Dolby SR professional noise-reduction system.	TWIN DECK:	Contains two decks for dubbing and continuous play. In most instances only one deck will record.
DOLBY HX-PRO:	System designed by B&O to extend headroom for cassette recording.	AUTOREVERSE:	Automatically plays both sides of the cassette.
		AUTO CALIBRATION:	The deck will automatically set up bias and EQ for any tape.
		ADJUSTABLE BIAS:	Bias can be manually set to suit the tape being used.
		FACTSBACK NUMBER:	The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page.
		ISSUE NUMBER:	The issue of <i>Hi-Fi Choice</i> in which the original review appeared.

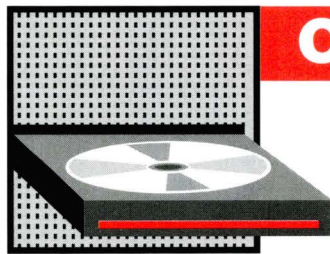
## CASSETTE DECKS

Product	Price (£)	Comments	DOLBY HX PRO		DOLBY S		3-HEAD		TWIN HEAD		FACTSBACK NUM-		ISSUE NUMBER	
			●	●	●	●	●	●	●	●	●	●	●	●
<b>A</b> Aiwa AD-F450	120	Basic but well-designed budget deck, astonishing value; only the poor metering gives the game away	●	●	●	●	●	●	●	●	1513	136		
<b>A</b> Aiwa AD-WX727	170	High-class twin for those who want bells, whistles - and music	●	●	●	●	●	●	●	●	1377	146		
<b>A</b> Denon DRM-550	160	There are some technical limitations, but this remains a fine sounding deck, and excellent value	●	●	●	●	●	●	●	●			158	
<b>A</b> Denon DRW-580	200	Twin deck: OK for casual use, but will quickly pall with more quality critical applications	●	●	●	●	●	●	●	●				171



# CASSETTE DECKS (CONTINUED)

Product	Price(£)	Comments	DOLBY S	DOLBY BX PRO	3-HEAD	TWIN HEAD	AUTO REVERSE	AUTO CALIBRATION	ADJUSTABLE BIAS	FACTSBACK NUMBER	ISSUE NUMBER
Denon DRS-640	200	Draw-loading deck, with simple facilities and smooth, well-adjusted sound	●	●	●	●	●	●	●	1591	140
Denon DRM-650S	230	An all-round improvement on predecessors, offers a wide-ranging, disciplined sound. Dolby S is not the best feature	●	●	●	●	●	●	●		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
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	●	●	●	●	●	●	●		164
JVC TD-R472	200	Excellent auto-reverse deck which doesn't suffer the usual disadvantages and is very sharply priced	●	●	●	●	●	●	●		158
JVC TD-W662BK	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 though not earth-shattering performance	●	●	●	●	●	●	●		171
Kenwood KX-W6080	200	Modestly decent sounding twin deck, with some transport instability and ragged bass. The features list is also strong	●	●	●	●	●	●	●		171
NAD 613	230	Rough and ready, but enjoyable sound, though marred by mechanical motor noise	●	●	●	●	●	●	●		158
NAD 616	300	Primitive twin deck with basic features. No Dolby setting memory, transports are too unstable for serious quality first use.	●	●	●	●	●	●	●		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	●	●	●	●	●	●	●		164
Pioneer CT-W806DR	300	Had it not been for the iffy transport quality, this ultra-sophisticated twin would have been recommended.	●	●	●	●	●	●	●		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 and un-cassette-like sound	●	●	●	●	●	●	●		158
Technics RS-AZ6	200	For those who can't afford the RS-AZ7; exquisite clarity over the widest bandwidth thanks to AZ thin-film head	●	●	●	●	●	●	●		164
Technics RS-AZ7	270	Thin-film head gives a solid, almost CD-like bass and midrange. A clear advance in the state-of-the-art	●	●	●	●	●	●	●		158
Yamaha KX-490	200	Electrifyingly transparent and capable deck whose only flaw is a trace of audible wow and flutter	●	●	●	●	●	●	●		158
Yamaha KX-580SE	250	Subtle, engaging and transparent sounding deck, with a lightweight tonality, but good stability and strong detail	●	●	●	●	●	●	●		171



## CD/DVD Players in association with **MISSION**

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 below). To do this the player needs a digital output of either electrical or optical persuasion; sonically the former is preferable. A CD player can be split into two basic components: the disc drive or

transport, and a device which turns the digital bitstream coming off the disc into an analogue audio signal. This is called a digital to analogue converter, or DAC. Although most players are contained in a single box, expensive players are usually two-box affairs.

**Best buy**

**Recommended**

KEY	AT&T OPT DIG OUTPUT:	controlled output.	bitstream, PWM, etc. CC – constant calibration
ELECTRICAL DIGITAL OUTPUT: For electrical connection to an outboard DAC.	High-speed optical output to be used with similarly equipped DACs.	MULTI-DISC: Equipped with a carousel or multi-tray system for continuous play of multiple discs.	FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page.
AES/EBU ELEC DIG OUTPUT: Balanced digital output to be used with similarly equipped DACs.	BAL ANALOGUE OUTPUT: Balanced analogue output for amplifiers equipped with balanced inputs.	DAC TYPE: Digital to analogue converter: BS – Philips Bitstream, MB – multibit, Hyb – hybrid of multibit and bit-stream technologies, 1bit – single bit types such as MASH,	ISSUE NUMBER: The issue of Hi-Fi Choice in which the original review appeared.
OPTICAL DIGITAL OUTPUT: For optical connection to an outboard DAC.	HEADPHONE SOCKET: For can users.	VARIABLE OUTPUT: Remotely adjustable, volume-	

# CD/DVD PLAYERS

Product	Price(£)	Comments	AES/EBU ELEC DIG OUT	OPTICAL DIGITAL OUTPUT	AT&T OPT DIG OUTPUT	BAL ANALOGUE OUTPUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	DAC TYPE	FACTSBACK NUMBER	ISSUE NUMBER
Acurus ACD11	899	First-rate if costly player from the US, which combines a delightful transparency with an uncontrived naturalness	●	●	●	●	●	●	●	1bit		166
Acoustic Precision Eikos	1,850	Seriously customised Pioneer with extraordinary resolution and world beating imaging and bass (Statements)	●	●	●	●	●	●	●	1bit		165
Alchemist Nexus APD32A	597	Refined treble, constrained yet capable bass and attractive all-round presentation distinguish this player from the crowd	●	●	●	●	●	●	●	Hyb		169
AMC CD8A	150	Has balanced output, but is otherwise rather grey and unremarkable	●	●	●	●	●	●	●	BS		172
AMC CD9/DAC8	200	Beer budget two box system (player + DAC) is smooth, attractive and easy on the ear.	●	●	●	●	●	●	●	CC		179
Anthem CD1	1,595	Unusual combination of high-end player, complete with HDCD, and changer. Good, but serious mechanical noise	●	●	●	●	●	●	●	MB		178
Arcam Alpha 7	330	Mildly rehashed favourite comes up smelling of roses.	●	●	●	●	●	●	●	BS		179
Arcam Alpha MCD	450	Excellent bass and natural midband, but just a touch of treble dryness, from this very listenable changer	●	●	●	●	●	●	●	MB		178
Arcam Alpha 8	520	Refined, intricately detailed but a little cautious, this should be broadly compatible with a variety of amps	●	●	●	●	●	●	●	BS	1873	163
Arcam 8SE	600	Excellent (and very reasonably priced) HDCD-compatible player is a strong all-rounder	●	●	●	●	●	●	●	1-bit		176
Audiolab 8000CD	1,000	Developed according to the Green Cross Code of digital audio with an elegant but safe musical presentation	●	●	●	●	●	●	●	BS	1874	163
Audio Research CD1	3,290	Suspends disbelief with a frighteningly real yet obviously coloured sound. A rare proposition among CD players	●	●	●	●	●	●	●	BS	1875	163
AVI S2000MC2	899	A chip off the old block, this model's in-er-face balance obstructs an otherwise finely detailed and dynamic sound	●	●	●	●	●	●	●	MB		176
AVI S2000MC Reference	1,399	Lean, dry, high resolution player, built to outlast most of us, and a fine performer in a sympathetic system	●	●	●	●	●	●	●	MB		169
Cambridge Audio CD4	150	Basic appearance and sluggish track access/track search belies its up and at 'em sound quality	●	●	●	●	●	●	●	Hyb	1268	147
Cambridge Audio CD4SE	200	Among the best players we have encountered at the price, considerably more refined and convincing than CD4	●	●	●	●	●	●	●	BS	1877	163
Cambridge Audio CD6	250	A sharp, lively and articulate player, a real thoroughbred in fact, perhaps too sharp and lively for some systems	●	●	●	●	●	●	●	BS		159
Copland CDA-266	1,199	Visually simple yet elegant design is unexpectedly sophisticated under the skin, and effective in execution	●	●	●	●	●	●	●	MB		176
Copland CDA-288	2,199	A gentle giant of a player that errs in favour of pastel shades rather than bold daubs of colour, one for refined tastes	●	●	●	●	●	●	●	MB	1880	163
Cymbal CDP12	1,299	Clean, detailed and airy HDCD-equipped player with minimalist trappings	●	●	●	●	●	●	●	Hybrid		176
Denon DCD-625	200	DCD-615 replacement is generously equipped but lacks sophisticated sound of its forebear	●	●	●	●	●	●	●	MB	1269	147
Denon DCD-825	240	Despite extensive revisions, this latest player still sounds like a typical 18-bit Denon, which is no bad thing!	●	●	●	●	●	●	●	MB	1531	137
Denon DCD-1550AR	350	Disappointing bland and ploddy sound from an immaculately constructed, high tech player	●	●	●	●	●	●	●	MB		179
Denon DCD-1015	350	Excellent, mid-range player – fast, fluid and lean	●	●	●	●	●	●	●	MB	1599	141
Denon DCD-3000	1,000	Sings with the temperament of a huge orchestra under the baton of a timid conductor, but very agreeable at that	●	●	●	●	●	●	●	MB	1881	163
Denon DCD-635	180	Modest presentation gives little clue to the thoroughbred electronics ticking away inside	●	●	●	●	●	●	●	MB		172



AES/EBU ELEC DIGITAL OUTPUT  
 OPTICAL DIGITAL OUT  
 AT&T OPT DIG OUT  
 BAL ANALOGUE OUTPUT  
 HEADPHONE OUTPUT  
 VARIABLE OUTPUT  
 MULTI-DISC  
 FACTSBACK NUMBER  
 ISSUE NUMBER

CD/DVD PLAYERS

Product	Price(£)	Comments	AES/EBU ELEC DIGITAL OUTPUT	OPTICAL DIGITAL OUT	AT&T OPT DIG OUT	BAL ANALOGUE OUTPUT	HEADPHONE OUTPUT	VARIABLE OUTPUT	MULTI-DISC	FACTSBACK NUMBER	ISSUE NUMBER
Eclipse CD101a	80	If you want to know the sound of high order distortion, this is probably as good a place to start as any								MB	144
Harman/Kardon HD710	200	A player of integrity, but can sound a bit hard and rough when extended, and is somewhat amplifier fussy	●							1bit	159
Harman/Kardon HD730	300	Competitive at the price, with a coloured but dynamic and outgoing sound supported by a raft of user features	●							BS	166
Harman/Kardon FL8300	300	Generally capable changer with relaxed sound and firm bass. Just a hint of roughness on occasion	●			●				MB	178
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	176
JVC XL-V184BK	120	Excellent budget player, well presented, a tad opaque but its heart is in the right place.								1bit	172
JVC XL-V284BK	140	Featuring a new set of bitstream innards, this flexible player has a refined, if occasionally unpredictable sound	●			●				1bit	1270 147
JVC XL-Z574	250	Strong resolving power and good midband and dynamics, but slightly raw and thin								1bit	159
JVC XL-Z674BK	300	Even-handed, but glosses over the most intimate moments	●			●				1bit	1637 151
Kenwood DP-3080	170	<b>Bold, dynamic and outgoing sound, though somewhat aggressive. Poor build quality and finish</b>	●							1bit	159
Kenwood DP-4090	250	Focuses a clear, wide aperture lens on the music - and has CD Test too	●			●				1bit	172
Kenwood DP-5090	300	Disappointing senior brother to the excellent DP-4090, but surface interface is good	●			●				1-bit	179
Kenwood DP-7090	400	<b>A lively and compelling performer with an even-handed and coherent disposition</b>	●			●				MB	1885 163
Linn Mimik	875	Useful multi-room features matched to strong bass, but poor imagery and transparency	●							Hyb	1762 155
Marantz CD63MkII KI Sig	500	It's the quintessential sound of Marantz - warm, open, and smooth almost to a fault	●			●				Hyb	169
Marantz CD-67SE	350	Refined, enjoyable player, though ultimately a little soft-centred	●			●				BS	166
Marantz CD-67 Mk II	250	The digital equivalent of a safe pair of hands. Smoooth	●			●				BS	179
Marantz CD-48	200	Somewhat inconsistent, middle ranking player which hints at better things	●							1bit	172
Marantz CD-17	800	Fabulous packaging and an excellent all round performer: smooth, detailed and consistent	●							BS	1763 155
Marantz CD-17KIS	1,100	Minor QC problems aside, this is a superbly turned-out machine, but ultimately a little bland	●			●				BS	176
Meracur Santo	1,395	Believable tonal colours and textures, refinement takes preference over dynamics - but it's not cheap	●							DS	169
Meridian 506	1,100	Revised 506 includes MSR remote and a new D/A chip, which makes it livelier and more detailed	●			●				1 bit	176
Meridian 508 (20-bit)	1,995	Combines a delicate mid and treble with rich, opulent bass and has impressive low-level resolution	●			●				BS	1886 163
Mission Cyrus dAD3	598	This front loader has a relaxed style of delivery that convinces with guile and subtlety rather than orchestral ordnance								BS	1887 163
Mission Cyrus dAD3Q	898	<b>Lucid, transparent and uncontrived sound quality, superb build, and readily upgradeable</b>				●				MB	169
Monrio Privilege	995	Costly and well-engineered, but ultimately rather heavy-handed and dull, if refined player	●							MB	166
Musical Fidelity E60	300	This entry-level player lacks proper stereo localisation and clarity	●			●				BS	166
Musical Fidelity A2	500	<b>Warm (too warm), attractive and open player, a great improvement on (related) E60</b>	●			●				BS	169
Musical Fidelity FCD	1,500	A forward disposition makes this perfect for Fenders but less appropriate to Guarneris	●							BS	163
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, which has much promise, some unrealised, and which can be a little hard going on audition	●							1bit	176
NAD 522	170	Crude, mechanical sounding player fails to tickle the music buds								1 bit	179
NAD 510	200	Pale version of NAD's senior CD players with a stripped down feature count								1bit	172
NAD 512	250	Simple, well-focused presentation, and articulate with it, though hard-nosed quality is not everyone's cup of tea	●							1bit	159
NAD 523	250	Nothing seriously amiss with this classic NAD 'no-frills' changer, but it lacks that vital spark								Hyb	178
NAD 514	370	Boisterous sound, but undeniably attractive	●							BS	1639 151
Naim Audio CD3	1,000	The idiosyncratically packaged CD3 is solid and highly articulate. Always has its feet on the ground though								MB	1765 155
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
Onkyo DX-7210	260	Well-bred CD player features an unusual digital filter, is smooth and cultured without appearing grey or boring	●			●				BS	1273 147
Onkyo DX-7510	400	Strongly flavoured, assertive sound	●			●				BS	1640 151
Orelle CD-100EA	649	Excellent imagery, timing and transparency, and readily upgraded or reconfigured	●	●		●				MB	166
Philips CD-721	130	<b>Surprisingly well-sorted, articulate if slightly glossy and attractively presented sound. Captive signal lead</b>								1bit	159
Philips CD751	150	Philips CD751 is 150. Excellent value and occasionally opaque and scrawny sounding cheapie	●							1bit	172
Pioneer PD-S705	300	A dichotomy, this machine was loved by some for its articulacy and disliked by others for sounding too impressive!	●			●				BS	1891 163
Pioneer PD-F906	350	Interesting appearance and concept, but this changer's sound is seriously lacklustre and ergonomics frustrating				●				1bit	178
Pioneer PD-S904	400	Too much legato - literally - in sound, but a very smooth performer	●			●				1bit	1641 151
Pioneer PDS-06	550	Technologically sophisticated, Pioneer's first multi-bit player for years is polished and capable, if a tad laid back	●			●				MB	176
Pioneer PD-S505 Precision	460	<b>Assured, fluid-sounding player, with great spatial coherence</b>	●			●				1bit	166
Quad 77	900	A true thoroughbred combining a penetrating insight into detail with poise rarely found at the price								Hyb	1893 163
Roksan DP3P	1,495	Dramatic and compelling, classical listeners should be ready to 'air conduct' when auditioning this player	●							BS	1896 163
Roksan Caspian	895	Solid, articulate, and fundamentally well-engineered player, but with some subtle low-level limitations	●							Hyb	169
Rotel RCD-970BX	375	A combination of solid build, useful facilities and an attention grabbing sound make this a winner	●							BS	1897 163
Sherwood CD-4030R	180	Easy on the ear, smooth-sounding player, with limits set by the slightly soft, compressed quality - and messy fascia				●				BS	159
Sherwood CD1	1,100	A very neutral, even handed sounding player with a rather flat, lifeless sound. Beautiful construction				●				BS	1899 163
Sony CDP-XE310	140	Excellent value and bright as a button, but can sound OTT in some systems				●				1-bit	179
Sony CDP-XE510	180	Souped up CDP-XE500 which tells a rather bland and unengaging story				●				1bit	172
Sony CDP-XE900E	300	Refined and analytical disc scavenging tool, but there are some distinctive colourations making auditioning vital				●				BS	159
Sony CDP-XA20ES	450	High tech, with a long list of gadgets, this is an oddly configured player that ultimately sounds less than compelling	●							1-bit	176
Sony CDP-X3000ES	500	<b>Shoebbox format player, with looks to die for, and switchable digital filters to tweak the already excellent sound</b>	●			●				BS	169
Teac 3450SE	200	<b>For once a budget player where the gadgets take second place to respectable, budget amplifier-friendly sonics</b>	●			●				1bit	166
Teac CD-5	350	Bright, breezy and up-beat - but short in the trouser department	●			●				BS	1643 151
Teac VRDS-7	599	Although bold and outgoing, this player can sound both intrusive yet lacking in fine detail	●			●				BS	1769 155
Teac VRDS-9	700	Well-presented, heavyweight midi, the Teac is crisp, yet shallow, and inconsistent in sound quality and partnering skills	●			●				1-bit	176
Teac VRDS-10SE	850	Superbly built and presented, but rather leaden bass, with an over-prominent and not ideally refined 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-PG480A	130	Full driving sound, but somewhat uneven in balance with a unsubtle, slightly harsh top end								1bit	159
Technics SL-PS670D	200	Fine, middle ranking player which sounds solid, sometimes even a little stolid.				●				1 bit	179
Technics SL-PS770D	250	High tech and well built technology battleship which smoothes the rough edges off the music				●				BS	172
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	178
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	166
XTC CDP-1	1,250	Bright and sometimes abrasive, but detailed player	●							MB	176
Yamaha CDC-665	220	<b>This player offers many useful features and highly listenable sound, with tidy and tuneful bass and good imaging</b>	●			●				1bit	178



ISSUE NUMBER  
FACTSBACK NUMBER  
DAC TYPE  
MULTI-DISC  
VARIABLE OUTPUT  
HEADPHONE SOCKET  
OPTICAL DIGITAL OUTPUT  
BAL ANALOGUE OUTPUT  
AT&T OPT DIG OUTPUT  
AES/EBU ELEG DIG OUT  
ELEG DIGITAL OUTPUT

## CD/DVD PLAYERS

Product	Price(£)	Comments	OPTICAL DIGITAL OUTPUT	BAL ANALOGUE OUTPUT	AT&T OPT DIG OUTPUT	AES/EBU ELEG DIG OUT	ELEG DIGITAL OUTPUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	FACTSBACK NUMBER	ISSUE NUMBER
<b>TRANSPORTS</b>												
Arcam Delta 250	800	This model is based on a Philips CDM9 transport. Specification includes Sync Lock facility	●	●					●		-	1491 130
Audiolab 8000CDM	1,400	Super-slick transport and basically very honest sound, but lacking the last degree of fine detail	●	●	●						-	162
Linn Karik	1,850	Based on early Linn transport, the Karik is dry but very positive, detailed and engrossing	●	●	●						-	1323 144
Meridian 500	1,245	Used with the 563 DAC, the combination is thin, brash and uncomfortable	●	●							-	1103 133
PS Audio Lambda	2,250	With Ultralink Two, sound positively sparkles with colour and resonant detail. (Tested with Ultralink 2 DAC)	●	●							-	1106 133
Roksan Attezza ATT-DP3	1,295	Not the most detailed or refined but capable of sounding exciting with the right material	●	●						1bit	-	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)	●	●							-	162
Trichord Digital Turntable	699	Very detailed, precise, controlled yet involving; a first-rank performer	●	●							-	162
Wadia 8	3,195	Budget version of Teac's VRDS mechanism in a fancy case; but just too expensive for the performance on offer	●	●	●	●					-	1495 130
<b>DACS</b>												
Arcam Black Box 50	350	Measured and sophisticated sound from a DAC that leaves plenty in reserve for future upgrades									Hyb	1506 133
Arcam Black Box 500	500	Sophisticated unit with sync lock and discrete DAC									BS	1519 136
Audio Note DAC1	675	Oddball DAC with manual de-emphasis switch. Needs a high preamp input impedance or bass will suffer									MB	127
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
PS Audio UltraLink 2 HDCD	2,590	The sound positively sparkles with colour and resonant detail. (Tested with Lambala transport)									MB	1106 133
PS Audio Reference Link	4,550	Consolidates reputation of PS Audio for high performance digital electronics						●			MB	1069 132
Roksan Attezza ATT-DA2/DS5	1,145	Not the most detailed or refined but capable of good excitement with the right material								1bit	-	162
Teac D-T1	500	Teamed with VRDS-T1 for test, this superb quality unit is tidy and composed									BS	1325 144
Teac D-700	600	With P-700, the D-700 may lack the resolution, but is bubbly and entertaining									MB	120
Thorens TDA2000	700	Lively and up-front presentation not helped by rather loose bass and splashy treble									BS	162
Trichord Pulsar Series One	1,395	Very detailed, precise, controlled yet involving; a first-rank performer. Switchable phase, dither etc									Hyb	162
<b>DVD PLAYERS</b>												
Denon DVD-3000	700	Enjoyable rather than analytical, includes 24/96 and AC-3/MPEG-2 Audio	●	●							BS	180
Panasonic DVD-A350	700	24/96 converter and AC-3 & MPEG-2 Audio included, well balanced, if slightly blurred and shut in	●	●							BS	180
Pioneer DV-505	450	Plenty of analysis, with a slightly ragged edge. Rescued by the price & S/PDIF capabilities.	●	●							BS	180
Pioneer DVL-909	900	DVD and LD player: self-recommending to AV nuts; musically detailed but occasionally seems disjointed	●	●							BS	180
Sony DVP-S715	600	24/96 converter for DAD compatibility, sharp, forward, but slightly unsuitable sound	●	●							BS	180
Toshiba SD3107B	550	Dynamic sound and good stereo which lacks lowest stratum of detail.	●	●							BS	180

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## Digital Recorders

Digital recorders have been available in a variety of different guises, but only Minidisc has had any impact on the domestic market. Even then, it's early days, and a new rewritable CD from Philips has upset the applecart. At present there are four types to choose from: DAT (digital audio tape), MD (MiniDisc), CD-R (CD Recordable) and CD-RW (CD Rewritable). MD's claim to fame is its optical disc format, which offers instant track access. DAT has been on the market for quite some time now, but has never really 'made it' as a

consumer medium due to the dearth of pre-recorded material. However it has begun to carve itself a niche in the top end of the market, replacing reel-to-reel as the audiophile's tape based medium. Home CD-R is coming into its own with Pioneer's two models and aggressively pitched new ranges from Philips.

**Best buy**

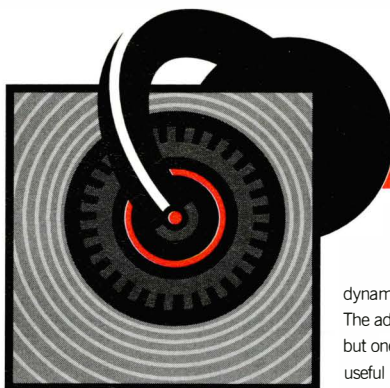
**Recommended**

KEY		ADC TYPE:	ELECTRICAL IN/OUTPUTS:	section
FORMAT: Type of recorder, see above for descriptions.		Analogue to digital converter types as per DACs.	Digital socketry for electrical cable.	
DAC TYPE: Digital to analogue converter: BS - Philips Bitstream, MB - multibit, Hyb - hybrid of multibit and bitstream technologies, 1bit - single bit types such as MASH, bitstream, PWM etc.		PORTABLE: Can be operated from batteries but is not necessarily personal stereo size.	FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this	ISSUE NUMBER: The issue of Hi-Fi Choice in which the original review appeared.
		OPTICAL IN/OUTPUTS: Digital socketry for optical cable.		

## DIGITAL RECORDERS

Product	Price(£)	Comments	FORMAT	DAC TYPE	ADC TYPE	PORTABLE	ELECTRICAL IN/OUTPUTS	FACTSBACK NUMBER	ISSUE NUMBER
Denon DMD-1300	500	Sound sometimes lacks integration but tonal balance is good and it handles loud music with panache	MD	BS	BS		●		177
Kenwood DM-9090	550	Slight sibilance and image vagueness do not detract from excellent balance and solid bass	MD	BS	BS		●	●	177
Onkyo MD-121	450	Mid-sized deck that sounds slightly coloured at times, though immediate and lively	MD	BS	BS		●		177
Philips CDR-870	500	The first re-writable CDR, but has jitter problems in direct digital dubbing	CD-R	BS	BS		●	●	174
Pioneer PDR-04	700	Scaled down version of the PDR-05 (see below) with auto level setting but all the socketry and features you need to make CDs	CD-R	BS	BS		●	●	171
Pioneer D-05	900	Second generation 96kHz DAT recorder can offer startling realism	DAT	BS	BS		●	●	1652 152
Pioneer PDR-05	1,000	The first domestic — excellent sound quality	CD-R	BS	BS		●	●	1652 152
Pioneer D-C88	2,000	State-of-the-art portable 96kHz DAT recorder, the size of a lap-top computer	DAT	BS	BS	●	●	●	1431 150
Sharp MD-R2	300	Budget recorder that loses little or nothing in comparisons with much more expensive models — highly capable	MD	BS	BS		●	●	177





# Headphones

**T**here are a number of approaches to headphone design. Among the more expensive models, electrostatic drivers are used in open-backed phones. Most models feature dynamic (moving coil) drivers in circular, open or closed-back designs. The advantage of open backs seems to be a correspondingly open sound, but one can also hear external noise, of course. Closed-back designs are useful in situations where it is necessary to block out noise. In recent

years, a number of manufacturers have started to offer cordless headphones using infrared or radio waves. For best results a separate headphone amplifier is recommended.



**KEY**

**TYPE:** Operating principle: D - dynamic, E - electrostatic.  
**SUPRA-AURAL:** Style where a flat pad presses on the outer ear.  
**CIRCUMAURAL:** Style which encloses the ear.  
**OPEN BACK:** Offers an open sound but lets in noise.

**CLOSED BACK:** Keeps out external noise.  
**WEIGHT (G):** Mass in grams  
**IMPEDANCE (Ω):** Load offered to the headphone amplifier. All things being equal, the lower the impedance the louder the sound for a

given amplifier output.  
**3.5MM JACK ADAPTOR:** Can be used with mini-jack-equipped components such as personal stereos.  
**FACTSBACK NUMBER:** The Factsback reference for order-

ing a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this section.  
**ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which the original review appeared.

## HEADPHONES

Product	Price(£)	Comments	TYPE	CIRCUMAURAL	OPEN BACK	CLOSED BACK	3.5mm JACK ADAPTOR	WEIGHT(g)	IMPEDANCE(Ω)	FACTSBACK NUMBER	ISSUE NUMBER
▲ <b>AKG K1000</b>	700	One of the best dynamics on the market, hooks directly into speaker outputs	D	●	●	●		270	120	120	99
▲ <b>Audio Technica ATH910PRO</b>	80	The closed back 910s are an improvement on the 909s, with a nice rhythmic quality rarely found in headphones	D	●	●	●		280	40	40	55
<b>Beyer DT100</b>	160	Rugged, modular professional design, but bass is woolly and treble lacks detail	D	●	●	●		350	600	600	157
<b>Beyer DT311</b>	50	Uncharacteristically tight, unrefined sound quality from this otherwise well engineered 'phone	D	●	●	●		124	40	●	1098 133
<b>Beyer DT411</b>	63	A reasonable but not very thrilling headphone that doesn't really offer enough at the price	D	●	●	●		120	250		111
▲ <b>Beyer DT511</b>	106	Superb midband clarity and speed slightly at odds with soft bass. High tingle factor even so	D	●	●	●		200	250		172
▲ <b>Beyer DT531</b>	135	A good buy for serious, heavy-duty music making	D	●	●	●		245	250		144
▲ <b>Beyer DT911</b>	170	Probably too revealing for many headphone amps, these are very subtle and fine, if expensive cans	D	●	●	●		275	250		111
<b>Denon AH-D550</b>	80	A competent 'phone with integrity, but little panache or charisma. Hard headband causes brain strain	D	●	●	●		200	35	●	1801 157
<b>Denon AH-D750</b>	130	Loud and gutsy, meaty bass, good with rock and dance. Can sound thick and clumsy	D	●	●	●		250	30	●	172
<b>Grado SR-40</b>	45	Cheap and nasty appearance largely redeemed by cheerful, up-beat sound. Very comfortable	D	●	●	●		120	32	●	172
<b>Grado SR-80</b>	100	Clear, open and dynamic with pedantically open mid-band. Crude physical design, rough frequency extremes	D	●	●	●		60	8	●	1801 157
▲ <b>Grado SR-225</b>	200	Warn, darkly-coloured tonally and ultimately lacking in clarity, but true to the spirit of the music if not the letter	D	●	●	●		200	32		1883 163
▲ <b>Jacklin Float Model 1</b>	79	While very unusual in appearance, the Floats give remarkable sound quality and openness at a reasonable price	D	●	●	●		400	200		55
▲ <b>Jacklin Float Model 2</b>	99	Helmet shaped, but open sounding and comfortable in the long term, despite lack of adjustment	D	●	●	●		400	200		63
<b>JVC HA-D910</b>	65	Broadly acceptable if unexciting design with low level losses and some colourations	D	●	●	●		220	32	●	121
<b>JVC HA-W60</b>	49	Remarkable lack of interference and hiss ameliorates adequate sound of this cordless design	D	●	●	●		165	I/R	●	172
<b>Precide Ergo Model 2</b>	140	Still has much of the spaciousness and detachment of the Float from which it is derived, but coarse mid/top	D	●	●	●		380	100		1892 163
▲ <b>Philips SBC 3396</b>	70	Remarkably airy for closed-back designs. Fine tonal balance, punchy delivery. Amazing for money	D	●	●	●		255	32	●	172
<b>Philips SBC HP900</b>	90	Sharper, snappier midrange than 3396 initially impressive but blows the balance and listenability	D	●	●	●		200	32	●	172
<b>Sennheiser IS 380</b>	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	I/R	●	172
▲ <b>Sennheiser HD 455</b>	55	Inoffensive, if nondescript sound, modular, but can become dislodged from head	D	●	●	●		185	60	●	1801 157
<b>Sennheiser HD 475</b>	80	Elegant, uncluttered sound and very comfortable but lean bass saps satisfaction	D	●	●	●		120	60	●	172
▲ <b>Sennheiser HD 545</b>	125	Fine all rounder that takes all styles of music in its stride. Ear-clamping headband	D	●	●	●		255	150	●	172
▲ <b>Sennheiser HD 565 Ovation</b>	150	Wide bandwidth design which is refined, expressive and extremely comfortable	D	●	●	●		255	150	●	1801 157
<b>Sennheiser HE 60/HEV70/UK</b>	998	Very nearly a superb electrostatic, with a pure midband, but top end is sibilant and edgy	E	●	●	●		260	n/a		1898 163
<b>Sony MDR-CD770</b>	100	Neutrality and comfort make the Sony easy to live with. Technically correct-sounding too, yet musically unrewarding	D	●	●	●		-	-	●	1801 157
▲ <b>Sony MDR-CD1700</b>	200	Astonishingly detailed, uncoloured and free of the usual artefacts from a sealed back headphone. Tremendous value	D	●	●	●		325	32	●	1901 163
<b>Sony MDR-F1</b>	100	Natural, easy-going sound teamed with great looks and comfort. Shame about the lightweight bass	D	●	●	●		300	12	●	172
<b>Technics RP-DJ1200</b>	130	Functional design with head-pulping bass and muggy tonal balance. Good job they're sweat-proof	D	●	●	●		230	32	●	172
▲ <b>Stax Lambda Nova Basic</b>	449	Refined, articulate, yet with real presence - and a notable bargain by electrostatic standards	E	●	●	●		347	n/a		1902 163
<b>Vivanco IR5800</b>	50	Consistently musical infra-red design. Doesn't reach for sonic heights so hiss can be forgiven	D	●	1/2	●		226	I/R	●	172
▲ <b>Vivanco SR650</b>	50	Unusually comfortable 'phone with excellent detail resolution but aggressive, thanks to tweeter resonance	D	●	●	●		175	-	●	1801 157
▲ <b>Vivanco SR750</b>	60	Cossetting physical design, attractive sound an pricing, though suffers overhang and lacks ultimate dynamics	D	●	●	●		188	-	●	1801 157
<b>Vivanco Cyberwave FMH3000</b>	80	The only cordless headphone to offer genuine walkabout freedom. Unfortunately, sounds like a cheap FM tuner	D	●	●	●		210	FM	●	172

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# HI-FI CHOICE





# Hi-Fi Loudspeakers

**A**s the last link in the hi-fi chain, the loudspeaker is at the mercy of the signal it is called upon to reproduce. Nevertheless, the distortions introduced by loudspeakers (and rooms) tend to be the most obvious. The average loudspeaker consists of an enclosure plus a couple of drive units behind a removable grille. Inside the box lurks a simple electrical circuit known as a crossover, which divides the incoming (full range) signal into the right bits for the drivers to handle. The designer's primary

task is to balance the 'sensitivity' of the loudspeaker (how loud it goes for a given electrical input) against the bass extension (how low it goes), for the given box size.

Subwoofers augment the bass and are available as passive (unamplified) and self-amplified active form. Unlike regular speakers, they are not too fussy about their position in the listening room

**Best Buy**

**Recommended**

KEY			
<b>SIZE WxHxD (cm):</b> Width by height by depth in centimetres.	<b>IMPEDANCE (Ω):</b> Measured in Ohms, impedance is a measure of how hard a loudspeaker is to drive; the lower the number the more powerful the amplifier needs to be.	reproduce, based on in-room measurements.	<b>FACTSBACK NUMBER:</b> The reference for ordering a fax copy of the review. Use the contents page to find the Factsback page.
<b>FLOORSTANDER:</b> As opposed to requiring a dedicated stand.	<b>BASS FROM (Hz):</b> The lowest frequency that a speaker can	<b>FREE SPACE:</b> Speakers should be placed away from walls.	<b>ISSUE NUMBER:</b> The issue of <i>Hi-Fi Choice</i> in which the original review appeared.
<b>SENSITIVITY (dB/W):</b> Efficiency — how much sound you get for a given input. The higher the figure the louder the speaker.		<b>CLOSE TO WALL:</b> It is recommended that these speakers be placed close (between 3 and 12cm) to the rear wall.	

## HI-FI LOUDSPEAKERS

Product	Price(£)	Comments	SIZE WxHxD(CM)	SENSITIVITY(dB/W) FLOORSTANDER	IMPEDANCE(Ω)	BASS FROM (Hz)	FACTSBACK NUMBER CLOSE TO WALL	FREE SPACE	ISSUE NUMBER
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	●	●	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, and a difficult amp load too	18,98,28	●	89	4	25	●	170
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 colouration, 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 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 Positron	899	Suited to smaller rooms, this 'mini-floorstander' is capable of great precision and delicacy, but in a rather small scale way	17.5,25,7784	●	85	6	40	●	174
B&W DM302	150	Highly competent and neutral all rounder; clever Prism enclosure	19,32,22	88	4	45	●	●	1778 156
B&W DM601	199	Great main driver for the price, entertaining dynamics	20.5,35.5,23	88	6	30	●	●	1779 156
B&W DM602	300	Prefers tall stands and space, but offers impressive midband dynamics and musical tension	24,49,31	90	8	30	●	●	1654 152
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 DM603	500	Squat floorstander with decent dynamics and well-judged, restrained balance; bass could go deeper	23.5,88,29	●	89	7	45	●	170
B&W CDM1 SE	600	A gorgeous looking stand-mount with one of the best midbands around, and a subtle blend of other qualities	22,37,29	88	5	40	●	●	177
B&W CDM7	1,000	A combination of serious welly and physical elegance; a basic lack of midband smoothness rather let the side down	22,97,29	●	90	4	22	●	174
B&W Matrix 805 V	1,095	Stylish, remarkable imaging, good balance and low colouration	33,33,21	87	8	30	●	●	98
B&W Matrix 804	1,695	A great all-rounder which combines exceptional bass extension with fine sensitivity	26,96,26	●	88	4	20	●	167
B&W Matrix 801S3	3,995	Lacks transparency and the drama of the best dynamics, but acoustically a tour de force	44,100,56	●	87	8	20	●	81
Cabasse Farella 400	950	Exciting but very upfront-and-in-er-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 very competitive price. Sound is lightweight but very coherent, with a fine overall balance	17, 35.5,21	87	8	45	●	●	170
Castle Kendal	500	A beautifully finished compact floorstander with a decidedly forward but communicative sound. Try before you buy	17,76,20	●	86	6	45	●	177
Castle Severn 2	539	Carbon fibre cone gives lovely, subtle midband but treble is a bit dull and bass a bit thumpy; lovely cabinet work	21,84,25	●	87	8	30	●	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
Castle Howard S2	1,200	Ably fills the gap between Chester and Winchester; has a rich, laid-back balance	26,104,41	●	90	8	40	●	1078 132
Celestion 12i	119	Not without virtue, but in the long run the relentless enthusiasm and mid-band colourations can become wearing	19,31,21	88	6	45	●	●	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	●	177
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	1500	Full scale, big sound from ultra-elegant floorstander. Smooth and slightly laid back presentation	24,93,39	●	89	6	22	●	180
Cerwin-Vega VS10	350	Not very refined but extremely ballsy; these rock boxes have no shortage of gung-ho	33,70,29	●	95	6	37	●	1758 155
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	●	●	170
Chario Academie	1650	Pricey Italian stand-mount, has high class sound and appearance. Solid walnut enclosures	25,40,31	84	8	40	●	●	180
Dali 104B	370	Lively, rich sounding and communicative. Shame about bland styling and dull balance	22,86,27	●	93	4	28	●	1657 152
Dali 606	400	A big bruiser at a tempting price, Dali's 'no-frills' 606 sounds refined and polite, but also packs some punch	22,97,32	●	91	4	25	●	174
Dynaudio Audience 5	400	Follows the Dynaudio tradition for fine midband transparency, but the overall timbre is a bit thin and cold	20,31,26	85	4	40	●	●	177
Dynaudio Audience 50	577	This compact stand-mount doesn't look big, but sound quality can match many models at twice the price	20,33,25	86	4	30	●	●	174
Dynaudio Contour 1.8	1,842	Wonderful voice-band delicacy and loads of deep bass from a very elegant and compact box	21,95,29	●	85	4	20	●	167
Eltax Linear Response	249	A curiously dumpy shape, this smooth and laid back performer is very easy on the ears, with fine tonal accuracy	25,35,32	85	4	40	●	●	177
Epos ES12	499	High quality luxury stand-mount has great midband and stereo imaging	20,38,25	85	8	45	●	●	1823 160
Epos ES14	675	Substantial stand-mount delivers delightful midrange focus and delicacy with good bass control	23,49,29	87	8	25	●	●	98
Epos ES25	1,655	Handsome floorstander with a rather uneven and bass heavy balance	24,90,35	●	88	6	22	●	1346 143
Faraday Siren	445	High mass concrete cabinet is let down by imbalance of ageing driver combination	25,27,46	90	4	48	●	●	94
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	●	●	170
Genexa Pro	160	Terrific treble and upper-mid but coloured and cuppy lower-mid and bass. A mixture of genius and grot.	14,27,14	86	8	90	●	●	179
GLL Imagio IC130	500	Lots of speaker for the money, but sound is decidedly dull and shut in	22,112,29	●	88	4	20	●	1824 160
Heybrook Prima 2	159	Great openness, clarity, speed and timing. Sounds fresh and vital, though sometimes lacks scale and weight	20,29,18	87	6	50	●	●	179
Heybrook Heylette	269	Attractive traditional-style near-miniature has fine bass-to-mid integrity, but dull and shut-in top end	19.5,30,20	89	6	45	●	●	170



HI-FI LOUDSPEAKERS (CONTINUED)

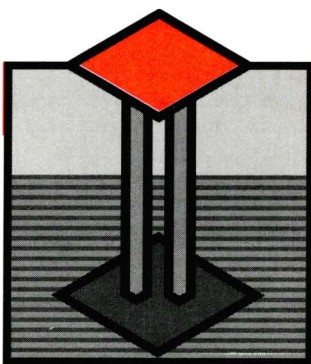
Product	Price(£)	Comments	SIZE WxHxD(GM)	SENSITIVITY(dB/W)	IMPEDANCE(Ω)	BASS FROM (Hz)	FLOORSTANDER	FACTSBACK CLOSE TO WALL FREE SPACE	ISSUE NUMBER
Heybrook Heylios	389	Great all-round performance in a pretty package at a sharp price	24,36,27	87	6	25	●		164
Heybrook Heylo	439	Good vocal reproduction, but sounds thin and bass seems an afterthought	23,73,19	88	8	30	●	1658	152
Heybrook Quartet	649	Solid, large bookshelf model with good sensitivity and a lively, forward sound	24,41,22	90	8	48	●		122
Heybrook Ultima	649	Has the bass wallop to justify its dual hi-fi/home cinema roles, but didn't get our listeners particularly excited	22,97,29	89	6	45	●		174
Heybrook Sextet	1,299	Coherent and highly analytical, partly due to distinct upper-mid forwardness	27,90,20	88	8	25	●		102
Heybrook Octet	1800	Good-looking but pricey floorstander with novel drivers and a fine ceramic-enclosure midband	24,97,31	90	6	25	●		180
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 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	Exceptionally imaginative styling keeps the front view super slim yet still packs a punch. Glass top is a neat extra touch	22,94,37	88	3	40	●		174
JBL LX2	250	Lively and invigorating, if a touch crude, this good-hearted speaker reproduces music with considerable enthusiasm	22,40,27	87	8	40	●		170
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, and the sound is quite a lot of fun, enlivened by a juicy bass thump	17,5,51,31	86	8	40	●		174
JBL L40	1,000	Classic, large, stand-mount 3-way is full of vim and vigour, with a superb sense of balance	30,65,31	88	4	23	●		167
JBL SVA 2100	1250	Monstrously large and brutish styling, goes very loud as well as deep. Fine focus but some boxiness	37,114,52	91	8	<20	●		180
JBL L90	1,500	A classic monitor which communicates with gusto and enthusiasm, though it can sound a bit crude	24,94,35	91	6	23	●	1348	143
JM Lab 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
Jordan Watts JH400	565	Piano-finish hexagon has controversial sound, with uneven balance but delightful mid	28,38,21	86	8	50	●		106
JPW Mini Monitor	60	Ultra-cheap miniature works well in a limited way	18,27,17.5	86	8	50	●	1781	156
JPW Gold Monitor	80	More informative than Mini Monitor — but fiercer too	18,27,17.5	86	8	50	●	1782	156
JPW ML510	130	Lots of good-quality speaker for the price, but not an ideal match for cheap budget components	20,34,22	88	5	50	●		169
JPW ML710	230	Good material value but disappointingly uneven bass — check out the 510s and a pair of proper stands instead	20,88,30	88	5	40	●		177
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	●		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
JPW Ruby 4	1,000	Twin metal-cone main drivers improve the dynamic performance and bass extension, with little sacrifice in focus precision	22,94,26	88	8	25	●		174
KEF Coda 7	129	Lovely open voice reproduction, but bass could be tauter, build tougher	18,30,23	88	6	50	●	1783	156
KEF Coda 8	189	Outstandingly well-balanced, bass is deep but a little vague	20,32,5,29	86	6	28	●	1784	156
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	●		164
KEF Reference Model 2	1,599	Classy, large floorstander that has massive headroom and clean mid-to-treble, but limited deep bass for size	23,103,34	89	4	30	●		167
Kelly KT3	1,200	Super high sensitivity, this hefty floorstander sacrifices smoothness to dynamic realism — to very good effect	25,95,36	95	4	28	●		174
Keswick Audio Aria II	379	Confident and dynamic sound, if a little crude and shut in	21,42,24	89	8	20	●	1405	148
Keswick Audio Torino	999	Good value, lively contender with distinctive shape and styling. Goes loud and deep but could be smoother	18-26, 93,28	90	4	20	●		167
Linn Keilidh Passive	750	Stunning timing and coherence, and awesome bass drive	20,83,28	87	4	22	●	1552	138
Linn Kaber Passive	2,000	Dry, bright balance emphasises dynamics and transients, but can sound unforgiving	20,90,28	87	4	25	●		118
Living Voice Auditorium	1,500	Pretty, compact floorstander has wonderful coherence, high sensitivity and fine dynamic integrity	21,5,98,29	91	4	25	●		180
Magnat Vintage 720	1200	Slightly crude in some respects but lots of heart, fine scale, decent dynamic coherence and integrity	29,113,32	88	4	20	●		180
Mission 700	130	Both in size and sound, a lot of speaker for the money. Good bass weight and extension and goes loud with ease	18,34,26	87	8	40	●		179
Mission 731 PRO	140	Cautious balance makes a fine match with budget equipment. A classy baby for smaller rooms	17.5,31.5,20	89	8	55	●		169
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	●		177
Mission 733i	330	New tweeter gives this floorstander a more open sound; a good all-rounder that doesn't sound as big as it looks	20,5,88,30	88	8	45	●		170
Mission 752 Freedom	578	A beautifully judged compromise in the art of combining presentation with a decent sound, and a lively midband	20,90,25	89	8	45	●		174
Mission 753 Freedom	798	Great styling. New, more restrained tweeter reveals fine midband dynamics	21,90,31	89	4	40	●		164
Mission 754 Freedom 5	1,298	Tall but exceptionally elegant floorstander gives fine midband projection; goes loud but limited deep bass for size	22,111,31	88	4	40	●		167
Monitor Audio Monitor 3	400	An exceptionally discreet floorstander; sonically uneven, it's capable of fine results if used in a sympathetic system	16,91,21	88	5	30	●		170
Monitor Audio Monitor 4	500	An oddball balance but a nonetheless entertaining sound, and a good looking real wood box at a realistic price	20,87,24	86	6	23	●		177
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
Monitor Audio 702PMC	700	A good all-round stand-mount with that intimate midband focus which seems the preserve of metal cone main drivers	20,40,25	87	8	30	●		174
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	1400	Beautifully finished compact floorstander with fine midband coherence, but limited bass and top end	20,94,28	89	4	25	●		180
Mordaunt-Short MS10i	140	Up front, bouncy and a whole lot of fun	18.5,30.5,20	86	8	50	●	1789	156
Mordaunt-Short MS30i	275	Slightly shut-in and coloured quality is offset by fine bass and impressive communication	25,43,28	90	8	28	●		1662 152
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	●		164
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
Musical Technology Condor	1,000	Lots of clever ideas in a compact floorstander, which places transparency and smoothness ahead of dynamic drama	25,91,23	85	4	28	●		174
Musical Technology Hawk	1250	Strikingly original, purposeful and attractive enclosure, but upper midband is decidedly shut in	20-36,93,24-38	87	5	23	●		180
Naim Intro	660	Great dynamic range and info retrieval, but thin, lacks warmth	24,89,27	89	6	30	●		164
Naim Credo	1,060	Very involving but the sound is rather forward and cold. Good clarity, but some coloration and a lack of richness	24,89,30	88	8	28	●		180
Naim SBL Passive	1,970	Lively and punchy — smoother but more upfront than before	27,89,27	88	6	25	●	1352	143
Neat Mystique Mk2	575	An elegant package which delivers a fine overall sound quality; some might find the top end too insistent	20,86,18	85	6	23	●		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	●		167
Origin Live Conqueror	1,650	Chunky floorstanding 3-way has lovely cabinetwork and lively sound, but limited deep bass	24,94,27	88	8	30	●		167
PMC TB1S	430	Pro-audio version of TBI	20,41,30	87	6	40	●		177
PMC TB1	410	A classy, laid-back performer that likes going loud and loves the bass guitar	20,40,31	87	8	45	●	1830	160
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
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



# HI-FI LOUDSPEAKERS (CONTINUED)

Product	Price(£)	Comments	SIZE WxHxD(CM)	SENSITIVITY(dB/W)	IMPEDANCE(Ω)	BASS FROM (Hz)	FACTSBACK CLOSE TO WALL FREE SPACE	ISSUE NUMBER	
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 conventional boxes, this speaker should be first port of call		22,107,25	●	86 8 30	●	1457 149	
QLN Signature	1,000	Attractive pyramidal stand-mount with heavy, laid-back balance but remarkably unboxy sound; superb stereo		27,37,36	●	83 4 25	●	167	
Quad ESL-63	3,450	Classic electrostatic lacks punch, but has strengths some can't live without		66,93,27	●	86 8 34	●	60	
Rega Kyte	198	Has splendid timing and coherence, sounds very explicit and informative		19,31,19	●	87 8 50	●	114	
Rega EL8	298	Kyle drivers in compact floorstander gives more bass but less coherence		17,72,20	●	86 8 55	●	122	
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	
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	
Rehdeko RK 115a	1,700	Single-driver system has limited bandwidth and obvious coloration, but wondrous dynamic and temporal coherence		34,42,27	●	95 8 55	●	167	
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	●	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	●	167	
Rogers GS1	179	Classy looking small box with equally classy, if slightly over cautious sound		19,30,17	●	85 8 45	●	179	
Rogers dB101	250	Style par excellence, this shapely sub-miniature is fast and agile but lightweight and forward: great voices; lacks bass		20,26,20	●	88 6 45	●	170	
Rogers LS3/5A	699	Clever AB1 stand/subwoofer helps the classic 3/5A monitor give its best shot		19,31,17	●	82 12 45	●	1354 143	
Rogers C6/28	1,399	Large floorstander with carbon-fibre tweeter. Sounds much better than it looks, especially through the midband		25,103,29	●	88 6 20	●	167	
Roksan ROKone	595	Large stand-mount is musically very communicative if a little coloured		21,45,33	●	89 6 30	●	1834 160	
Roksan Ojan 3 Black	795	Squat, stylish and black, great bass extension and somewhat uneven balance		28,76,46	●	88 8 20	●	1082 132	
Roksan OJ3X Black	995	Innovative low-line, 2-way floorstander with decoupled tweeter; great bass and fine dynamic range		28,79,46	●	84 8 20	●	167	
Royd Minstrel	275	Not much wellie or loudness but fine coherence and timing, a bit bright		18,69,12	●	86 8 30	●	1167 135	
Royd Doublet	485	Great value compact floorstander; lively and very informative, if a little uneven		18,93,19	●	90 4 28	●	1835 160	
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	
Ruark Sceptre	599	Graceful 'traditional' cabinetwork with classy veneer and shiny gilt fixings, hampered by a rather wayward sound balance		21,38,31	●	87 8 40	●	174	
Ruark Talisman II	749	Less ideologically committed than some, strength lies in fine all-round coherence		23,84,32	●	88 8 30	●	118	
Ruark Crusader	1,599	Elegant luxury 3-way with wonderfully even-handed, if rather laid-back balance		24,94,31	●	85 6 22	●	167	
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	
SD Acoustics SD3R	649	New SD3 has the agility and charm of a quality miniature, good bass and low sensitivity		20,38,30	●	87 8 25	●	106	
SD Acoustics SD5	1,549	Bass suspect but forward midband is delightfully smooth. Has ribbon tweeter		20,110,30	●	88 8 30	●	1081 132	
Sequence 400	329	Clever hang-on-wall panel is well voiced, though bass isn't too great		25,100,7	●	86 8 45	●	164	
Shahinian Arc	1,875	Occasionally wonderful small floorstanding omni; 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	●	164	
Spendor 2030	599	Discreet slimline floorstander with delicately coherent, laid-back sound		18,89,27	●	87 8 30	●	1836 160	
Tangent Monitor 5	80	An uneven performer best suited to small rooms and generous volume levels		17,5,27,18	●	83 8 55	●	169	
Tangent Monitor 9	150	Budget floorstander that can motor when the music demands with a solid bass but occasionally raw treble		19,5,75,5,22,5	●	90 6 45	●	165	
Tannoy Mercury M1	120	Sounds much bigger and more expensive than it is. Solid, tuneful bass, wide open soundstage with excellent imaging		17,30,20	●	87 8 50	●	179	
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 Mercury M3	230	Good-looking fine value floorstander is very neutral and evenhanded, with fine midband but weak dynamics and drive		20,5,87,28	●	87 7 20	●	170	
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	●	177	
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	
Tannoy Westminster TW	6,600	These awesome horn-loaded speakers are remarkably controlled and impressive		large	●	99 8 38	●	C93	
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 capabilities		20,91,39	●	89 6 22	●	174	
TDL CF200 Cotswold	650	Fine midband tonality and dynamic range, but less happy towards the bandwidth extremes		22,5,78,23	●	86 6 40	●	177	
TDL T-Line 3	700	Plenty of bass and treble, but broad midband is rather repressed		20,97,38	●	86 8 20	●	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	
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	
Vandersteen 2Ce	1,395	Elegant staggered baffle contributes to a refreshing freedom from boxiness		41,101,27	●	88 7 23	●	86	
Wharfedale Diamond 7.2	140	A real heavyweight for 349, sounds clean and transparent, if perhaps a little understated. Usefully flexible		19,29,5,23	●	88 4 45	●	169	
Wharfedale Valdue 400	200	Goes very loud with a minimum of amplification, but the sound is very thick and uneven, with a heavy upper bass		25,80,26	●	91 8 30	●	1414 148	
Wharfedale Valdue 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	
Wharfedale MFM-3	350	Smooth broad midband gives fine voice rendition; bass could be better		22,89,28	●	87 8 40	●	164	
ZYP AI	199	Cute metal cased micro-miniature is quite coloured but great fun		14,22,12	●	88 8 30	●	110	
<b>SUBWOOFERS</b>									
Acoustic Energy AE108S	299	Lots of loud subwoofer for your money, though ultimately more film than music oriented		50,42,43			●	179	
B&W ASW1000	499	Very competently engineered all round, and goes (unnecessarily) very loud		54,47,48			●	179	
B&W AS6	500	Good material value with a fair amount of low bass from 100W active design		45,51,45,5	●		30	1736 154	
Celestion CS135	139	Compact hideaway passive sub lacks deep bass for high sensitivity speakers		52,19,34	●	86 8 45	●	128	
Jamo SW600	530	Has some neat styling touches and remote control but deep bass is limited (active)		38,41,53	●		30	1736 154	
JPW SW60	349	A real heavyweight for 349, sounds clean and transparent, if perhaps a little understated. Usefully flexible		55,47,39			20	179	
KEF Model 30B	499	Commendably discreet with good sense of timing but limited extension (active)		38,5,37,43	●		45	1736 154	
KEF AV1	2,499	Works well, looks great, shakes the windows but costs a lot and is bulky		56,43,50	●		45	128	
M&K VX-7B	450	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	Justifies its cost and belies its diminutive size, with an agility that makes sense of the toughest material		25,5,46,35			25	179	
REL Q50	375	Genuinely deep, clean bass from an attractively compact and cost effective package		40,41,42			20	179	
Rogers AB1	549	Subwoofer-cum-stand designed as partner for LS3/5a or similar miniatures		19,57,16	●	82 8	●	1354 143	





# Stands & Supports

**H**i-fi furniture is more important than you might imagine. The effect it can have on the sound of your system is far from subtle. Hi-fi furniture can be split up into two categories — equipment supports and loudspeaker stands. Though this branch of hi-fi is less governed by vigorous science than, say, amps and CD players, extended listening has proved that stands and supports do sound different — and make a difference to the

sound of the components that are placed upon them! Speaker stands come in a variety of sizes and styles to suit different models. Use dealer or manufacturer recommendations to narrow down the choice, but as a rule you want the tweeter at ear height.

**B** Best buy **R** Recommended

KEY	
<b>HEIGHT (CM):</b> Height of stand or equipment shelf.	lead to increase mass, which affects sound.
<b>TOP PLATE SIZE (CM):</b> Dimensions of top plate on speaker stand or equipment support.	<b>WELDED:</b> The better stands and supports are welded rather than bolted together.
<b>FILLABLE:</b> Some speaker stands can be filled with sand and/or	<b>NUMBER OF SHELVES:</b> The number of tiers on an equipment
	rack or support.
	<b>SHELF TYPE:</b> Material from which shelves are made. Wood generally means MDF.
	<b>FACTSBACK NUMBER:</b> The Factsback reference for ordering a fax
	copy of the review. Use the contents page to find the Factsback information page, elsewhere in this section.
	<b>ISSUE NUMBER:</b> The issue of <i>Hi-Fi Choice</i> in which the original review appeared.

STANDS & SUPPORTS		TOP PLATE SIZE (CM)	HEIGHT (CM)	FILLABLE	WELDED	NUMBER OF SHELVES	SHELF TYPE	FACTSBACK NUMBER	ISSUE NUMBER
<b>Equipment Supports</b>									
Fi-Rax R4	399	Lively, exuberant sound, slightly weak bass						5 Glass 1633	151
Frameworks H500/H175	404	Two-shelf stand and isolation platform combo in tubular steel that made a spectacular impression on audition		70	52,34	●		3 Glass	147
Mana Acoustics Ref. Table	350	King of its type, angle iron, chipboard and glass combine to make a significant difference to sound quality				●		1 Glass	147
Mana 5 Tier Sound Table	600	Infinitely upgradeable. Persuasive and thrilling glass and angle iron design that adds speed and bandwidth to components upon it				●		5 Glass 1633	151
Optimum Int 2000 OPT490	299	25kg stand with shelves sandwiched between variable height tubular uprights. Sounds smooth and relaxed with sturdy bass		50	60,40			4 Glass	166
Quadraspire Q4	250	Easy to live with, and tonally neutral						4 MDF 1633	151
Sound Organisation Z038	135	Too lively and lacking order — but cheap		50	84,40	●		5 Wood 1633	151
Sound Organisation Z560	160	A mix of welded and bolted members gives good structural integrity. While performance is not up with the best, it's great value		90	46,36	●		5 Wood	166
Soundstyle Select 6105	300	Respectable sonics, structurally solid and smart						5 Glass 1633	151
Soundstyle Finewoods W105	320	Veneered shelves clamped between tubular uprights that delivers with classical material		82	48,27			4 Wood	166
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
Target B5	175	Free of colorations, fine grip and good value				●		5 Wood 1633	151
<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	84	Tall, slim and elegant, though sound and value are unexceptional		40-60	17,17	●			159
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 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 SE24	70	Stands out from the budget crowd because of the consistency and overall quality of the performance		61	19,5,17	●	●		1373 146
AVF Tower 400	35	Ridiculously cheap and much better than no stand at all		54	17,20	●			159
Kudos S50	100	Better sound than the budget stands, particularly at the bottom end		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 for greater effect		5		●			1373 146
Revolver RS1	70	A good blend of performance and appearance for the price		53	18,18	●			159
RMS/Stands Unique Vivus	349	Pricey carbon fibres give ultra-clean sound with exceptional voices		50	N/A				159
Stands Unique HP	220	Real wood disguises high performance tuned technology		59	22,23				159
Target R1	280	Truly high-mass four-pillar design with superb weight and speed, giving music delicious attack and outstanding imagery		53	15,21	●	●		1373 146
Target TR60	68	Lively, dynamic midrange and detailed treble from a less-than audiophile oriented twin column design		60	15,15	●			1373 146

The cable you are looking for is



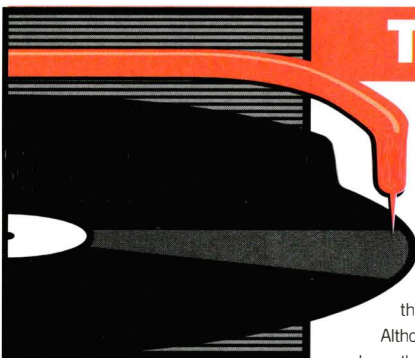
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# Tonearms



**T**urntables at the cheaper end of the market tend to be supplied with a matching tonearm, and often include a 'starter' cartridge. Still better quality is found at higher prices among the separate motor units and tonearms. Careful partnering and set-up is essential for these components.

Although the turntable is the most important part of a record player, the tonearm is the second most important, and the quality of

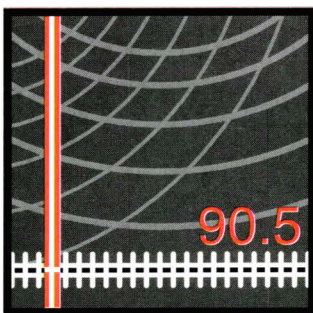
its construction and design have a significant bearing on sound quality. There are three basic types of arms listed in the key and each has its strengths, but pivoted designs are the most popular, for reasons both practical and economical.

**B** Best buy **R** Recommended

KEY	
<b>EFFECTIVE MASS:</b> This relates to cartridge compliance. Generally high mass arms are suitable for low compliance cartridges and vice versa.	<b>track the disc in a linear fashion.</b>
<b>PARALLEL TRACKING:</b> An arm which allows the cartridge to	<b>PIVOTED:</b> Arms which allow the cartridge to describe an arc as they traverse the record.
	<b>UNI-PIVOT:</b> Pivoted arms with a bearing that allows movement in
	<b>two planes.</b>
	<b>EFFECTIVE LENGTH (cm):</b> Length of arm from bearing to cartridge mounting.
	<b>ADJUSTABLE HEIGHT:</b> Important for accurate cartridge set-up.
	<b>FACTSBACK NUMBER:</b> The reference for ordering a fax copy of the review. Use the contents page to find the Factsback reference.
	<b>ISSUE NUMBER:</b> The issue of <i>Hi-Fi Choice</i> in which the original review appeared.

## TONEARMS

Product	Price (£)	Comments	PARALLEL TRACKING	EFFECTIVE MASS	PIVOTED	UNI-PIVOT	EFFECTIVE LENGTH (cm)	ADJUSTABLE HEIGHT	FACTSBACK NUMBER	ISSUE NUMBER
<b>Kuzma Stogi Ref</b>	1,250	Large, solid and well-made arm, gives exceptionally clear sound with just a hint of brightness	High	●	●	●				79
<b>Linn Ekos</b>	1,500	Superb, state-of-the-art design which builds significantly on predecessor's strengths	Medium	●	●	●	229	●		67
<b>Moth Arm</b>	95	The ultimate budget arm? Refined, sweet, detailed and natural	Low	●	●	●	237	●		60
<b>Rega RB300</b>	174	Despite its modest price it sets exceptional standards and could be used on many high-end turntables	Low	●	●	●	237	●		60
<b>Roksan Tabriz Basic</b>	275	Targeted at the Xerxes, this is a good alternative to the Rega arm in many cases – a touch bright though	Low	●	●	●	240	●		91
<b>SME Series IV</b>	983	Superb engineering and finish with a finely balanced sound, impressive stereo focus and low coloration	Low	●	●	●	233	●		60
<b>SME Series V</b>	1,461	Excellent in all respects, this arm arguably sets the standards for pivoted arms, regardless of price	Low	●	●	●	233	●		60



# Tuners

**T**he radio medium may have a lower profile than TV, but in areas outside pop music the BBC service is the envy of the world. Live concerts rival all other sources from a hi-fi perspective. Though tuners might seem something of a hi-fi afterthought, the task they discharge is far from simple, since it requires the skills of RF (reception) and audio (signal processing) engineering. The importance of the former will depend on reception conditions, unless you get radio via cable, but a high-quality aerial system is well worth having. Tuners come in two basic

types. Analogue models tune gradually and can have analogue or digital displays; they are often preferred for sound quality. Digital tuners offer convenient automatic tuning facilities and pre-set memories.

**B** Best buy **R** Recommended

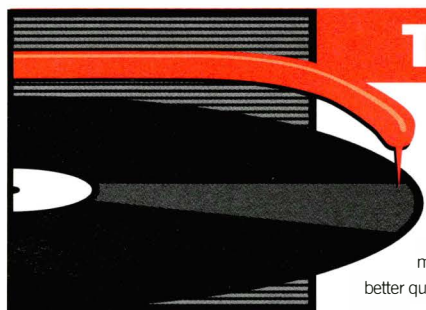
KEY	
<b>WAVEBANDS:</b> Only the FM (VHF) bands give stereo hi-fi sound, though AM (MW & LW) are useful for receiving certain transmissions in the UK	<b>applications.</b> Basically RDS tuners can identify and display the name of the radio station being received, as well as prioritising traffic announcements.
<b>PRESETS:</b> Number of station frequencies that can be stored.	<b>REMOTE CONTROL:</b> Couch-potato friendly.
<b>RDS:</b> (radio data system) was originally designed for in-car	<b>SIGNAL STRENGTH METER:</b> Indicates strength of signal from
	<b>aerial, useful for aligning your 'twig' during installation</b>
	<b>ROTARY TUNING KNOB:</b> Experience has shown that this analogue throwback is ergonomically far superior to the button-based approach.
	<b>FACTS BACK NUMBER:</b> The Factsback reference for
	<b>ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this section.</b>
	<b>ISSUE NUMBER:</b> The issue of <i>Hi-Fi Choice</i> in which the original review appeared.

## Tuners

Product	Price (£)	Comments	WAVEBANDS	PRESETS	RDS	ROTARY TUNING KNOB	SIGNAL STRENGTH METER	REMOTE CONTROL	FACTSBACK NUMBER	ISSUE NUMBER
<b>AMC T7</b>	130	Performance adequate but price is sharp, especially with remote control. Some hum	FM, M	30	●	●				166
<b>Arcam Alpha 7</b>	230	Indifferent RF performance but a touch of audiophile sound quality with clean, strong signals	FM, M, L	24						166
<b>Arcam Delta 280</b>	300	Fine sound quality marred by mild synthesiser whine; RF performance only average. Remote £60 extra	FM	20		●				120
<b>Audiolab 8000T</b>	800	Unusual combination of fine sound quality and RF performance (inc AM), and superb ergonomics	FM, M, L	39		●	●		1254	142
<b>Denon TU-260L</b>	120	Careful minimalist design promises a surprisingly open and vivacious sound	FM, M, L	20						93
<b>Denon TU-425RD</b>	200	A fine all-rounder with advanced RDS, good RF performance and decent sound. Remote extra	FM, M	40	●					166
<b>Harman/Kardon TU950</b>	200	Bulky but effective, delivering fine RF performance and good sound for the price	FM, M, L	30	●					166
<b>Linn Kremlin</b>	2,600	Controversially good sound at a very high price. The reviewer's saving up but you should check it out for yourself	FM	80		●	●		1254	142
<b>Magnum Dynalab FT101</b>	825	Although fairly expensive given its minimum set of facilities, its excellent sound provided ample compensation	FM							72
<b>Micromega Tuner</b>	750	Has digital output but even without the Micromega DAC, this provides exceptional sound quality. Looks good too	FM	39		●	●		1810	157
<b>Mission Cyrus FM7</b>	400	Open, generous soundstaging gives the music plenty of foundation, if a touch shut-in at the top	FM	29		●	●		1254	142
<b>Musical Fidelity E50</b>	300	Sounds involving if coloured and with a subjectively larger-than-life presentation	FM	20						1810
<b>Naim NATO1</b>	1,730	There may be better sounding tuners in the world, but we have yet to hear one	FM							1254
<b>Pioneer F-504RDS</b>	250	Cable-friendly with advanced RDS and excellent RF performance, slightly disappointing sound	FM, M	40	●		●			166
<b>Rotel RT-935AX</b>	160	Good ergonomics and sound quality at a realistic price, but limited features and RF selectivity	FM, M	20						166
<b>Sony ST-SA3ES</b>	250	Clean, lean presentation but needs a quality aerial to perform at its best	FM, M, L	30	●		●		1810	157
<b>Technics ST-GT350L</b>	130	Decent RF performance is offset by sound quality more typical of a mini/midi system	FM, M, L	30		●				1254
<b>Thorens TRT2000</b>	499	Not exactly neutral sounding, it nonetheless makes listening fun	FM, M	59	●	●	●		1810	157



# Turntables



**S**pecialist turntables are what high fidelity sound is all about. CD players may offer silent backgrounds and flat frequency responses, but they can't match the dynamics and superlative timing that serious turntable users take for granted. Turntables at the cheaper end of the market tend to be supplied with a matching tonearm, and often include a 'starter' cartridge. Still better quality is found at higher prices among the separate motor units

and tonearms. Careful partnering and set-up is essential for these components, but many so-called 'sympathetic' combinations exist. Because turntables are mechanical devices that are designed to retrieve modulations as small as a micron, engineering quality is of paramount importance. It is also the reason why turntables cost as much as they do, and require high quality support systems.

B **Best buy**

R **Recommended**

KEY			
<b>MANUAL:</b> You do it all: put the needle on the record and take it off.	structural interference.	<b>SUPPLIED WITH CARTRIDGE:</b> Most turntables do not come supplied with a needle.	section.
<b>AUTO:</b> The record player does it all.	<b>EXTERNAL PSU:</b> Outboard power supply; generally indicative of higher-quality performance.	<b>FACTSBACK NUMBER:</b> The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this	<b>ISSUE NUMBER:</b> The issue of <i>Hi-Fi Choice</i> in which the original review appeared.
<b>SEMI-AUTO:</b> Share the work: you put it on, it lifts it off.	<b>SUPPLIED WITH ARM:</b> Many turntables require a separate arm to be fitted; if not, this tells you so.		
<b>SPEEDS:</b> In RPM to correspond with your platters.			
<b>SUSPENDED SUBCHASSIS:</b> Sprung suspension to minimise			

## TURNTABLES

Product	Price(£)	Comments	MANUAL		SEMI-AUTO		SPEEDS		SUSPENDED SUBCHASSIS		SUPPLIED WITH CARTRIDGE		FACTSBACK NUMBER		ISSUE NUMBER	
			▲	▼	▲	▼	▲	▼	▲	▼	▲	▼	▲	▼	▲	▼
Clearaudio Reference	3,990	Opulent beast tested with Souther TQ-1 arm. Tends to gloss over detail with a fizzy character but is quite bold	●												1328	144
▲ DNM Rota 2	5,600	Tonally slightly bleached, but extracts detail like few others. Works well on its own table	●												1328	144
▲ Dual 505-4 UK	250	Consistent sounding and well isolated turntable. It is slightly lacking in oomph			●											103
▲ Kuzma Stabi/PS	1,950	(Tested with Stogi Reference) Solid oak plinth; sound is very clear, detailed and extended	●													91
▲ Linn LP12 Basik	1,100	Trails the full LP12 significantly, but pace, rhythm, timing etc still top rank					●									103
▲ Linn LP12 Lingo	1,750	The classic reference is improved by the Lingo, but charming character remains	●													91
▲ Michell Gyrodec	875	Sweet and natural-sounding player, well matched to Rega RB300 arm	●													55
Moth Kanoot	329	Rather coarse-sounding deck that requires decent isolation and comes with a Rega RB300 arm	●										●			164
▲ Notts Analogue Spacedeck/Arm	750	No frills, just a first-rate, outstandingly natural-sounding deck that will last forever	●													159
▲ Pink Triangle Anniversary	2,500	Possibly the most detailed, clear and neutral-sounding deck around. Likeness to master tape is uncanny	●													91
▲ Pro-ject 2	300	Remarkably effective at the price with decent timing and a generally well defined sound	●													164
▲ Pro-ject 6/Sumiko	850	Don't think of this as a mid-price deck with a good arm, but as a scaled-down Oracle Delphi - it's that good	●													138
▲ Rega Planar 2	214	A remarkable product at the price, surprisingly articulate and confident	●													48
▲ Rega Planar 3	274	The '3' sounds musical in a balanced and coherent manner, needs decent isolation and suffers a little pitch instability	●													164
▲ Reson RS1	600	Supplied set-up and ready-tuned, this unconventional deck is packed with mid-band detail	●													159
▲ Roksan Radius 3/Tabriz zi	890	Elegant-looking turntable with a tidy, ordered sound. Bright and breezy if a shade lightweight	●													159
SME Model 20A	4,863	Supplied with Series V arm. Engineered to last a lifetime, giving excellent stereo and detail retrieval	●													118
▲ Thorens TD166 VI/UK/RB	400	Refined and solid sound with well-focused imagery; suitable for use with good MM and budget MC cartridges	●													103
Thorens TD2001	700	Balances convenience and sound well, but deck lacks detail and bass could be better controlled			●											159
▲ Well Tempered Record Player	1,850	Intriguing and challenging. Musically it is not ideal, but has a limpid quality and a lack of artificiality that sets standards	●													1180 136

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 Air Tangent • Absolute Sounds • tel 0181 971 3909  
 Aiwa • tel 0181 897 7000  
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 Allison Acoustics • tel 01484 603333  
 Alon • Sound Image UK • tel 0181 255 6868  
 Alphason • tel 01942 678000  
 Altis • HEAR • tel 01232 319148  
 Ambience • Esoteric Aud. Imp. • tel 01243 533030  
 AMC • Tangent Acoustics • tel 0500 828620  
 Analysis • Audio Spectrum • tel 01752 363355  
 Apertura • Audiophile Club • tel 0181 882 2822  
 Apogee Digital • Sound Image • tel 0181 255 6868  
 Arcam • A&R Cambridge • tel 01223 203203  
 Ariston • Richer Sounds plc • tel 0171 940 2240  
 Art Audio • tel 0115 963 7795  
 Atacama • Sambell Eng. • tel 01455 283251  
 ATC Loudspeaker Technology • tel 01285 760561  
 ATD • Aanvil Audio • tel 01359 240687  
 Audio Analogue • UKD • tel 01753 652669  
 Audio Innova • Richer Snds • tel 0171 940 2240  
 Audio Note • PM Components • tel 01474 560521  
 Audio Physic • Aanvil Audio • tel 01359 240687  
 Audio Research • Abs. Snds • tel 0181 971 3909  
 Audio Synthesis • tel 0115 922 4138  
 Audio Technica • tel 0113 277 1441  
 Audiogram • Abs. Snds • tel 0181 971 3909  
 Audiolab • Camb Sys Tech • tel 01480 415600  
 Audiomeca • Kronos Distrib. • tel 01868 748632  
 Audiophile Furniture • tel 01342 826262  
 Audioquest • A&R Cambridge • tel 01223 203203  
 Audiostatic • Audiofreaks • tel 0181 948 4153  
 Audiovector • Glaive • tel 01622 664070  
 Avalon • Audiofreaks • tel 0181 948 4153  
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 Bandor • tel 01494 714058  
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 BCD Engineering • UKD • tel 01753 652669  
 Benz-Micro • Audiofreaks • tel 0181 948 4153  
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 Bose UK • tel 01795 475341  
 Boston Acoustics • Portfolio • tel 01489 795519  
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 Bow Tech • Path Prem. • tel 01494 441736  
 B\*ra • Thomas Transducers • tel 01424 913888  
 Bryston • PMC • tel 01707 393002

## C

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 Cambridge Audio • Richer Snds • tel 0171 940 2240  
 Cardas Audio • Audiofreaks • tel 0181 948 4153  
 Carver • Sound Dept • tel 01235 555622  
 Cary • Audiophile Club • tel 0181 882 2822  
 Castle Acoustics • tel 01756 795333  
 CAT • Audio Reference • tel 01483 575344  
 Celestion International • tel 01622 687442  
 Cerwin-Vega! • CSE • tel 01423 359054  
 Chario • MDC • tel 01992 574030  
 Chord • The Chord Company • tel 01722 331674  
 Chord Electronics • tel 01622 764874  
 Classé Audio • Audio Illusion • tel 01753 542761  
 Clearaudio • Absolute Analogue • tel 01425 654488  
 Clements • Wollaton Audio • tel 0115 928 4147  
 Combat/Harmonix • Audiofreaks • tel 0181 948 4153  
 Connections UK • tel 01487 832424  
 conrad-johnson • Audiofreaks • tel 0181 948 4153  
 Copland • Absolute Sounds • tel 0181 971 3909  
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 Croft • tel 01902 656517  
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 Cymbol • tel 01273 517358

## D

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 Dawn Audio • tel 01932 355040  
 Day Sequerra • Abs. Sounds • tel 0181 971 3909  
 Deadrock • Path Distribution • tel 0121 749 2240  
 Definitive Tech • Gecko Inc • tel 0181 681 1817  
 Denon • Hayden Laboratories • tel 01753 888447  
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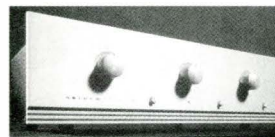
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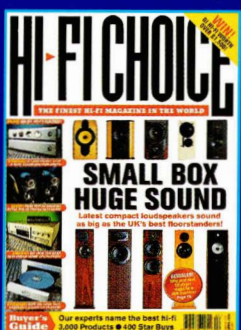
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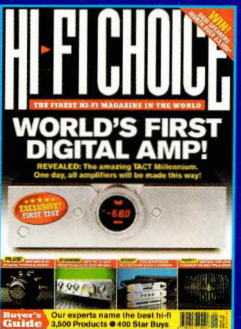
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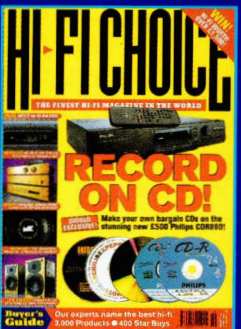
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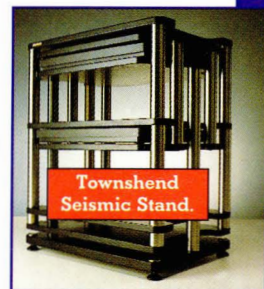
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## NEXT MONTH'S ISSUE

- **HDCD CD PLAYER ROUND-UP**
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Audiophiles spend hours discussing the finer points of amplification, but when it comes to making a good impression, all that really matters is how loud your amp will go! We wring Watts out of the latest models priced between £500 and £1,000, from Arcam, Musical Fidelity, Sony, Denon, CR Developments, Marantz, Micromega, Crimson and many more!

### HDCD - A QUIET REVOLUTION

While we've been having fun with prospective digital formats, HDCD has been making real progress where it counts: in software. We look at selection of players from Arcam, Copland, Krell, Classé and Anthem to see how different brands are using the technology.



dCS Elgar DAC.

### STATEMENTS

It's high-end digital bonanza time next month. We're assessing both ends of the recording chain with the dCS Elgar 96kHz/24-bit ADC/DAC and an envelope stretching CD player from Naim, the new CDX. Plus: the return of Wadia with the high tech one-box 830 and the arrival of Meridian's modular 861 CD players. In the analogue corner is Kuzma's new budget turntable.

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# Ultra Vivian Scene

David Vivian picks out the best of British and puts together a system with a stiff upper lip. The competition had better watch out...

**P**ower is nothing without control. Forget where I read that, but it seems an apt aphorism to use with Arcam's handsome new 100 Watts-per-channel, modular superamps, the Alpha 10 integrated and 10P power. I should mention straight away that this month's column is an unabashed Brit-fi rave. We still produce the best-value kit on the planet and with companies like Quad lining up mouth-watering new product to blitz the global opposition, this isn't the time to be modest.

The beefy Arcam Alpha duo arrived while I was working my way through a tasty selection of new British speakers: the Castle Kendal, B&W CDM2SE and Kelly KT2. There didn't seem much point in keeping them apart. In fact, I could see a strong synergistic alliance forming between the muscular Arcams and super-sensitive Kellys. My regular Pioneer PD-S904/Musical Fidelity X-DAC CD set up would have been an interloper in this company. So under the pretext of aesthetic consistency (but really because it's a damn fine CD player and *HFC* Best Buy) I got Arcam to send me its top, single-box CD player, the Alpha 8SE.

It's fashionable to have a "kick-ass" product these days, not just a flagship that showcases technical merit but something with a sharply focused killer instinct; a predator that seeks confrontation with established quality benchmarks, then attempts to smack them silly. The Alpha 10 combo is just that. No exaggeration, there really does seem to be some kind of Armageddon vibe going down at Arcam's Waterbeach headquarters in Cambridge. You wouldn't be surprised if a little synth chip secreted in the binding of the publicity brochure played *Land Of Hope And Glory* as you opened the first page.

Some of the more rousing extracts: "We believe the Alpha 10 Series will change the way you think about your amplifier needs... the Alpha 10 and Alpha 10P amplifiers mark a significant point in the development of modern British hi-fi... these innovative, high-performance amplifiers can stand comparison with products costing significantly

more." That's a gauntlet firmly flung earthward when you consider that the 10 integrated costs a cool £800 and the matching power amp a further £600. Throw in the £600 8SE CD player for good measure and you're looking at two grand before you've even considered speakers.

So let's consider the £700 Kelly KT2. They're 20 per cent smaller than the KT3s (Best Buy *HFC* 174) and give up some bass

and, for the power amp, a third 100 Watt amp channel to turn it into a pukka A/V powerhouse. Other options are in the pipeline.

### Up to the mark?

The 10s are the best looking and most substantially-built Arcam amps to date, but the build doesn't quite measure up to the aspirational design values. If the 10 Series was a car it would be an Audi made by Renault.

Not that you need to inspect the 10's uneven panel gaps very often: all the important functions (volume, inputs, CD basics) can be controlled from the handset. The integrated amp's alphanumeric LED display lets you know the score. Once you've heaved the black boxes onto your equipment stand and plugged in the relevant cables, that's that. Sit back and enjoy.

And enjoy you will with the Kelly at the business end. By itself, the 10 integrated is clean, refined and powerful but exceptional only in that it doesn't play music as romantically as the 9 or 8. Its presentation isn't cold but it is cool — tonally a little leaner

and brighter than Alphas usually sound, but with greater focus and resolution and oodles of poise. Nice but hardly nuclear.

The double act, though, has genuine entertainment value. With all 400 Watts pumping, everything seems to work better. Dynamic swings are more effortless, images gain solidity. Treble takes on brilliance but sheds grain and grit, bass not only has more slam and depth but greater speed and tonal colour. Rhythms are snappier, silences blacker, the big picture bigger. Startling.

The control and grip of these amps in bi-amped mode is remarkable. And that's just what you need with the Kellys. The KT2 has less bass output than the KT3 and sounds better balanced in small rooms, but its bottom-end welly and extension are still prodigious. Small amps can make them go very loud but tend to lose the plot. The 10's grunt shines through but there isn't an ounce of flab.

Like it says in the ad: Power? Nothing without control. But power isn't everything. One of the other speakers gave the 10s a real fright. Tell you which next month. ▲



Arcam Alpha 10/10P  
A stunning double act with the right loudspeaker like the Kelly KT2.

extension. But they share the same tweeter, crossover and light-but-rigid Aerogel bass/mid driver cone material. Sensitivity is a stonking 95 dB/W/m, allegedly; and, naturally, there are twin binding posts round the back.

It's an ideal candidate for bi-amping, a technique in which one amp is used to drive the tweeter and the other the bass unit. As with the 8 and 9 Series amps, the 10/10P are configured with this in mind, and it's a move that, in this case, offers an unusually big boost in clarity and control. But that isn't the 10's unique selling proposition. A compelling mix of future-proofing, innovative design and user-friendliness is.

There's nothing unusual about the way the 10 and 10P, which share identical circuit architecture, develop so much brawn. Their massive toroidal transformers, rated at 800VA, are said to be able to swing current peaks of +/- 25 amps. Immediate future upgradability is served by three "smart modules" nearing the end of development now: a Dolby Digital or DTS Home Cinema processor, a five-zone multi-room distribution card



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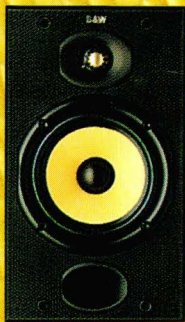


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