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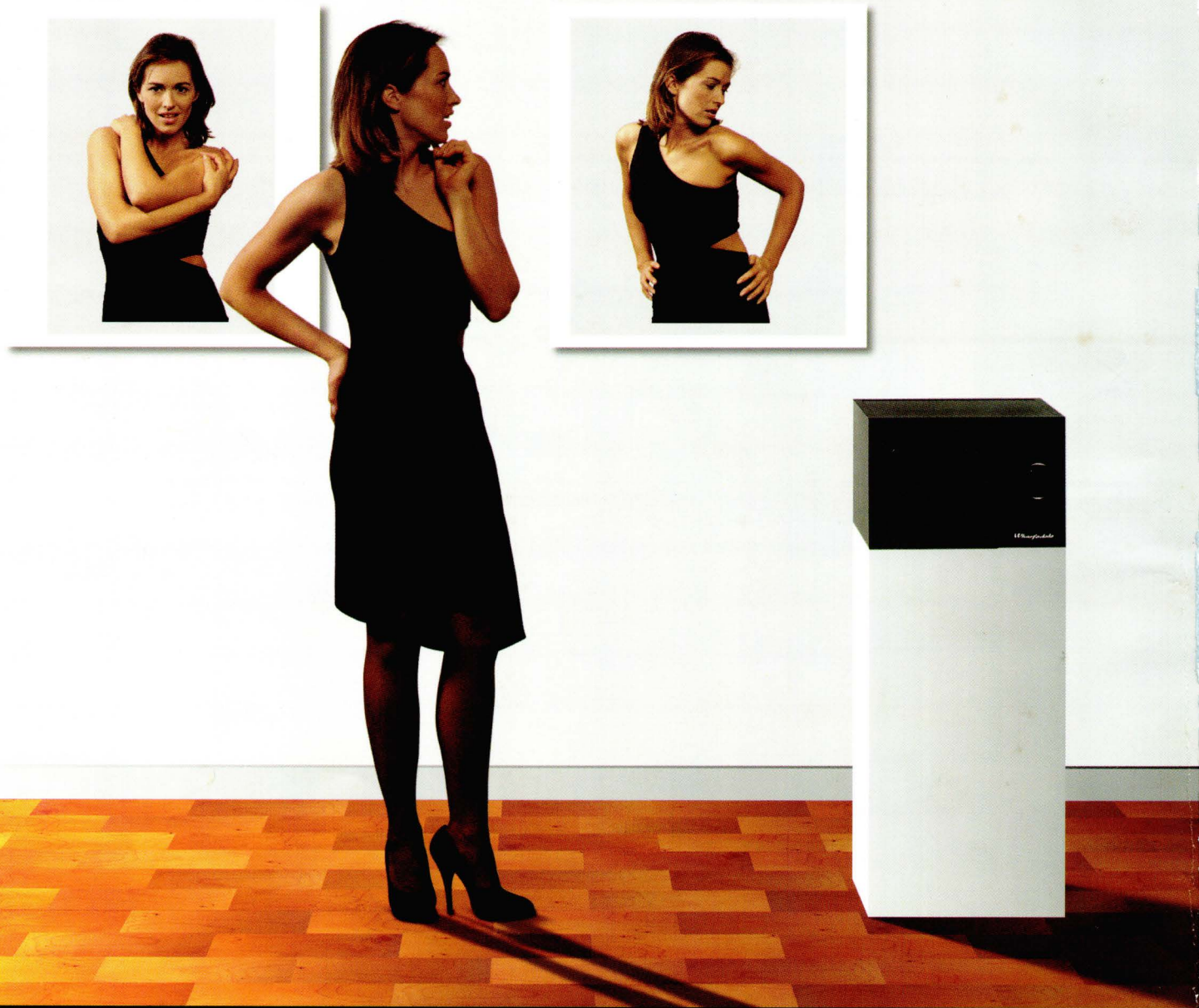
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EDITOR'S NOTEBOOK



Who needs Star Wars? Jason Kennedy's more excited about the imminent launch of SACD hardware.

Sony has done it. After a late start the company looks like it will be the first to offer a new high-density medium to the audio market. The 6 April Tokyo announcement of a 21 May launch for a complete SACD replay system means that DVD-A will suffer an early blow in this high-end format war.

At Sony's European press conference in Milan I heard the best SACD demonstration yet, using the forthcoming SCD-1 medium launching machine as a source. There was one major difference with this demo, however - that was the absence of surround channels. The SCD-1 is a two-channel stereo player with no digital output and thus no multi-channel capability. Sony's reasoning is that SACD is being launched as a high-end format for the audiophile. The high price of this flagship (10,000DM/£3,400 or ¥500,000/£2,600, depending on where you buy) means that only the well-heeled audio maniac will be able to afford it. But given the high quality, multi-channel potential of the medium, it seems unlikely that anyone would buy a two channel player.

Its stereo performance, however, was indeed excellent and the amplification and loudspeakers that Sony has developed for this project are clearly very fine, but with fewer than 20 titles at launch and 10 per month promised thereafter, the appeal looks like it will be rather limited.

But come the Autumn and a European launch, I'll be one of those camped outside the doors of Sony UK waiting for a review sample. Let's hope they get some decent software together in time. (See Update for further details of the SCD-1.)

One of the main proponents of the competing DVD-A format, Pioneer, doesn't expect to launch until the summer in Japan, with product to appear about six months later in Europe. Pioneer will launch a high-end player at around £4,000 for which a digital preamplifier with room-matching technology has been developed, there will also be another player at a more accessible price in the vicinity of £1,200. Both machines will be universal A and V players for both music and movies.

Technics also has plans for a universal DVD-A player to be launched - with luck, this October. It will offer two-channel playback at 24-bit/192kHz and six-channel surround at the 24/96 standard. Price looks likely to be in the vicinity of £1,000.

So if fortune smiles on us we should be able to get an SACD vs DVD-A clash together for our January 2000 issue (which should be Y2K-safe - it comes out in December!)

Sony's partner in developing SACD, Philips, has yet to announce its plans for hardware introduction, but we expect to

hear more relatively soon. On paper, the two formats look comparable; SA promises a few extra kilohertz of high frequency extension and signal to noise ratios are similar. What will make or break either medium is the degree of support provided by the software industry, and SA appears to have the edge here with its potential for CDP-friendly hybrid discs. Sony even claims that such discs will sound better than conventional CDs because of the DSD encoding process.

Universal DVD-A players, on the other hand, have the advantage of a substantial existing catalogue of video titles - not much use to the audio nut, perhaps, but a strong temptation for anyone thinking of getting a top-notch DVD-V player.

TIME FOR THE SCIENCE BIT

A month or so ago we set Paul Miller on the unpredictable path that led to the CD-R blank media review on page 56. At the time, we had no idea what to expect. Would there be any detectable difference between blank discs? And if some could be heard, would Paul be able to measure them? It turns out that, as with all other digital issues, when it comes to music it's not just a matter of 1s and 0s.

Kennedy

THIS MONTH'S EDITOR'S CHOICE

One of the more unusual finds this month was the Veritas H3, a new speaker from a new company that uses the latest variant on a classic drive unit, the Lowther. Paul clearly appreciated its communication skills and failed to notice that it's perhaps not the most elegant of designs. He must have been smitten.



Audio Note meanwhile has broken the valve amp mould by producing a pretty, compact range that sounds as good as it looks. TEAC and Denon had better look out!





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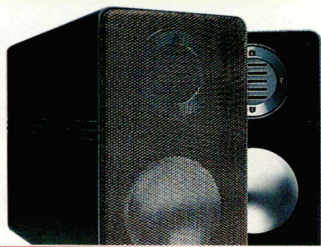
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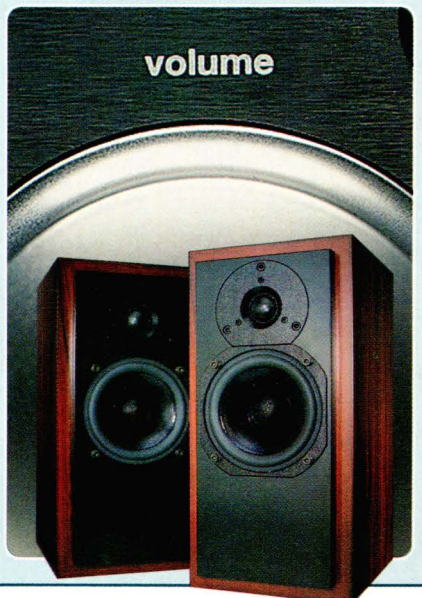
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NEWS & VIEWS

Lock up your preamps – Tim Bown's hunting down the hottest hi-fi stories.

NEWS IN BRIEF

PIONEER has unleashed the UK's first DVD-based system to be pre-packaged in a 'super-mini' format. The NS-DV1 (below) is cut from the same cloth as Pioneer's NS-5 and NS-7 systems, and consists of a DVD player with 24-bit/96kHz DAC, an RDS tuner and a multi-channel amp, in one low-slung box. A detached display unit, touch-panel remote, five satellite speakers (5x30 Watts) and a subwoofer (50 Watts) are also included. Price is likely to be about £1,500.

☎ (01753) 789789



ROCKY MOUNTAIN TRADERS has launched a professional-style CD labeller kit called PressIT. The package includes label design software for a Pentium-equipped PC, together with software templates for most major Mac and PC drawing packages, and a selection of blank labels for discs and jewel cases. A label applicator is also included in the £20 price. It could be just the thing for anyone considering a CD-recorder after reading this month's cover story!

☎ (0171) 631 0707

THE DESIGN COUNCIL has unveiled details of several more hi-fi products selected to appear among the Millennium Products in the Greenwich Dome. B&W's stunning Nautilus 801 speaker will be there, honoured for its "innovative design", while 1... Limited's Digital Loudspeaker Technology (Choice 182/187) is hailed for its unique approach. TAG McLaren is also present, but currently only for its motorsport technology – no sign of any hi-fi gear...

☎ (0171) 420 5200



IXOS has added two interconnects to its three-core Gamma Geometry cable range. The Ixos 1000 Gamma Studio Connect weighs in at £90 per metre pair, and features silver-plated oxygen-free copper (SP-OFC) conductors extruded in Teflon, with a SP-OFC braid screen and PVC outer jacket. The £70 Ixos 1001 Gamma Master Connect (above) boasts a similar spec, but replaces the PVC jacket with woven nylon and omits the silver plating on the braid screen.

☎ (01494) 441736

VIVANCO'S range of headphones has been joined by two new models. The SR 900 is a closed back design at £60, described as having a particular penchant for rock and pop, while the SR

B&W launch frenzy



B&W's entire 600 Series has been upgraded, with comprehensive improvements to existing models and the launch of two all-new speakers.

The 600 Series 2 range is the most affordable yet to use technology derived from B&W's Nautilus concept, applied to great effect in the Nautilus 800 Series. Each speaker's 26mm aluminium dome tweeter features a tapered tube, used to absorb unwanted energy radiated from the rear of the diaphragm, with flat ring suspension replacing the conventional roll surround.

Kevlar is still employed for the mid/bass cones, but stiffer spiders are used in their suspension for improved control. Floorstanders have dedicated bass drivers with Kevlar-reinforced paper cone technology, developed for the Nautilus 800 Series. Changes have also been made to crossover design, with new air-cored inductors and plastic film capacitors in the tweeter filter sections.

The 600 Series 2 starts with the DM601 S2, a £200 standmounter with a 16.5cm mid/bass driver. Next comes the DM602 S2, a larger standmounter with an 18cm mid/bass unit at £300. The DM603 S2 is the entry-level floorstander, employing an 18cm mid/bass driver with an additional 18cm bass unit, while the DM604 S2, with a pair of dedicated 18cm bass drivers, is £850 – £150 cheaper than the speaker it replaces.

The DM605 S2 is a new model at £1,400, using the same driver layout featured in the DM 604 S2, but with the addition of active bass via a built-in 130 Watt amp. The remaining speakers cater for surround sound

The 600 Series 2 uses technology derived from B&W's Nautilus.



set-ups – the CC6 S2 centre speaker costs £200, and the brand-new LCR6 S2 is a £350 multi-purpose speaker designed to be used either horizontally or vertically without affecting performance.

All models are in the shops now – and expect the UK's first review of the DM603 S2 in the September issue of *Hi-Fi Choice*.

B&W ☎ (01903) 750750

Vinyl Classics



A new 'affordable' turntable has been introduced by Pro-ject, the Czech Republic's very own vinyl vanguard.

The Classic sports a substantial MDF plinth, finished in piano black or cherry veneer, above which sits an 8mm thick glass platter, complete with record clamp. It comes bundled with an Ortofon 510 cartridge and Pro-ject's new 9 tonearm at a total price of £450. The deck is also available without the arm at £360, while the arm alone would set you back £350.

Also new from Pro-ject is the 6.9, a package which pits the well-regarded Pro-ject 6 turntable with a 9 tonearm, an acrylic platter and an Ortofon MC25fl cartridge. Price is £550 for the lot.

Henley Designs ☎ (01491) 834700



☉ Pro-ject's Classic.

Balancing Act




Balanced Audio Technology has announced details of a new high-end valve-based preamp. The VK-50 is derived from the company's dual mono VK-5i design and uses the same 'Unistage' circuit topology for an exceptionally short and pure signal path. But it incorporates no less than 12 '6922' valves instead of the older model's six.

Other developments include the use of Vishay Bulk Metal Foil resistors in place of the standard metal film types, and a new volume attenuator featuring 140 steps of 0.5dB for extreme accuracy. Much attention has also been applied to the preamp's user interface, with a number of user-definable gain and display parameters, together with the option of comprehensive remote control. A total of five XLR-type inputs are provided, and the VK-5i costs £4,395 with remote, or £3,995 without. Zentek Music ☎ (01892) 616383

☉ The VK-5i uses twice as many '6922' valves as its predecessor.



SACD is go

 Sony will be the first manufacturer to bring an SACD player to the market when it launches the SCD-1 in the Japanese market on 21 May. The player will retail at ¥500,000 (£2,500).

The first player on the market for the new medium has one surprise up its sleeve, however: a dedication to two-channel stereo playback. There is no facility for multi-channel operation, said to be one of the major advantages of the new high density discs.

Accompanying the player is a complete amplification and loudspeaker system designed to make the most of the format's wide bandwidth and signal-to-noise ratio. These consist of a TA-E1 analogue preamp and TA-N1 MOS-FET power amp, both with linear phase circuitry,




○ Sony's SCD-1: incorporates a number of anti-piracy measures.

and the SS-1E US designed speakers which claim bandwidth up to 100kHz. The SS-TW100ED super tweeter from this design is available separately. Prices are of the 'if you need to ask...' variety

At launch Sony Music will release 13 SACD titles to be followed at a rate of ten a month thereafter. The format incorporates a number of powerful anti-piracy measures including invisible watermarking – discs without this will be rejected by players – and content encryption.

Discs can be produced in single or double high density layer versions or as hybrid CD/SACD dual layer types so they can be played on both types of machine. Sony UK ☎ (01932) 816000

Merakulous Speakers!

 Rockport Technologies claims to have created "the ultimate two-way loudspeaker". The Merak is a standmounter supplied with its own dedicated stand, all for the not inconsiderable sum of £13,995 per pair.

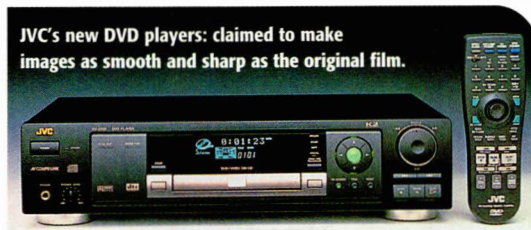
The speaker is housed in a cabinet made from a 54mm sandwich of high tensile glass-reinforced resin and mineral-filled epoxy core. Cabinet geometry is designed to reduce internal standing waves and diffraction modes, and the alleged result is a construction so inert it makes no discernible contribution to sound at any frequency or volume.

The mid/bass unit is sourced from Danish Audiotechnology, hand-picked for its freedom from dynamic compression, while the Dynaudio Esotar tweeter is described by Rockport as the most advanced soft dome unit available. The crossover for each speaker is built on a half-inch thick aluminium base and recessed into the stand. Any audiophile looking for a money-no-object standmounting speaker should call the number below for details.

Absolute Analogue ☎ (01425) 654488




Rockport's Merak standmounter: perfect if money's no object



JVC's new DVD players: claimed to make images as smooth and sharp as the original film.

JVC's DVDs


 JVC has announced details of two new DVD players set to join its range.

The XV-D701 is the more costly of the two, priced at about £500, and JVC makes particular claims about the quality of its sound. Apparently, it delivers "an exceptionally wide dynamic range," and a Dolby Digital decoder is built-in. The XV-505, in the region of £400, does not have the integral decoder.

Both players feature JVC's 'Video Fine Processor', a picture filtering system that's claimed to make images as smooth and sharp as the original film. They're in the shops now.

JVC ☎ (0181) 450 3282

Nucleus family grows

 TDL has spawned a big brother for its entry-level Nucleus family – a new range-topping, floorstanding speaker called the Nucleus 4.

At 90.5cm tall, it packs in a pair of 13cm mid/bass drive units to give more bass, greater power handling and an increased sensitivity of 90dB. A 19mm soft dome tweeter handles treble, and there's a choice of three finishes: black ash, rosewood and cherry.

The speakers cost £300 per pair – check out the September issue of *Choice* for a full comparative review.

TDL ☎ (01628) 850111



○ TDL's Nucleus 4.

NEWS IN BRIEF

950 is a half-open model at £70, apparently more suitable for classical and jazz. Both headphones feature velvet ear cushions and ergonomically-shaped ear pads for comfort. ☎ (0171) 286 8961

CHORD ELECTRONICS is the latest company to use a celebrity to promote its products. Apparently, contemporary composer David Arnold has taken delivery of a Chord SPA1032 amp for his studio at Sir George Martin's Air Lyndhurst recording complex. This follows PMC's gratuitous use of the PMC-owning Robbie Williams in recent full-page advertising, together with Technics' blatant ploy of giving free turntables to zeitgeist-influencing bands like Cornershop and Asian Dub Foundation. Who's next, we wonder – TAG McLaren and Elvis Costello? ☎ (01622) 721444

ONE FOR ALL has launched a range of indoor antennas suitable for FM radio reception, as well as UHF/VHF TV signals. The SV-9010 (£15), SV-9100 (£20) and SV-9110 (£30) are available now, the last two incorporating built-in signal amplifiers which give them "the highest signal gain on the market". ☎ (0121) 454 9707

DIGITAL ONE, the national commercial digital radio operator, began test transmissions across central London from Crystal Palace on April 16. Further transmitters around the UK will go live at the rate of one a week between now and the launch of the Digital One multiplex during the last quarter of 1999. The multiplex plans to launch seven digital-only national commercial stations, along with simulcasts of Classic FM, Talk Radio and Virgin. ☎ (0171) 344 2718

BEAUHORN has upgraded its top-of-the-range Virtuoso Reference horn-loaded speaker (right). It now incorporates a new phase plug, the alleged result of which is smoother, better integrated performance through the midrange and treble. The speaker now costs £4,130. ☎ (01424) 813888



THE JAPANESE ELECTRONICS industry is forecast to grow in 1999, according to a report published by the Electronics Industry Association of Japan. The turnaround is expected due to an anticipated recovery in the Asian and Japanese markets, and relatively strong European markets. Production in the consumer electronic equipment sector is forecast to see a 0.6 per cent increase from 1998, owing to the continued expansion of the digital AV market. ☎ (0171) 799 9811

NCT Audio Products has developed a special MTV speaker to join its range of Gekko Flat speakers. It sports an "unconventional shape", designed to appeal to fans of the music-based TV station, and features a series of printed grills created by MTV graphic artists. ☎ (01954) 205502

NEWS IN BRIEF

KEF'S in-wall speaker range continues to grow with the arrival of the Ci Series Reference 2000, a three-way design priced at £700 per speaker. It features a pair of 16cm bass drivers, together with the same 16cm Uni-Q mid/treble combination unit featured in the Reference Series Model 4. ☎ (01622) 672261



WRAPTURE is a new "gift wrapping solution" for anyone giving a CD as a gift. It consists of a cardboard sleeve into which the disc slots, with a detachable wrap-around card, gift tag and seal. It's available in a variety of designs from branches of Tower Records, Selfridges and Army & Navy stores. ☎ (0171) 470 8837

DIGITAL COMPACT CLASSICS has obtained the rights to more than 60 hours of unreleased Frank Sinatra material. The company has an exceptional reputation for audiophile standard recordings, and each release will be available in both 24 carat gold CD and 180g vinyl formats. Call Vivante for details. ☎ (0181) 977 6600

SMC is set to launch the Opal 25iSE, a substantial single-ended, class 'A' integrated amp priced at £1,975. In the pursuit of a valve-type sound, a "unique" drive technology is used to emulate classic valve circuit topology using solid state devices. Independent signal staging negates the need for overall negative feedback to obtain bandwidth, and SMC claims it can maintain a high level of definition even at extremely low volume. Six inputs are provided, five line-level and one phono, and power is conservatively rated at 20 Watts per channel. More Opal products are to follow. ☎ (01709) 579010

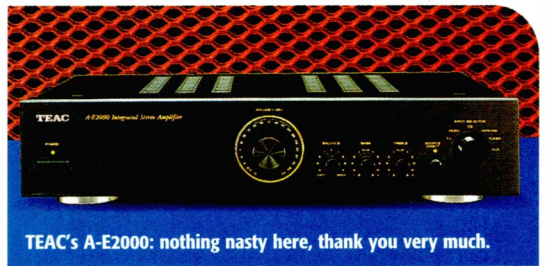
MATSUSHITA (Panasonic) and Toshiba have announced the development of a content protection framework for DVD-Audio. It includes encryption, which allows only one copy of a disc to be made per recorder, and watermarking, which will allow recordings to be traced back to their original source. If the system is agreed and implemented within the music industry, it will remove the final hurdle holding back the full-scale production of DVD-A, due to begin any moment now. ☎ (01344) 862444

ALPHASON'S AKROS range of hi-fi supports now includes models for mini and micro-sized systems and components. The supports use rigid tension rods concealed in brushed aluminium struts, with toughened safety glass shelves. Built-in 'letterbox' CD storage completes a sharp-looking package. ☎ (01942) 678000

TEAC control

TEAC claims to have brought high-end technology down to budget prices with its new A-E2000 amplifier. This £180 integrated design incorporates what the company calls a Unifactor circuit, a DC reservoir that is said to hold more energy than 60 large capacitors and draws current in a far more even fashion than usual. This reservoir supplies a switch mode power supply which in turn provides a regulated supply for the amplifier.

The A-E2000 delivers 50 Watts a side via DC-coupled and servo-controlled circuitry, cascaded and independent feedback and inputs that are switched on both signal and ground lines. Designer Peter Hawkins has also taken a novel approach to amplifier protection, monitoring just 0.0008 per cent of the output leaving



TEAC's A-E2000: nothing nasty here, thank you very much.

the rest unsullied yet ensuring nothing nasty comes out. In other respects this TEAC looks much like a budget amp – there are defeatable tone controls and six line inputs, while the output into four Ohms is 70 Watts. However, the metal fascia, two pre-outputs and power input and 'heavy duty' binding posts suggest a more ambitious design than the price would suggest.

TEAC UK ☎ (01923) 819630

Yamaha: new for 1999

A CD player, two CD multiplayers, a DVD player and a MiniDisc recorder are among the new products Yamaha is adding to its line-up.



The CDC-393 MkII slots into the existing CD player range at £130, with a strong range of functions including an optical digital output, three display illumination levels and comprehensive programme and tape edit modes. The more affordable of the multiplayers is the CDC-575 at £180. It, too, has plenty of features, and incorporates the 'PlayXchange' system which lets you swap discs while one still plays. The CDC-675 adds a few extra facilities, including a headphone socket, for an extra £50.

The DVD-S795 is a £530 machine complete with 24-bit/96kHz audio and 10-bit video DACs, a built-in Dolby

Yamaha: boosting its line-up with new CD and MD players.

Digital decoder and several sound/vision optimising modes. On the MiniDisc front, the MDX-595 recorder slots in at £230 with a versatile array of edit functions.

Other products available now from Yamaha on the home cinema side include the RX-V395 (£200) and RV-V395RDS (£250) receivers, the NS-P300 speakers package (£200) and three subwoofers – the YST-SW45 (£140), YST-SW90 (£180) and YST-SW160 (£280). Yamaha ☎ (01923) 233166

New from JBL...

JBL is set to unleash four new speakers – one standmounter, two floorstanders and a centre speaker. The standmounter is the Ti 200, a two-way design using a 17cm mid/bass driver and priced at £400 per pair. The £550 Ti 400 is the first floorstander, featuring a 17cm bass driver and 11.5cm midrange unit. Top of the range is the £650 Ti 600, another three-way floorstander which adds a 17cm bass driver to the Ti 400's spec. For those putting together a multi-channel system, the Ti 100 Center crams in two 13cm mid/bass drivers at £200.

All four speakers feature a 25mm dome tweeter unit made of titanium. Each bass and midrange unit sports a coated paper cone, with a high power voice coil and a chassis engineered from mineral loaded polypropylene. Cabinets are fashioned from MDF and finished in wood veneer. For a full review of the Ti 200, check out the September issue of *Choice*. Gamepath ☎ (01908) 317707

YBL's Ti 600 three-way floorstander.



MT in at the deep end

British brand Musical Technology has plumbed greater depths with the launch of two subwoofers. The PMS 45 is the more affordable of the pair and joins the company's professional monitor range at £500. It features an extensively-damped, 45 litre enclosure fashioned from 18mm thick MDF, and incorporates a 210mm aluminium-coned drive unit.

The Tercel, meanwhile, comes in a choice of five wood finishes and has a £700 price tag. Its drive unit sports a polystyrene and glass fibre laminate diaphragm built onto a 31x21cm cast aluminium ovoid chassis.

Both subwoofers feature the same crossover and integral 150 Watt amp, and come equipped with balanced and unbalanced line-level inputs, plus connection at speaker level. They also offer a dedicated 5.1 channel input, bypassing the crossover when used with suitable equipment.

Musical Technology ☎ (01656) 842000

Musical Technology gets deeper and down.



Viennese Waltz



A new four-strong range of speakers from Austrian outfit Vienna Acoustics is hoping to bring the sound of music to British living rooms.

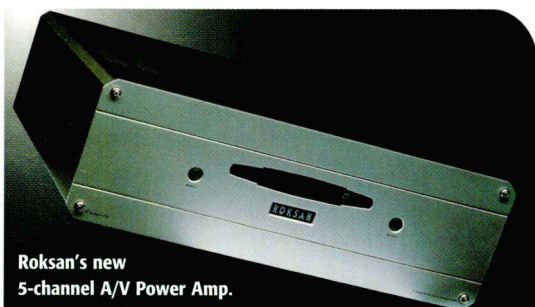
The line-up starts with the Haydn at £650, a two-way standmounter with a 25mm silk dome tweeter and a 14cm mid/bass driver, housed in a 34.5cm high wood-finished cabinet. Next comes the Bach at £1,000, an 86.5cm high floor-stander featuring the same tweeter with an 18cm mid/bass unit.

The 94cm high Mozart slots in at £1,500, sporting a more advanced 28mm silk dome tweeter and twin 14cm mid/bass drivers, and the range is topped by the Beethoven – a towering £2,500 floorstander that packs two 18cm bass units, a pair of 14cm midrange drivers and a 28mm tweeter. All are available in black or beech finishes, with a rosewood option available at a premium.

So, that's four different speakers, each named after a revered classical composer? Ah... Vienna. Henley Designs ☎ (01491) 834700



Viennese slice: the cab's got the cream.



Roksan's new 5-channel A/V Power Amp.

Caspian. See?



Roksan's highly-regarded Caspian range has entered the multi-channel arena with the Caspian 5-Channel A/V Power Amplifier.

Priced at £995, this self-explanatory product delivers 80 Watts of power to each of five speakers, or 140 Watts into two. It can be slotted into an existing system or linked with the forthcoming Caspian Digital Surround Sound Processor to forge a high quality audio/visual amp partnership. Among the gubbins under the lid is a low noise, low leakage toroidal transformer.

Roksan is the latest British manufacturer traditionally involved with high quality two-channel hi-fi components to begin launching multi-channel products, following the likes of Arcam, Cyrus, Myriad and TAG McLaren. It's a trend that reflects the increasing influence of home cinema in the UK audio market, and also the growing profile of multi-channel music on DVD. According to a Roksan spokesman, it makes simple business sense: "We're entering a boom in the hi-fi industry, led by home entertainment [home cinema/surround sound]. Any company serious about its future has to look at this area – we actually started development two years ago." Roksan ☎ (07000) 765726

PAUL MESSENGER

What do you want, style or content?

For the past three and a half years, B&W's 600 series loudspeakers have been high up the UK hi-fi sales charts. Well, the rave-reviewed and multi-award winning 601, 602 and 603 have been. (The 604 was kept well away from most UK reviewers, so never had the same impact.)

More details of the 600's new S2 replacements are found elsewhere in these news pages, but the background and context is worth further exploration. The changes seem logical, well thought through, and actually sounded rather convincing in the A/B dem we were given of 603S2 versus 603.

When I reviewed the original 600s, I was conscious that the tweeter wasn't the nicest sounding around. One reason for this was explained at the press conference. The 'perforated doughnut' shaped ring in front of the metal diaphragm was fitted to focus and thus increase the tweeter output in a forward direction, but the down side is some compromise in the off-axis smoothness.

The tweeter which is the key feature of the S2 range has a more powerful magnet and can therefore omit the ring modifier, which should improve the smoothness. The tweeter's new rear loading tube and better components in the crossover feed should also help the top end sound cleaner.

What did surprise me was that so little attention appears to have been paid to the cosmetics. In 1996 the 600s weren't exactly in the vanguard of loudspeaker style. In 1999 the almost identical looking S2s seem decidedly staid and dowdy, especially compared with what some of the competition is offering.

The new five-strong range carries price tags of £199, £299, £549, £849 and £1,399, and if vinyl finish is still pretty much the norm for the two cheaper, stand-mount models, it's getting unusual these days to find it above £500, never mind up at £1,400. Not only are the S2s resolutely vinyl-clad, they also seem to have ignored the widespread trend towards slimmer speakers. As a fashion statement, Series 2 is a disappointment.

But that may be to misunderstand them and where B&W sees them. If you want style and lounge-friendly decor, B&W has the P-series or the CDMs, for example, to fit the bill. If you want slimline styling on a budget, the 300 series offers that. The 600s are about providing best performance at minimum cost, so vinyl finish is inevitable and fashion doesn't get a look in.



B&W's 600 S2: resolutely vinyl-clad.

Slimline boxes might appeal to the houseproud, but a slim baffle restricts the size of the main driver, and that in turn will limit the bass, the dynamics and headroom, the sensitivity, and loudness capability. How small a main driver can you have without compromising fidelity? It's a debate with no clear answer and plenty of conflicting views.

Clearly B&W is reluctant to drop below the 120mm cone used in the 601S2, just as it continues to use a cast alloy frame at an unusually low price. And history seems to be on B&W's side. It's been making models which broadly follow the 601S2 and 602S2 formulae for more than two decades. Turn up the first *Hi-Fi Choice: Loudspeakers* from 1976, and you'll find a B&W DM4 which has a lot in common with the 602S2. They're not identical, of course, but the parallels are too obvious to be mere coincidence. The fact that the price has roughly doubled over that 24-year span shows how effectively speakers have beaten inflation, although it's only fair to point out that real wood veneer was the only game in town back in 1976.

It's sobering that, despite the detail refinements, which have improved power handling in particular, the plot remains much the same. For a good overall balance, there does seem to be a naturally 'correct' size of speaker for any given room volume. I've pretty well worked out the formula which links bass driver size and sensitivity in my 4.3x2.6x5.5m room. The room itself is the unpredictable factor, beyond the basic dimension-based room modes. Some simply seem to soak up more bass energy than others depending, presumably, on how they are built.

PREVIOUSLY UNHEARD

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



SPACE GOATS Tribadelica

Space Goats are the unsung heroes of Glastonbury, Newbury and many other fests, squats and sit-ins. Despite being fronted by the charismatically strange Pok — the smoking woman's Marc Bolan — they remain underground, often literally. This 1992-1998 collection has been expertly remastered by ex-Sex Pistols and Afrika Bambaataa producer Dave Goodman and shows what Goat fans always claimed they had — a touch of musical genius. *Touch The Land* rings like a bell while *Inamorata*, their lost concept album, is chocka with mixes that swell like tides, melodies to die for and lyrics that make *Ogden's Nut Gone Flake* look like a car advert. Imagine the Small Faces, Jethro Tull and Donovan jamming after a meal of magic mushrooms. The new hippie chic? Inside their 'rainbow dream' they really mean it, maaan. A genuinely weird stereophonic trip.

Mandala (0181) 761 3288 ★★★★★

VAN MORRISON Blowin' Your Mind

The 1967 solo debut from the man from Them, Ireland's own original rhythm 'n' booze merchant. *Brown Eyed Girl* and

Midnight Special are amongst the breezy self-penned gems. There's CD and vinyl of this, the former sounds a tiny bit crisper but the mid-price CD has five bonus tracks. You pays yer money...

Epic CD/Simply Vinyl LP ★★★★★

KING AND HERINGMAN WITH CHARLES DANIELS *Airs de Cour*

As I'm sure we're all aware, poetic love songs were where it was at in Louis XIII's court. This disc is a recreation, by Catherine King and Jacob Heringman, of those odas. They are aided by Charles Daniels on lute, and very beautiful it is too. Think Cocteau Twins go 17th century ambient. Recorded by Linn, where even the temps are stars.

Linn ★★★★★

VARIOUS Dave Godin's Deep Soul Treasures Vol. 2

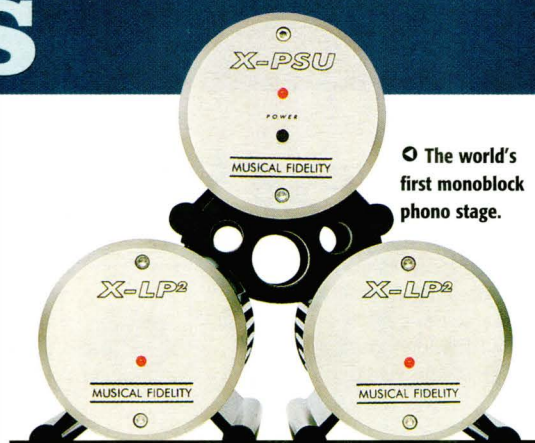
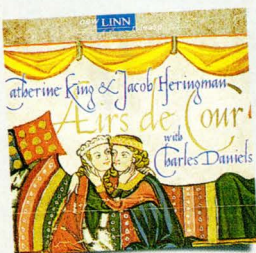
Dave G, who's written more words on soul and resurrected more careers than anyone else alive, picks another 25 heartbreakers from the 1964-1971 golden age. The audio quality is damn good as he's tracked down original master tapes (unlike many who simply settle for copies of copies) to bring us the sublime keyboards on the Soul Children's *Sweeter He Is* and the quivering guitar on Ben E King's *It's All Over*. Makes swingbeat look deeply shallow.

Kent ★★★★★

SQUEEZE East Side Story

East Side is full of 1981's trends — rockabilly shuffles, soul parodies, power pop — yet remains timeless, perhaps because of the sheer quality of the songs — aided by the Roger Bechirian-Elvis Costello production, of course. Did the country style *Labelled With Love* lead Costello into C&W?

Mobile Fidelity ★★★★★
— from Vivante (0181) 977 6600



• The world's first monoblock phono stage.

All phono-thing



The latest crop to emerge from Musical Fidelity's ever fertile product farm is especially for vinyl obsessives. The X-LP2 is described as the world's first monoblock phono stage — it splits the amplification for each channel into two separate boxes, improving the isolation of delicate audio signals from unwanted interference.

Musical Fidelity claims exceptional accuracy from the X-LP2's RIAA equalisation, a bass boost/treble attenuation function performed by all phono stages — it produces a flat response by mirroring the bass cut/treble boost applied during disc mastering. An outstanding signal-to-noise ratio and ultra-low distortion are also claimed.

Both moving magnet and moving coil cartridges are catered for, with a selection of four input impedances for the latter. Each set also comes with a separate X-PSU power supply and an X-Cite mount for placement purposes. The X-LP2 will be available from August, priced at £499; it could be just the thing for listening to the stunning selection of turntables and cartridges we're featuring next month's issue.

Musical Fidelity ☎ (0181) 900 2866

Nakamichi joins DVD race



Nakamichi's return to the UK market continues with the launch of its first ever DVD player. The DVD-10 is an £800 machine with integral Dolby Digital decoder and a 24-bit/96kHz compatible DAC. A high precision twin-focus laser pick-up contributes to, in Nakamichi's own terms, 'an unbelievably high-fidelity performance with CD', while comprehensive on-screen displays help the user optimise his/her own speaker configuration.

On the video side, the DVD-10 uses a 10-bit DAC — 8-bit digital video data at a 13.5MHz sampling rate is converted to a 10-bit word length and oversampled to 27MHz for 'exceptional clarity and detail'. The player is in the shops now.

BBG Distribution ☎ (0181) 863 9117

• Nakamichi's DVD-10 offers 'exceptional clarity'.





JIMMY HUGHES

Jimmy's after something new to help clean up his acts

Just connect The Conductor by Matisse to a spare input on your amplifier and you'll get a noticeable improvement in clarity and cleanness. It's as simple as that.

Magic? Not quite. The Conductor is designed to absorb high-frequency noise present on your amplifier's ground rail. Matisse principally targets the noise produced by CD players and other digital components. But the modern world is a 'dirty' place and the atmosphere is heavily contaminated with RF noise, so every little helps.

The unit itself comes in a small heavily-finned package, looking not unlike a tiny power amp. However, it doesn't get warm, although

“Once experienced, the Conductor is difficult to live without. The enhanced clarity, transparency and resolution are highly addictive. I made a few adjustments elsewhere to sweeten up the sound, thereby getting the very best of both worlds.”

the heatsinks look pretty cool. No circuit details are given and, because the innards are potted in epoxy resin then sealed into the aluminium casework, it's difficult to tell what's inside. But work it certainly does; you can really hear the difference.

Subjectively, The Conductor cleans up the sound, reducing high-frequency hash and graininess. The music sounds clearer, more transparent and more crisply focused, with less glare. A two-position switch alters the frequency at which The Conductor operates, allowing you to tailor it to your system.

After many comparisons, I settled on position two, which seemed to give better instrumental separation and

slightly firmer low frequencies. Position one was marginally warmer and a shade more diffused — although either setting was cleaner and better focused than the sound without the unit.

Although The Conductor produced a worthwhile improvement connected to my amplifier, it proved even more effective when attached to a spare socket on the Meridian 518 digital processor I use between CD transport and DAC. This makes sense. After all, it's better to kill noise at source than try to do so later.

So, if your CD player has a spare phono socket (analogue or digital), try The Conductor here too. It might even be worth using more than one Conductor — say, on the amplifier, and on the CD player. Using two Conductors you'd have the option of setting the frequency switch to different positions, thus dealing much more effectively with RF noise.

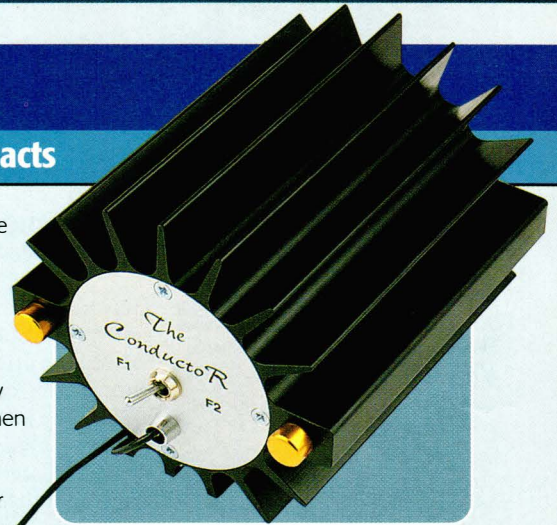
Matisse suggests that, after the unit has been fully run-in, you might want to make fine adjustments to your system. Because The Conductor enhances resolution, you'll be able to hear the effect of subtle changes that would probably have been masked before. But this works both ways.

In my system, the upside was a cleaner more sharply delineated presentation, greater dynamics, and superior fine detail; the downside was a more forceful 'projected' sound, which sometimes made the music seem less sweet and beguiling. The extra clarity brought with it a slight increase in tonal hardness. Nevertheless, once experienced, The Conductor is difficult to live without. The enhanced clarity, transparency and resolution are highly addictive. I made a few adjustments elsewhere to sweeten up the sound, thereby getting the very best of both worlds. At £349.99, it's certainly well worth trying.

GT Audio ☎ (01895) 833099

AND FOR THE MAINS COURSE...

Some months back I enthusiastically endorsed the Power Wedge mains conditioner, and it was sorely missed when it went back. My system sounded noticeably more contained and less well separated and three-dimensional with it gone — a good thing, because it confirmed that the first impression made by the device wasn't imaginary. So I was intrigued when the same importer told me he now had something



The Conductor's fantastic aluminium casing contains highly effective circuitry — but it's all sealed inside.

he felt was even better and cheaper — more power for less wedge, no less. Esopower from Italy offers a range of mains purification devices from a simple distribution board to a fully isolated and conditioned mains supply costing several thousand pounds.

Power Wedge worked by isolating pairs of output sockets via special transformers and had restricted current delivery, with sockets for low-level components and others for heavy devices like power amps. But the Esopower mains board has no such restrictions.

It's basically a filtration system, targeting high-frequency noise on the mains in the 1mHz to 100mHz range, reducing both common-mode and transverse-mode noise. The board has six 13amp mains sockets — four for standard components and two for digital products. It's simple to use; I tried it and immediately felt things sounded more refined with greater tonal purity.

Subjectively, both on my own system and a friend's, the result was a sweeter, smoother presentation with cleaner treble. At the same time, the music also seemed slightly quieter and less dynamic, with reduced contrast between loud and soft. The effect was by no means unpleasant, but there was perhaps a slight loss of vigour and brilliance to offset against the increase in refinement.

It's always difficult to say if this kind of change is due to the elimination of mains 'dirt' that adds a false edge to the sound, or whether something vital is being eroded in the process of the mains being filtered. Subjectively, much will depend on your system; the more forward and aggressive it sounds, the better you'll appreciate what the Esopower distribution board does. At least, that's my expectation.

At £400, the Esopower board is cheaper and easier to use than the Power Wedge I tested, but more expensive than Russ Andrews' six-way Kimber mains board, which I prefer. Looking at its range, Esopower also makes a Line Conditioner that looks similar in concept to Power Wedge costing £1,100.

Try to hear both before deciding. Audiofreaks ☎ (0181) 948 4153



The Esopower mains board: socket and see.

IN THE Beginning...

All audiophiles need to start somewhere. **Tim Bown** listens to a £1,000 separates system, as recommended by the Audio T dealership.

THE SYSTEM

Marantz CD-67MkII OSE CD player	£300
Arcam Alpha 7R amplifier	£300
Tannoy Revolution R1 loudspeakers	£200
Mission Stance speaker stands	£100
SonicLink Black interconnects	£49/m pair
SonicLink AST200 s.cable	£59.50/5m pair
TOTAL COST	£1,008.50

A bloke walks into a hi-fi shop. He's got his cheque book with him and he's ready to sign away up to £1,000 of his hard-earned on his first separates system. He only plays CDs these days, and his tastes stretch from light classical to heavy rock. But while he's heard that separates should sound better than his old midi system, he hasn't got a clue where to start. He strolls over to the nearest store assistant and explains the situation... his hi-fi adventure has begun.

So went the story when we first approached the Oxford branch of hi-fi dealership Audio T. We needed a set-up for this

month's dealer-recommended system, and our intention was to keep the price at a realistic 'just starting out' level.

Sure, the guys in-store would've loved us to let them loose on something more exotic, but there it was - we needed a CD player, amp and speakers, together with suitable speaker stands and cable, for a (literally) grand total and not a penny more. Well, not many pennies, anyway.

After mulling over the variables, Audio T got back to us with a system it was sure would fit the bill. On paper it makes a lot of sense: with electronics from Marantz and Arcam, two of the biggest names in the UK market, and speakers from the equally respected, Marantz-affiliated firm Tannoy. Could this be the way to begin a life-long love affair with high-fidelity sound? Before we attempt to answer that, let's take a closer look at the individual components.

COMPONENT PARTS

In case you didn't know, Marantz makes some of the UK's biggest selling CD players. The company has garnered a strong reputation for refined sonic engineering and, although not everyone has warmed to the 'Marantz sound' over the years, there's no doubt it has been responsible for some extremely competitive products. The CD-67MkII OSE (see HFC 184) is Marantz's most

"The Marantz CD player's performance can be quite stunning given the price, most notably with simple, acoustic styles of music. It's a capable starting point for a sub-£1,000 system."

recent addition to its sub-£500 range, sporting familiar aesthetics and nestling just below the hugely popular CD-63II KI-Signature. It's a relaxed and cultured-sounding player which delivers good detail and possesses a penchant for a well-recorded vocal.

Its performance can be quite stunning given the price, most notably with simple, acoustic styles of music, but as the tempo hots up it has a tendency to sound rather hard and soul less. Still, it remains a capable starting point for a sub-£1,000 system, providing you play to its strengths.

And so we move down the chain to the amp department, ably occupied by Arcam's £300 Alpha 7R. As the name implies, this evolution of the Alpha 7 features remote control as standard, with volume and muting operational via a snazzy little remote. It's also a little more powerful at 45 Watts per channel, and features a few performance tweaks under the hood, paving the way for a promotion within Arcam's ranks - it's no longer the entry-level model; that

◉ For a laid-back sound with acoustic styles it's hard to imagine a better buy.



position now belongs to the more recent Alpha One. Arcam's lower priced amps have long been a British favourite, regularly cropping up in lofty positions on the list of best sellers. The recipe with which the company has cooked such success is simple: a fine blend of practical facilities and a substantial, accommodating 'house sound' ensures they're easy to partner and easy to live with. The 7R follows the theme to a 'T'. Although its sound could do with a little more enthusiasm, it's undoubtedly a well-rounded product.

Indeed, similar comments could be made in reference to Audio T's choice of speaker for this system. The R1 (see HFC 187) is a spruced-up version of Tannoy's excellent little £120 M1 standmounter, complete

“it offers a strong bank of facilities and the reputation of each component suggests a high-value sonic fusion when it's all working together. Ultimately, though, the results are a little mixed”

with an all-MDF cabinet, real wood veneer and tweaked crossover components. Few speakers at £200 are so beautifully finished, combined with an eminently civilised sound and definite strengths in imaging and midrange quality.

On the flip side, its dynamics are somewhat limp and performance is muted at the frequency extremes – sound per pound, the basic M1 is arguably a better speaker, though the more you spend in the amp department the better the R1s get.

But there's more to come from our £1,000 budget. It's important not to skimp on stands and cables, even with a system of comparatively low cost, and to support the speakers Audio T has plumbed for a £100 design fresh from the Mission stable. The Stance is a simple, bolt-together stand featuring three columns sandwiched between base and top plate, the largest of which

is fillable to add mass. Its construction is smart and sturdy, the finish black or silver, and when it comes to sound the guys in-store reckon it's a touch more lively than rivals from the like of Atacama. Given the nature of the speakers, that's no bad thing.

Cables come from SonicLink, with the £5.95/m AST200 lining up between amp and speakers – see next month's issue for a full review. Interconnect between CD and amp is the excellent value Black at £49 (see HFC 176).

SOUND QUALITY

This is all high-profile kit at the 'value' end of the market. It looks good, it offers a strong bank of facilities and the reputation of each component suggests a high-value sonic fusion when it's all working together. Ultimately, though, the results are a little mixed: in some respects it's excellent for the money, but I have to say I have some reservations.

Its general tone is relaxed and well-mannered to a fault, eschewing the abrasive edges that can plague a system at this price level and replacing them with a genial sense of calm.

Weight and body are pretty substantial given its nature, and well-polished imaging adds to the cultured, cohesive musical impression.

Fine so far, but where are the fireworks? In terms of pace, punch and dynamic expression it's reasonable to expect more from a carefully-chosen £1,000 set-up – particularly when the musical tempo is cranked up a notch. Bass and rhythms miss authority and drive, and there's a distinct lack of sparkle in the treble, the net effect sounding rather sat-on.

All of which leaves this system with a distinct sound you might just love, but you might also loathe – it really depends what you listen to and, perhaps more importantly, how you want to listen to it. For a laid-back sound with acoustic styles (classical included) it's hard to imagine a better £1,000 buy, wooed as you are by a level of subtlety and flow rare at the price. It's easy on the ear, relatively transparent and its character is calmer than most.

But if you crave drama with your music, and particularly with material based on rhythm

and pace, you're likely to find it rather lumpy and lifeless. A spin of Massive Attack's Unfinished Sympathy shows both sides: the strings and vocal sound impressively fluid, but bass is flat and there's a lack of air up top.

So if you're in the market for a system at about a grand, the bottom line here is: it's got the looks and facilities – and, if you like a laid-back presentation, it's got the performance. Value for money is strong, especially if you crave a sound that soothes, but at the end of the

day it couldn't quite move me. Worthy... just a little bit dull.

VERDICT

SOUND	★★★★☆
SYNERGY	★★★★☆
VALUE	★★★★☆
PRICE	£1,008.50

There's some definite class in this 'entry-level' system's sound, but its smooth nature is a little lacking in spirit. Good value, as long as its strengths play to your needs.

Audio T, Oxford (01865) 765961

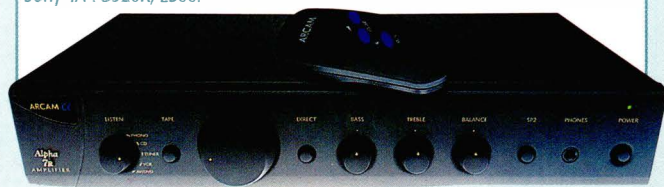
THE SYSTEM COMPONENTS

AMPLIFIER

ARCAM Alpha 7R, £300

A smooth and well-balanced 45 Watt amp with a healthy array of facilities: remote control, defeatable tone controls, one phono and four line-level inputs, a tape loop, pre-outs and twin sets of speaker terminals.

Alternatives: Audio Analogue Puccini, £475; Marantz PM-66 KI-Signature, £400; Sony TA-FB920R, £300.



SPEAKERS

TANNOY Revolution R1, £200

Good-looking standmounters with a smooth, refined sonic style and strong imaging characteristics. Sensitivity is rated at 87dB and impedance is 8 Ohms.

Alternatives: B&W DM601 Series 2, £200; KEF Q15, £200; Heybrook Heylette B, £200; Mission 772, £250



CABLES & SUPPORTS

We used Mission's new Stance speaker stands (£100) to support the Tannoys, with SonicLink AST200 speaker cable (£5.95/m) and Black interconnects (£49) – all recommended by Audio T. Soundstyle equipment supports were also used.

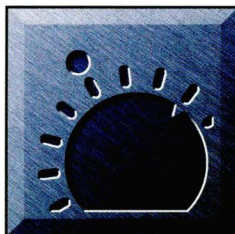
CD PLAYER

MARANTZ CD-67MkII OSE, £300

Latest incarnation of Marantz's CD-63/67 player evolution. It's a familiar recipe both aesthetically and sonically, with a relaxed yet precise nature particularly suited to acoustic styles of music.

Alternatives: Denon DCD-835, £280; Pioneer PD-S707, £300; Rotel RCD-951, £300; Sony CDP-XB920, £300.





PAUL MILLER'S OASIS OF SANITY

You can't convert a digital signal back into an 'analogue' sound without a DAC. The Tech Ed explains exactly what happens inside the box.

Part four in our irregular series on the building blocks of digital audio sees the spotlight fall on the DAC, or Digital-to-Analogue Conversion – the process by which digital code (from CD, MD, DVD or DAT, for instance) is put together to form recognisable 'analogue' music.

In part one (issue 187), we discovered how the original music waveform is described in binary form. When recording for CD, 'snapshots' of the musical waveform are taken at the 44.1kHz sample rate – that's one snapshot per 22.68 microseconds – and the level of the signal is recorded as a 16-bit number.

This last step is called quantisation and with 16-bits of resolution available this yields any one of 65,536 (2^{16}) evenly-spaced 'levels' to describe the instantaneous level of the music signal during each sample period.

A 16-BIT CODE RANGES FROM 16 ZEROS TO 16 ONES AND COMPRISES 65,535 EVENLY-SPACED STEPS:

Number (or Level)	16-bit Binary Word
0	0000000000000000
1	0000000000000001
2	0000000000000010
3	0000000000000011...
... 65532	... 1111111111111100
65533	1111111111111101
65534	1111111111111110
65535	1111111111111111

In practice, CD uses a variation on this theme called 'two's complement' whereby positive-going parts of the music waveform start with a '0' and negative portions all start with a '1'. But for our purposes, it's convenient to think of our digital scale running from 16 0s (fully negative) to 16 1s (fully positive).

Having established how a music signal can be represented on a sliding scale of 16-bit binary words, converting them back uses the same process in reverse. Of course, what seems simple on paper is an engineering nightmare in practice, and one that's spawned a variety of innovative solutions by different manufacturers. This month we'll look at the earliest form of D/A conversion technology used in CD players – multi-bit conversion.

"The conversion process seems simple on paper but is an engineering nightmare in practice, and has spawned a variety of innovations."

FIGURE ONE SETTING THE LEVELS

As each 16-bit word is addressed to the DAC, the level of the music signal at that instant is determined by adding together all the ones and ignoring the zeros. Effectively, each of the 16-bit 'positions' will switch on (1) or off (0) a corresponding current source in the DAC. The total current per 16-bit word equals the level of the music during that sample.

The amount of current liberated by each bit is shown by the green bars in Figure 1. We can see that bit 2 liberates twice as much current as bit 1 but half as much as bit 3, for example. Indeed, as we move up the bit scale, each successive bit will switch on twice the current of the preceding bit.

Clearly, bit 1 liberates the smallest amount of current, and this is known as the Least

Significant Bit or LSB. At the other end of the scale, bit 16 is 'worth' 32,768 times more current than the LSB, and so is called the Most Significant Bit or MSB. In the code adopted by CD, the MSB indicates whether the music signal is positive or negative-going.

Because the LSB represents the smallest 'step' available to the DAC, there are effectively 65,535 LSB steps between the lowest and highest 16-bit word.

For example, the difference between 0000000000000000 and 0000000000000001 is one LSB, as is the difference between 0000111111111111 and 0001000000000000. The building of this type of DAC involves amazing tolerances.

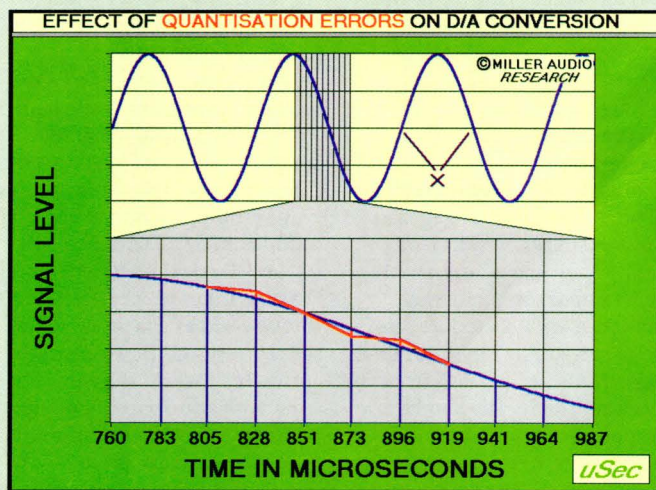
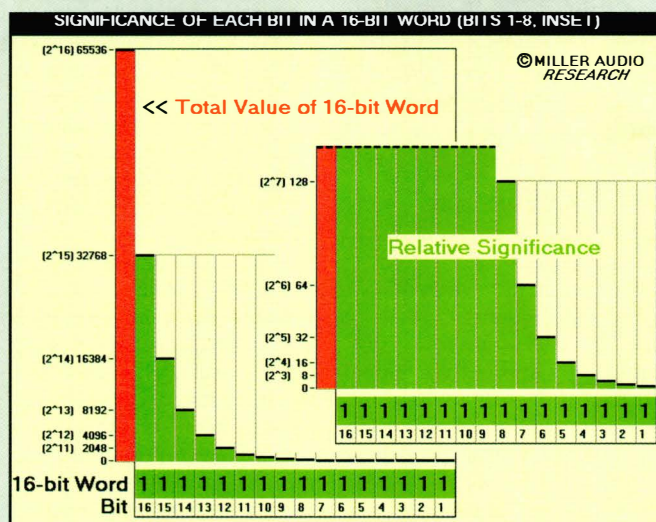
FIGURE TWO QUANTISATION THEORY
Ideally, each of these 65,535 possible increments will be the same size as the LSB. If not, the

THE SIGNAL LEVEL DEPENDS ON THE POSITION, OR SIGNIFICANCE, OF THE 1s IN THE 16-BIT WORD:

	MSB														LSB
16-bit Word	0	0	0	0	0	1	1	0	0	0	1	0	1	1	1
Significance	0	0	0	0	0	1024	512	0	0	0	32	0	8	4	2

Total 'value' of this 16-bit word = 1583

FIGURE ONE AND FIGURE TWO



combined output of all the sources per sample will deviate from the original quantised value. Various sophisticated techniques, including continuous calibration (Philips) and bit-shifting (Analogue Devices), are used to combat these practical difficulties.

In our example (figure 2) quantisation errors are shown in red where certain points on our musical curve occur slightly higher or lower than they should (the black 'X' comes later). This is called non-monotonic conversion and results in a type of distortion

“Another hurdle faced by multi-bit converters is the problem of glitches, which can be likened to a ringing at the beginning of each new sample.”

that's unique to digital systems like CD players. It's the cause of the gritty-sounding 'noise modulation' mentioned regularly in my CD player Lab Reports, for example.

Non-monotonic conversion is most destructive at low signal levels because there are fewer of the 65,536 binary numbers available to describe its precise level per sample. Relatively speaking, the errors become more significant and the distortion more pronounced.

Digital dither is often used to 'smear' this distortion into noise, which is less distracting. We'll cover the topic of dither in more detail next month with *Choice's* exclusive review of Rotel's top-of-the-line RCD-991 CD player.

FIGURE THREE IRONING OUT GLITCHES

Another hurdle faced by multi-bit converters is the problem of glitches. Glitches can be likened to a ringing or

overshoot at the beginning of each new sample and are caused by certain of the 16 different current sources turning on or off faster than other sources. Once again, in an ideal world the MSB current source must react just as quickly as the LSB current source, despite the former being 32,768 times the size of the latter.

Typically, these glitches are removed after D/A conversion using what's known as a sample-and-hold filter (see Figure 3). This circuit 'samples' the step output of the DAC between two successive glitches (in red) and 'holds', or maintains, this output (in blue) through the next glitch. The stepped analogue output of the DAC is therefore shifted by one half of a sample period, missing out the glitches.

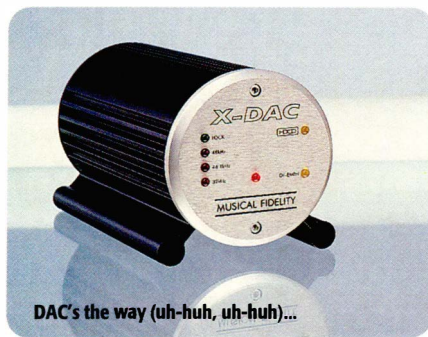
This is a neat idea but demands that the sample-and-hold filter should operate with at least twice the clock accuracy of the DAC itself, and is a potential source of jitter.

FIGURE FOUR THE ZERO-CROSS POINT

Naturally, the magnitude of the glitch depends very much on which current sources are operating during that sample, so the biggest glitch will occur when all 16 of the current sources change state (from 0 to 1 or vice versa).

This only happens once through all 65,536 binary levels and occurs at arguably the most sensitive position in the audio waveform. This is called the zero-cross point, the point at which the audio wave crosses from positive to negative-going or negative to positive-going. It's marked by the black 'X' in Figure 2.

Figure 4 shows the 16-bit binary words that exist at the zero-cross point. This position is flanked by two binary words: 0111111111111111, which adds up to 32,767, and 1000000000000000, which adds up to 32,768, a single step that represents a difference of just 1LSB. So at the zero-cross point, all 16 bits and their respective current sources change state, creating a very large shudder or glitch in the output of the DAC.



Just as crossover distortion in a Class B amplifier is audible, so too this zero-cross distortion can have a subjective impact.

Non-monotonic conversion is also most likely to occur at the zero-cross point. Uniquely, this point sees the 15 Least Significant current sources switch off just as the single Most Significant source turns on (or vice versa). In which case, the output of the single MSB (bit 16) must equal the total output of all the preceding 15 bits plus 1 LSB. The tolerances demanded for accurate conversion in a multi-bit chip are truly monumental.

One way of avoiding glitches, zero-cross distortion and ensuring monotonic conversion is to use bitstream-style conversion — a technology that has its own set of compromises and one we'll explore in a future *Oasis*.

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

GLOSSARY

BINARY WORD: A number composed solely of 0s and 1s. A 16-bit binary word is 16 digits long. As each digit can be a 0 or a 1, there are 2¹⁶ (65,563) possible permutations from 0000000000000000 to 1111111111111111.

CURRENT SOURCE: A type of switch in the DAC that releases a defined amount of signal current. A 16-bit DAC will have 16 current sources, each twice the magnitude of its neighbour.

DAC: Digital-to-Analogue Converter.

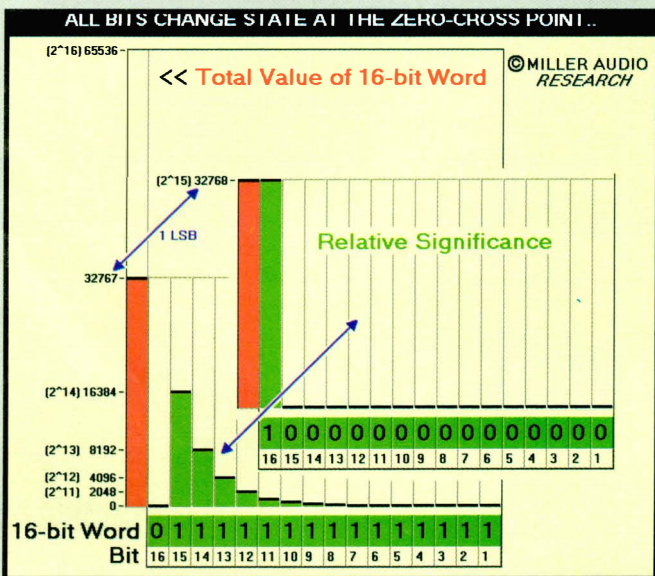
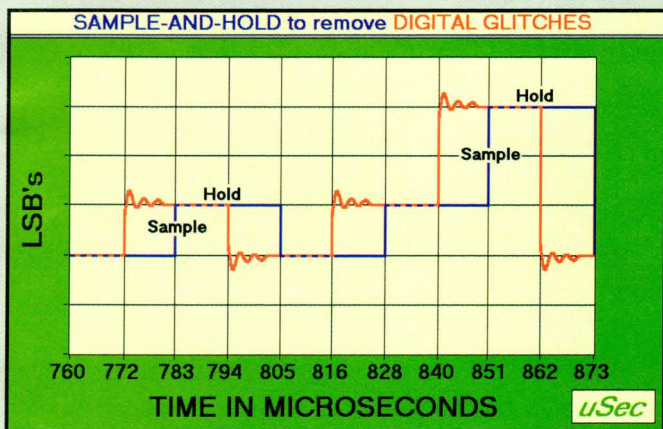
GLITCHES: Ringing caused by bits of varying significance attempting to turn on and/or off simultaneously.

LSB: The Least Significant Bit or the smallest increment in level described by a 16-bit word.

MSB: The Most Significant Bit. This 16th bit is 32,768 times 'more significant' than the LSB.

QUANTISATION: Describing the amplitude of a music signal at any moment in time (a sample) by a 16-bit word.

FIGURE THREE AND FIGURE FOUR



- Integrated CD player
- Integrated amplifier
- Tuner
- Power amplifier
- DSP Surround sound processor
- 5 Channel AV amplifier

Finish: silver or matt black

MODE

CD

TUNER

VIDEO

LINE 1

LINE 2

TAPE

ROKSAN

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whichever way you look at it...

...its award-winning

Roksan Caspian system – January '99
Best Buy
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WHAT HI-FI?

Caspian – '98 winner
Best Buy
Integrated/Power amp
from £1000



Caspian – '97 winner
Best amplification
component up to £1000



Roksan was formed in 1985 to offer sound reproduction systems of the highest quality for the most discerning of music lovers.

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DAVID VIVIAN

Memory Corp reckons we won't be able to tell the difference between the MP3-GO replay and CDs. Oh, won't we?

Looking forward to Matt Groening's new cartoon, *Futurama*. From what I can make out, it's *The Simpsons* meets *The Jetsons*. Groening said in an interview that he plans to have some fun at the expense of the future. I could be wrong, but for me, this can only mean one thing: a future that doesn't work.

Dysfunctional technology – it's the only sort that's funny. So how's this for a storyline fraught with comedic potential? It's the future. Everyone still loves and listens to music. (Worth pointing out, this – when an earless puppet called Flat Eric records a single that goes straight in at number 1 in April 1999, you begin to worry.) Despite being awfully old hat, CDs are still the commodity on which most of the world's music is stored. It's just that no one actually plays them in real time anymore. Spinning disc? Lasers? You can still buy replicas of CD players in Past Times but, in the future, audio is solid state.

In your pocket is a silver handset about the size of what used to be a packet of 20 Marlboro. A 21st Century Walkman? Exactly. Except there are no moving parts. It doesn't play CDs or MiniDiscs; it doesn't use any "physical" software at all. Instead, you plug it into other things and "fill it up" with whatever you want to listen to.

Walk into HMV, Our Price or Virgin and where the headphone booths used to be is a music dock. Top ten singles, album excerpts or a bit of both? Make the selection, plug in and, seconds later, you're juiced up, store credit adjusted automatically.

Then again, you might prefer to make your choice from what's stored in the slightly larger mother unit back at your

apartment. This incorporates a rather old-fashioned CD transport, but only to enable the creation of a personal music library. The mechanism reads the data off the disc and stores it electronically in a compressed form – up to 100 CDs for later instant replay or transfer to the palm-sized personal which can suck up an hour's worth of CD-quality music in a matter of seconds.

"The harder I think about this brave new world, the greater the urge to put an LP on the turntable and relax with the sleeve artwork and notes."

But all that's hardly worth mentioning because the unit's real power comes from being able to download music from a dedicated Internet port. No PC required. And, as everyone knows, the Internet is the new rock 'n' roll.

Still more instant gratification seems to be the wheels on which technology is taking us into the future – a world where pleasure is no sooner sought than supplied. But we don't always want to go where technology leads us. At least not at the speed it

can take us there. If we did, you probably wouldn't be reading this magazine. Even so, it may surprise you to learn that some of the hardware outlined above, far from being mere script fodder for a future *Futurama*, could be in the shops by Christmas. This Christmas.

At least that's the claim of the company that originated the implementation of the technology, Memory Corporation. It's called MP3-GO and, unsurprisingly, Memory Corp has so far built up its business in the field of computer-based digital data management. The stated mission of MP3-GO is to usher in "the next generation of hi-fi... to take computer technology into the consumer-friendly audio environment".

There are still a few technical wrinkles to iron out of the prototypes, but there's little reason to doubt it won't become a commercial reality soon. Amazing.

But am I be the only one who finds the prospect rather less than the "consumer Utopia" Memory Corp proclaims? Perhaps it's the thought of finding the time to record 100 CDs, one by one, in real time, into MP3-GO's solid state storage system. Or grappling with an interface comprehensive enough to allow instant access to any track which it will need to be for a truly Utopian service. Or even the fact that, without very lengthy download times from the Internet, "CD-quality" replay is likely to be nothing of the sort. "Most people won't be able to tell the difference," says Memory Corp's technical spokesman. Oh yes, they will.

To be honest, the harder I think about this brave new world, the greater the urge to put an LP on the turntable and relax with the sleeve artwork and notes.

In principle, greater convenience and choice are Good Things. But they aren't everything. Few of us ever see the money we use to buy things. But, just once in a while, it's good to hold a crisp £20 note between your fingers. One day, like CDs, they won't be common currency. Until then, enjoy.

Because, as Bart Simpson might say, the future sucks.

The top man from the Memory Corporation nervously wonders exactly where the burger from his futuristic Big Mac has gone



CYRUS



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LETTERS

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

LETTER OF THE MONTH

A MOVING EXPERIENCE

I've lost count of the number of times I've read advice in your pages, and others, about the wisdom of experimenting with the siting of equipment, especially speakers. However, apathy or unwillingness to wrestle with heavy boxes and yards of recalcitrant cable can often lead to such advice being given a low priority. Added to this is the opinion that moving speakers about surely can't make that much difference. Oh, can't it?

Recently, my friend and I were listening to his system late at night. He was sunk in the depths of despair at the stubborn refusal of his speakers (Mission 752s driven by Arcam Alpha 7 and Audio Analogue Puccini SE) to produce any convincing bass.

I had to agree with him. Two decent drivers, three ports and sizeable cabinets, yet the bass response was so polite it was positively retiring. 'Why not try them firing down the room instead of across?' I said with no great enthusiasm (it was 1am). I watched, semi-comatose, as my friend huffed and puffed, moving the mass weighted Missions.

Once set up in its new position, he stuck on Harry Connick's *She*, the particular album he had just been complaining about. It was as if the whole system had been replaced. Suddenly there was not only bass – oodles of it – but the whole sound was much more focused and balanced. The bass was deep, tuneful and drove the music along as it should, while the treble was cleaner and sweeter.

So, a massive upgrade in sound quality for the piffling cost of a few calories. The message? Don't just sit there, get them speakers moving!

Ian Manning, via e-mail



Elbow grease readers' own.

Anyway, I'm dropping you a line as a die-hard fan. Friends (at least those with 'ears') are catching on. If it wasn't for Acoustic Precision there would be a lot of us constantly upgrading and changing our gear because 'it just doesn't sound quite right'. Now it does!

Adam, via e-mail

SIMPLY THE BEST...

As an occasional reader – due to issues disappearing from the shelves faster than the speed of light – I'm pleased to see that even the best can be even better. *Choice* looks better than ever, and reads even better still. My hearty congratulations, and keep up the excellent work.

As a reviewer of PC hardware and a publisher of my own Webzine, the above comments may be taken as coming from a not completely uninformed source. However, they are that much more hearty.

Dejan V. Veselinovic, via e-mail

HIGH-END WOES

I'm a subscriber from Croatia and am disappointed with two things about your magazine.

First, it's beginning to look more and more like a high-end magazine. *Choice* used to carry a few high-end reviews, but now it seems it's all high end – and high price! I'm not interested in this type of equipment, due mainly to its price, and now buy other magazines to read reviews of mid-priced equipment.

Second, why does *Choice* limit entry to its competitions to UK residents only?

I've been a reader for many years and would hate to see *Choice* drift too far into the high-end waters at the risk of losing some devoted readers.

Marko Keba, Pula, Croatia

The Editor replies... Oddly enough, I received a call from a long-time reader who thought the April issue was the best he had read, and cited the balance of products as being perfect. Clearly, we can't please all tastes and budgets all the time, so we try to cover as wide a range of products and prices as we can. Hopefully, this month's CD player reviews will be of more interest to you.

As for the competitions, there are three main reasons why we have to



The A300R Precision – more balls than a juggler's convention.

restrict entry to UK residents: mains voltage and frequency can vary in other countries, as can regulations for electronic appliances; the cost of carriage would be prohibitive; the warranty on the products only applies in the UK.

TWEAKIN' MARVELLOUS

In last month's *Editor's Notebook* you talked about the Pioneer A300R tweak by Precision-meister Tom Evans. I thought the A300R

Precision was a stonking amp on its own anyway. When I bought one I was amazed – mind you, all the reviews kinda say as much.

With the latest upgrade the sound has finesse, poise and pedigree. Oh, and did I forget to mention balls? The first thing I noticed was the bass – wow, you can hear everything. It has to be the most stupidly priced amp anywhere. The imagery is ridiculously good. How does the guy do it?

MINI REVELATION

Since borrowing a MiniDisc recorder from a friend, I've finally let go of my prejudices against the medium and am now considering purchasing a Sony MDS-JB920 or the fancier MDS-JA20ES.

However, I have some questions: do MD recorders share similar drawbacks to those of magnetised heads on a cassette deck or the laser lens of a CD player becoming dirty? What remedies do you recommend? Are there audible differences between recordable discs? Also, my CD player only has an optical digital output – are there any optical interconnects you can recommend other than the ones listed in the Directory?

Victor Staffeleu, The Hague, Netherlands

The Editor replies... MD does not have the same problems of head wear that cassette decks do and as yet we haven't heard of laser lens problems. The situation looks likely to end up much like that with CD players where laser wear is not a significant issue.

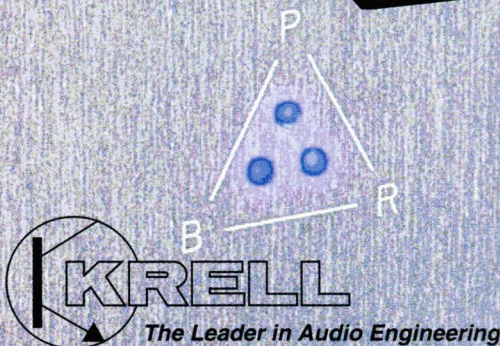
We will be testing blank MD software in the October issue, so until then buy the best you can afford.

Toslink optical cables are not as popular as they once were, so there aren't any others that we can suggest.

Krell's Angels

Full Power Balanced

Academy Advancing High Performance Audio & Video Golden Note Awards '98
 Krell KPS 25s — Audio digital source design
 Krell FPB 650M — Solid-state electronics design



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FULLY REGULATED BALANCED AMPLIFIER



The **Krell Playback System KPS 25s** is the new reference standard integrated transport/digital processor/analogue preamp that beats the performance of separates.

A pro-grade transport feeds ultra-quality data to dual 80MHz Motorola DSP chips in a digital filter system driving separate UltraAnalog® dual-converter DACs for each channel. The result is the world's first x16 oversampling 20-bit decoder/converter. The fully-balanced Class A integrated preamp is among the finest Krell has ever produced. Small wonder then that the KPS 25s has been receiving rave reviews like Robert Harley's in *Fi* magazine (Sept 1998) — "a masterpiece of aesthetic design, functionality and musical performance. To see, touch, and hear the KPS 25s is to want one. Don't say I didn't warn you."



KPS 25s

Krell amplifiers are internationally acknowledged as the very finest solid-state designs. The range of **Full Power**

Balanced designs has re-written audio history. Current mode gain design was first implemented in the **KRC-3** preamp. Unique in the audio industry, current mode gain is a faster, more linear method of amplification achieved by designing gain stages that operate in the current and not the voltage domain. With fully regulated outputs, pure Class A operation, true balanced configuration for a cleaner, more secure relationship between the loudspeaker and the amplifier's driving force, Sustained Plateau Bias II, direct coupled signal paths and full complementary circuits the FPB amplifiers are at the very limits of music technology. Available in 600, 300 and 200-watt outputs each stereo power amplifier (**FPB 600**, **FPB 300** and **FPB 200**) uses output devices manufactured exclusively for Krell by Motorola. The result is an unprecedented level of speed, current drive and musical accuracy, in other words the FPB amps are musical, fast and incredibly strong. Martin Colloms, reviewing the FPB-300 in *Hi-Fi News* (Dec 1996) concluded that Krell's zero feedback design carries with it 'greater neutrality and musicality' yet making no concessions to the 'traditional amplifier virtues of blockbuster bass, huge power and adverse load driving muscle'. FPB monoblocs in 650, 350 and 250-watt configurations (**FPB 600m**, **FPB 350m** and **FPB 250m**) are available in handed pairs.

The natural partner for the FPB range is the Krell **KRC-HR** High Resolution Remote Controlled Preamplifier which offers uncompromised audiophile sound with ease of operation. Digital logic circuits operate gold-contact relays for positive switching with absolute signal integrity. Power supply and gain stages are refinements of classic Krell Class A complimentary circuits with extraordinary levels of transparency and resolution.

Supporting Krell's outstanding **KAV-S Home Cinema Director** (Dolby Pro-Logic, THX, DTS, and AC-3) are Krell AV amplifiers — a range of 100 watt per channel multi-channel amplifiers (the **KAV-500/3**, **/4** and **/5**), the 2, 3 and 4-channel amplifiers can be extended with an optional add-on channel (the **KAV-500 Rail**).

The **KAV-300i** — Krell's first integrated amplifier — an integrated two-channel 150 watt design has been rapturously received, cleaning up awards around the world. This fully discrete, wide-bandwidth, low-feedback design features full Class A dual mono output stage. Its supplied remote control give access to the basic functions of Krell CD players.

Those seeking a more powerful integrated should consider the new **KAV-500i**. Matching CD players are available. The **KAV-300cd** features HDCD, 2 x 20 bit Burr-Brown DACs and Class A direct coupled output stages with both balanced and single ended outputs. This model is now joined by the **KAV-250cd**.

The **KAV-250a** stand-alone power amplifier offers 250 watt at £3145; a matching preamplifier — designated **KAV-250p** and available at the fantastic price of £1999 — features one balanced input, three single ended inputs and one tape loop. One single ended input can be configured as a theatre throughput for use in surround sound applications. Joining the KAV team is an affordable and versatile two-channel, bridgeable 150-watt amplifier — the **KAV-150a**.

The **Master Reference Amplifier** introduced at the 1998 International CES will begin production in 1999. It has undergone several engineering enhancements making it the finest amplifier in the word bar none. The expected 'six digit' price a pair reflects an unprecedented engineering achievement.

To discover where Krell components can work for you — contact Absolute Sounds.



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FPB 650M



HELP!

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LETTER OF THE MONTH



I'm in the process of choosing some hi-fi gear and I find it all rather intimidating – that's why I read *Choice*. The thing is, I'm a bit worried by something I read in the April issue – in the amplifier review, it said the assembled panel had "listening skills". What skills do they have that I don't? If their hearing is superior to mine, is it worth lashing out £1,500 on a new amp?

S. D'Oyley, via e-mail

The blind listening panel we assemble for our Mega Tests varies in personnel each month, but usually consists of experienced reviewers and a selection of experts from the industry. Every member works in the field for a living, helping to amass the sonic and descriptive know-how essential to make qualitative recommendations with authority – add our comprehensive lab tests, and you've got the most thorough comparative hi-fi tests on the planet.



☉ If you're all fingers and thumbs when it comes to amps, just trust your ears.

This expert panel may indeed hear things that you do not, but that doesn't mean that it's members ears are inherently superior. Put a good quality, £1,500 amp against an inferior model: we bet you'll hear the difference, even if you can't describe it. There's no reason to feel intimidated, simply use *Choice* to help formulate a shortlist, head to a reputable specialist dealer and audition the products that take your fancy, preferably with the same components you'll be using at home. If something stands out for you, for whatever reason, then go ahead and buy it – if it suits your ears with your own music, that's the one for you. It doesn't take 'skill' to appreciate great hi-fi; a love of music is all you need.



GET A JAMO LEATHER CD WALLET!

Every issue, the reader whose letter is our Query of the Month will receive one of these stylish, leather CD wallets, courtesy of those lovely people at Jamo Loudspeakers.

CARTRIDGE COLLECTION

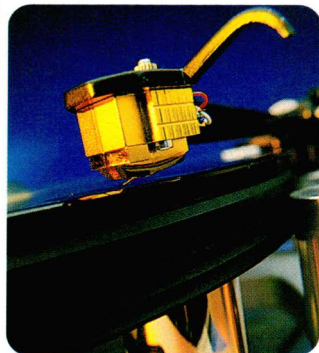


I have a Michell Gyrodec turntable with a Rega RB300 arm, and I'm currently using a Goldring 1012GX cartridge. I want to buy a new cartridge, one that will give me tighter, more powerful bass. Any suggestions?

Prashanth Ganendran, via e-mail

When we reviewed Michell's new Gyro 'SE' turntable last month, essentially a Gyrodec without the acrylic trimmings, we asked John Michell himself which cartridges he recommended we use for the test.

His first choice was Ortofon's Rohmann, which sounded absolutely superb, but at £1,000 it costs considerably more than the turntable itself. His other recommendation was also an Ortofon, the MC30 Supreme at £525. It lacks some of the former's delicacy, but it's still an excellent cartridge that should fulfil your needs – providing, of course, that your amp or phono stage allows you to use moving coil cartridges.



☉ Denon's DL304.

If you need to keep the cost lower still we can make a few more recommendations. On the moving magnet side try the Roksan Corus Black (£130) and Grado Prestige Gold (£149), while moving coil types of note include the Ortofon MC15 Super II (£130) and Denon DL304 (£200).

If you can wait, you should also check out our July/August issue – a collection of cartridges will be among the hi-fi goodies inside.

CABLE CONUNDRUM



There are so many interconnects and speaker cables on the market, I'm confused about which ones to buy. I use a Musical Fidelity Electra E624 CD player, Arcam Alpha 9/9P amp combo and Mordaunt-Short 815 speakers. I want to get the most out of my system without breaking the bank. Where should I start?

M Giudice, Colindale



☉ Supra EFF-ISL interconnects.

We quite understand. Cables can seem confusing – there's a huge choice out there, each manufacturer claiming superiority for one reason or another. To give yourself a place to start, and as a rough rule of thumb, consider spending around 10-20 per cent of the total cost of your system on the wires you need. In your case, that would give you between £180 and £360.

Next, draw up a shortlist. A good cable maintains the integrity of the signal it carries while minimising extraneous characteristics, and all our reviews are concluded to that

effect. Use our buying guide to draw up a shortlist according to your length requirements – you'll obviously need four runs of speaker cable for bi-amping purposes – and try to arrange some auditions.

Our recommendations for your needs would include: interconnects – Supra EFF-ISL (£80), Kimber Hero (£110) and van den Hul D102 MkIII (£70); speaker cable – QED Qudos Silver (£5/m), Straightwire Quartet (£8/m) and Hitachi LC-OFC (£7/m).



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VINYL CENTRE STAGE



I read the recent *Choice* review of phono stages with interest, particularly as I'm currently shopping for one! Of all the stages featured, only the Creek is available in my area (the others are available through mail order). Why was the Rotel RQ-971 not reviewed? How would it compare?
Craig Hathaway, USA

Actually, Craig, Rotel has never made an RQ-971. There was an RQ-970 phono stage available in the UK, but it hasn't been on sale over here for a while, so we were unable to review it.

However, Rotel's UK distributors have insisted that there is still a need for such products in the UK, and plans are underway to re-introduce it very soon.

The RQ-970 was never reviewed in *Choice*, but my own limited experience with the product is

"The phono stages in our recent test are a safer bet because they were given a thorough going over."

reasonably positive – crisp and clear, if a touch cold-sounding.

The products that were well-received in our recent test make much safer recommendations, simply because we've given them a thorough going over.

In the same price range as the Rotel (around £150), either the Musical Fidelity X-LP or the Creek OBH-9 would make excellent buys. So if the Creek is the only brand that you can audition properly in your area, we'd certainly give it a go.



Rotel's RQ-970 phono stage.

SEPARATES AHOY!



It's worth stretching your budget.



I'm in the process of upgrading my stacking system to separates. I've already changed the speakers to Tannoy Mercury M2s, and I fancy the Yamaha CDC-665 CD player.

Which amp should I go for? I've got about £120 to spend and I listen to all kinds of music, but particularly soul and R&B.

Steven Cairns, Devon

Congratulations on your first separates system, Steven – choose the final elements well and it's sure to give you total

"Choose the elements of your separates system well and it's sure to give you total listening pleasure."

It's a great little budget amp, and you're unlikely to buy better for the money.

However, if you can stretch to a little more your ears will thank you for it. Have a listen to the Denon PMA-350SE (£180) and Rotel RA-971 (£200), and see if you think their crisper, more direct sound is worth the extra.

And, if you haven't already done so, don't forget to budget for a pair of rigid, spiked speaker stands and

well-regarded entry-level cables, such as those from Cable Talk and QED. Once you've made the choice, plug it up, sit back and enjoy – the musical improvement over your old midi should be something to savour!

pleasure. The Yamaha is a good CD player, and if £120 is really your limit on the amp front then your best bet is probably Rotel's RA-921.

HINTS & TIPS



Most power amplifiers have fixed gain – there being no need to offer variable sensitivity since volume levels are controlled by the preamp. But some power amps are fitted with volume controls – usually just a potentiometer across the input. Where this is the case, you'll always get the sharpest, most dynamic sound quality by turning these controls fully clockwise – effectively taking them out of circuit. If engaged, even slightly, the increased resistance will subjectively result in a loss of vibrance and immediacy because the power amp is no longer being driven from a low source impedance.

This can lead to the interconnect cable between pre and power amp picking up hum and radio-frequency noise, especially if the cable is long and unshielded. Likewise, CD players with variable audio outputs should always be set to give maximum output.

AMP FOR MAIN COURSE, CD TO FOLLOW



An acquaintance of mine wants to change his Castle Harlech speakers for some B&W Nautilus 803s. I heard the Castles with Audiolab pre and power amps and was shocked (I'm still recovering!) by their splendid sound. I've now got the opportunity to buy them and I probably will, but I think my current system – Marantz CD-72 CD player and PM-66SE amp – isn't up to scratch.

I want to get a good amp first, and later a matching CD player from the same brand. I was thinking about the Marantz PM-17, Musical Fidelity X-Pre and two X-A50s, Quad 77, Arcam Alpha 10 or 9C with 9P. What do you think I should do?

B. Janssen, Holland

First off, you're right to surmise that your CD and amp won't get the most out of the Castle Harlechs, and you're also right to think about upgrading your amp first.

The Harlechs aren't a particularly difficult load as £800 floorstanders go, helped by an amiable 8 Ohm impedance and 88dB sensitivity, but they do require an amplifier of some quality and power to perform at their best.

They are at their best with an amp that's clean, well-paced and even-handed, and of the models you mention we'd probably go for the Musical Fidelity X-Pre/X-A50 combo (£700), or even better the X-Pre with a pair of X-A200s (£1,200).

You would then have the option of grabbing the matching X-Ray CD player at a later date. Also, have you considered TAG McLaren? The Harlechs do indeed work well on the end of the old Audiolab kit, and they're likely to sound even better with the TAG stuff. Check out the 60i integrated amp (£800), or the basic pre/power combo if you can stretch to it, with the CD20R CD player (£1,249) to follow.

It's also worth investigating Roksan – a Caspian integrated bi-amped with a Caspian power (£1,290), adding the Caspian CD (£895) at a later date.

TAG McLaren's 60i: plenty tough



SMOOTHER DIGITS



My system consists of a Denon DRA-275R receiver, B&W DM302 speakers and Ixos 6003 speaker cable. I need a CD player to add to the set-up, and I'm trying to decide between an Arcam Alpha 7, Denon DCD-835 and Marantz CD-63II KI-Signature. Which would you recommend?

The completed system should have an easy-going presentation and good bass. I've heard certain Marantz players before, like the CD-63SE, which sounded harsh – would the KI-Signature perform any better? Or would I be better off going for the Denon player to improve compatibility with my existing amplifier?

CT, via e-mail

If you're in the market for CD player under £400, the three models you mention are leading contenders and none could be described as overtly harsh.

Let's look at them individually – first, the Arcam. At £330 the Alpha 7 is certainly a favourite, a substantial and level-headed player that slots easily into a broad range of systems. It's not musically fussy either, so overall it's a good bet.

The Denon DCD-835 is another highly-rated player which would save you £50 on the Arcam. Don't

simply choose it because it's a Denon, though – buying products from the same manufacturer doesn't necessarily guarantee perfect compatibility.

Designs from a single stable can differ dramatically, while mixing the sonic strengths of different brands (with the benefit of a proper audition) can pay real dividends. That said, it's an excellent player and certainly one to hear, although we'd put it marginally behind the Arcam sound-for-sound.

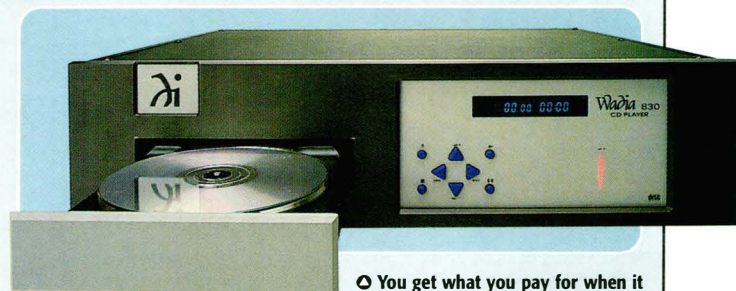
As for Marantz, there are few CD player ranges that split hi-fi fans so firmly down the middle. Some love their typically precise-sounding nature, others (like you, it seems) are less impressed. You're obviously not put off enough to reject the CD-63II KI-Signature out of hand, however, which is probably a good thing as this £400 player is arguably the strongest player in the company's range in value terms. It's particularly good with acoustic music, but if you're more of a rocker we'd give the Arcam the edge.

Don't forget to budget for a good pair of interconnects, too. Go for a smooth, natural sounding cable that won't exaggerate any particular frequency area, like van den Hul's PB5 (£50).

● Denon's DCD-835.



WADIA THINK?



● You get what you pay for when it comes to CD players. If you've got buckets of cash, try the Wadia 830.



I'm in the process of upgrading the following system: Adcom GFP-750 preamp and GFA-545 power amp, Klipschorn speakers and a cheap Sony CD multiplayer. The weakest link is obviously the CD player.

Should I get the Adcom DVD player for future home cinema and for the ease of use with a common remote? Or is something more exotic like the cheapest Wadia going to make a big enough difference to justify the expense?

I also need a tuner, but exactly which one? How about a Denon TU-260L with an amazing Denon antenna, rather than a more expensive tuner?

Dr. George Xaritatos, Greece

We haven't heard the Adcom DVD player as yet, but for CD replay the most musical-sounding DVD-V player to have passed through *Choice* towers so far is Denon's DVD-5000 (£1,600). However, even that isn't a match for a good quality CD player at a similar price.

What's more, if you've got enough money to spend on a player like the entry-level Wadia – the 830 at £3,000 – then you're really talking a different league.

It's taken CD technology nearly two decades to get where it is today, and if it's CD replay you're after then a top-notch machine like the Wadia will sound vastly better than your Sony multiplayer, provided that the rest of your system is up to the task. It'll also comfortably outperform any DVD player currently on the market.

Of course, we might change our tune when the 'universal' DVD-Audio/Video players hit the market, but for now a top-ranking CD player still sounds a cut above.

Your theory about tuners has a great deal of sense to it – a well-performing model is nothing without a good aerial. But it might be worth looking a little above the budget Denon you mention (now in MkII form). Try Pioneer's F-504RDS Precision (£300) or Creek's T43 (£400) for size.

CD – THE NEXT GENERATION



I need to replace my ageing, first generation Philips CD player. Limited choice in New Zealand means I will probably buy in the UK but won't be able to listen to the replacement with my current system – a harman/kardon PM-655 amp with Monitor Audio Monitor 4 speakers, bi-wired with Gale XL250 cable.

The speakers give good bass in my 9x5m room, but are a little thin in the midrange, as noted in your review. Thus, I'm looking for a warmish yet detailed and spacious player to compensate, with a budget of around £500. My shortlist so far is the Musical Fidelity A2 or E624, Sony CDP-X3000ES and Marantz CD-63II KI-Signature. And how about the Cyrus dAD 1 or 3? I'm not keen on the Arcam's cosmetics.

Also, can you recommend some appropriate flat speaker cables? They have to run under carpet across a doorway.

Guy Hallwright, New Zealand

Of the players you're considering, the Sony CDP-X3000ES (£500) is a tempting prospect, particularly if you're after something a little different. It looks great, and its interchangeable digital filters give the user a degree of control over its already excellent sound.

The similarly-priced Musical Fidelity E624 is arguably even better, offering a fluid and transparent delivery that shoots it straight to the top of our £500 wish-list. If you

need an 'instant' recommendation, the E624 is a sound bet to meet your requirements. You discounted Arcam for personal reasons, but have you considered the Pioneer PD-S505 Precision? It's a superbly subtle-sounding player delivering excellent soundstage depth. As for the others you mention, The Cyrus dAD 3 (£598) is a decent machine but may sound a little thin for your taste, and you can check out how the dAD 1's replacement, the dAD 1.5, fares elsewhere in this issue.

Cable-wise, check out the DNM's Reson (£6.95/m) and Audioquest's F-14 (£2.20/m).

● In at number one: the E624.



HINTS & TIPS

When CD first came out, most of us thought it wouldn't be receptive to some of the tweaks that seemed to benefit LPs. But quite the opposite is true.

Ringmat Developments' Statmat is just one very simple yet worthwhile way of subjectively improving CD sound. A thin circular plastic sheet with special black-coloured dye patterns and holes stamped on it, it's a product that looks mildly improbable. But it sure 'nuff makes a difference.

Placed on top of the CD, the makers claim Statmat works by controlling electrostatic charges that occur as the CD spins at high speed in the player. Now in Mk-III guise, Statmat improves detail, sharpness and resolution, along with timing, allowing you to hear the interplay of voices and instruments with greater clarity. It's easy (if a bit fiddly) to use, and is compatible with most CD players.

FLOOR IT!



My system comprises a Philips CD-721 CD player, Technics SU-VX500 amp, and a 25-year-old Pioneer CT-550 cassette deck. Interconnects and speaker cables are nothing special.

I want to change the speakers, and my goal is a big, detailed sound with real, deep bass, but without boom or boxiness. I'd prefer floorstanders, and I'm thinking about the Magnat Victory 6, Tangent Monitor 9, Tannoy Mercury 3, Wharfedale Valdus 500 and Gale 4i. Any other suggestions?

I listen to many kinds of music and make lots of recordings (I want to upgrade my tape deck, too). My room size is 3x4.5m, and my budget is up to £300.

Francise Biro, Romania

There are limits to what can be achieved at an 'entry level' price, and 'real, deep bass without boom or boxiness' is a rather tall order for floorstanders under £300. That said, there are certainly some satisfying music-makers around for this kind of money, some of which you yourself mention.

From those, bearing in mind you need a musical all-rounder, we'd go for either the Tannoy Mercury M3 (£230) or Tangent Monitor 9 (£150), or even the Tangent's bigger brother – the £200 Monitor 11. The Tannoy is the smoother of the two, with strong midrange

talents, but the Tangents are a more involving listen in terms of pace and rhythm. The final choice is down to your own preferences.

If you can stretch your budget a little, the £350 Acoustic Energy AE109 is a good bet for strong bass, and KEF's Q35 is another popular choice for the same money. There are also a couple of new, as yet untested speakers that may be worth looking out for: the Mission 773e (£400) and Acoustic Energy Aegis Two (£250).

You should also consider some decent budget cables – say, QED Qnect 2 interconnects (£30) and Tara Labs Klara speaker cable (£2.95). As for your tape deck, maybe it's time to move into digital recording: check out our group review elsewhere in this issue.



Tangent's Monitor 9 floorstanders.

SCOTS MYSTIFIED



I swapped my Ruark Icons for a pair of Acoustic Energy AE1s, but after a couple of weeks' listening I'm disappointed in the small scale of their sound compared with my old speakers. I've got them bi-wired on AE stands, but they sound too harsh.

I'm running them with a Thorens TCD 2000 CD player and Thorens TTP 2000/TTA 2000 pre/power amp. Could it be that the amp's 30W power output is too puny?

John Gray, Edinburgh

The AE1 is a classic small loudspeaker which has given many audiophiles real pleasure since its launch. But it's also notoriously unpredictable: at best it's superbly crisp and dynamic; with the wrong partnering gear and siting it can all fall apart.

As you rightly surmise, it's a speaker that needs amps of real quality and a fair degree of power to get it working at its best. Your Thorens is a reasonable little pre/power combo, but it's clearly not doing the job. The best I've heard them is on the end of a rather more powerful and fluid-sounding (not to mention larger) Musical Fidelity 'F' series power amp. If you're in the mood for an upgrade, check out a specialist high-end dealer and try a few alternatives with the AE1s attached.



Acoustic Energy AE1 Signature.

We assume you've already experimented with siting. If not, it's well worth spending the time trying different positions in relation to the backing wall, and also different degrees of toe-in. You may find that image focus and overall tone improve quite dramatically as a result. You should also make sure your cable is up to the task, though changing things in this department won't magically fix a fundamental mis-match of components.

Rest assured, you've got your hands on an excellent pair of speakers. Work with them – eventually, you'll reap the rewards.

HINTS & TIPS



If one of your speaker drive units develops a bit of a rasp, giving a rough grating quality of sound especially at low volume levels or on strong bass notes, chances are it's the side of the voice coil rubbing on the magnet. It can affect any moving coil drive unit, regardless of size or type. Since the voice coil fits in a very narrow circular gap, it doesn't take much displacement to make it touch the sides.

In some cases the only solution will be to replace the drive unit with a new one. However, it may be possible to effect a cure by simply removing the offending drive unit from the speaker cabinet and turning it through 180 degrees so it's upside down. This allows gravity to assist in realigning the voice coil in the gap. It's an old trick, but it might just work...



GETTIN' JAZZY WITH IT



My system comprises of a Pink Triangle Little Pink Thing turntable with Rega RB300 arm and Denon DL304 cartridge, Pink Triangle Litaural CD player, Alchemist Forsetti amp and Castle Durham II speakers.

I realise I need to change my speakers and would be grateful if you could offer suggestions. My room is 12x8ft, although I'd like the speakers to have the potential for a bigger area. I listen mainly to jazz (Miles Davis, Bob James) and female vocals, and a friend has suggested ProAc Response 1.5 or 2.5.

Eric Gray, Hertfordshire

Your friend has made a decent recommendation, Eric. Both ProAcs are articulate and coherent speakers, delivering a relaxed style of music-making likely to suit your self-proclaimed taste. What's more,

your 100 Watt Alchemist amp should drive them well. As for further ideas, how about the following:

B&W's Nautilus 800 Series is an essential listen, with the stand mounting 805 (£1,400) probably the best bet: it won't swamp your smallish room, yet can easily work in the larger spaces you intend to occupy in the future. As for its sound, smooth, detailed and accurate just about sums it up.

Another option that should suit your requirements is the Italian-made Academy Millennium 2 (£1,800), offering a snappier and arguably more involving



balance than the aforementioned B&W. Likewise, it should work OK in your current space, with plenty of potential to fill larger areas in the future.

Lastly, see if you can find a pair of Living Voice Auditoriums (£1,500). They're extremely elegant floorstanders with a remarkably dynamic and spacious sound, and they work well in a variety of room sizes, although they need careful positioning to give of their best.

Living Voice Auditorium.

EXPOSING ONE'S SPEAKERS

My system consists of a Marantz CD-63II KI-Signature CD player, Exposure 7/8 pre/power amps, Tannoy Mercury M1 speakers, QED Qudos speaker cable and Cable Talk Monitor 2 interconnects. I bought the Exposure amps second-hand and although they're nearly 20 years old they're a great improvement on the Marantz 55SE I had before.

What I want to know is: what would you recommend as my next step forward? I listen in my bedroom, which measures 2.5x3.5m.

Michael Hicks, Birmingham

We're glad to hear that your amp upgrade has paid such dividends. Of course, now you've taken a few steps up the ladder in that area, the unmistakable 'upgrade-itis' has taken its inevitable hold. So what next?

We'd go for the speakers. Your little Tannoys are excellent budget buys at £120, but a good pre/power amp like the Exposure requires something more to really reap the benefits. Given that you're listening in a bedroom, and space is at a premium, you're best going for a pair of small monitor-style speakers, similar in size to your Tannoys but offering a higher standard of performance. Check out the Dynaudio Audience 40

(£400) and AVI NuNeutron (£500), both of which were reviewed last month. ProAc's brand new Tablette 2000 (£649) might also be worth seeking out, and if you can spend a bit more, have a listen to the Dynaudio Contour 1.3 MkII (£1,198) and Jamo Concert 8 (£1,365).

Don't forget to budget for suitable stands and cable, too – something like a pair of Partington A-4 stands (£119) and Kimber 4VS speaker cables (£9/m). Also, make sure that the electronics are properly supported. Then, when the time is financially right, consider upgrading your source component – until then, your Marantz will do a more than acceptable job.

▼ **Dynaudio's Audience 40.**

**HOOKED ON DENON**

I'm interested in buying a completely new hi-fi system to replace my 15-year-old Hitachi stereo. I'm after a CD player, MiniDisc recorder and amplifier to partner a pair of floorstanding Revolver speakers given to me as a present.

I'm particularly interested in Denon gear. Could you please advise me as to the best options for both Denon and other makers, and whether you would advise me to mix manufacturers? My budget is about £1,000.

Jayesh M Bharadwa, Middlesex



▼ **Sound Organisation Z545 stand.**

Buying a system from a single manufacturer is the simplest way to buy a separates system – it's a one-stop purchase and you're on safer ground compatibility-wise, not to mention having the benefits of a closer aesthetic match. On the other hand, mixing and matching different makes takes a little more homework, but given patience the rewards can be even greater: the best of both worlds!

If the thought of Denon particularly excites you, then try the following: DCD-835 CD player (£280), PMA-350SE amp (£180) and DMD-1000 MiniDisc recorder (£300). They're all good entry-level components, and there's no

reason why they shouldn't work well together. As for the rest of the money, spend it on a decent purpose-made equipment support like the Sound Organisation Z545 (£150) and good budget cables – Cable Talk Talk 3.1 (£2.25/m) speaker cable and QED Qnect 2 interconnect (£30) would do fine.

Still following the one-make concept, you should also look at Sony and Pioneer, using our Directory at the back of the mag as a guide, or perhaps team an Arcam or Marantz CD/amp partnership with a MiniDisc player like Sony's MDS-JB920.

A MATCH MADE IN HEAVEN?

I've just bought the Arcam Alpha 9 CD player after the review in your March issue. I quite fancy the Arcam 10 amp to go with it, and perhaps the JMLab Tantal 515, Mission 774 or 752 Freedom speakers for use in a room measuring 18x11ft. I listen to 70 per cent dance music, 20 per cent jazz and 10 per cent classical. I want deep bass extension plus detail and clarity, with clean treble and a smooth midband. What do you reckon?

Chris Leahy, via e-mail

The Alpha 9 is a serious CD player at £800, and the identically-priced Alpha 10 amp is an obvious choice of partner. You get a strong visual match for a start, together with an assured sonic performance and the reassurance of a degree of

future proofing via its plug-in modular approach. If you decide you want to add home cinema to your system, for example, you can simply buy a plug-in multi-channel board and convert the amp with ease.

However, if that's not a priority, there are a number of amps that perform a little higher up the sonic scale for similar money. Try the Musical Fidelity X-A100R (£999) and Roksan Caspian (£695), both of which will add a touch more sparkle. It's also worth investigating one or two pre/power amps from the likes of Creek (P43R/A52SE, £949) and

Musical Fidelity (X-pre/X-A50 x2, (£700) and Arcam itself (Alpha 9C/Alpha 9P, £800).

Of the speakers you're looking at, we'd probably go for the Mission 774 (£500). Given your balance of musical priorities, its firm bass, incisive treble and well-formed midrange is likely to suit best. It's also worth checking out the Kelly KT2 (£700) and Triangle Zephyr II (£599), and look out for B&W's new 600 Series 2 for some other likely candidates.

▼ **Creek P43R/A52SE.**

**HINTS & TIPS**

When you've got a well-matched compatible system, with no obvious weak links, and upgrade time comes, it can sometimes be difficult to know what to change first to get the biggest improvement. If you've unlimited reserves of cash and can afford to buy exactly what you want in one hit, there's no problem – apart from choosing the right components to replace what you've got.

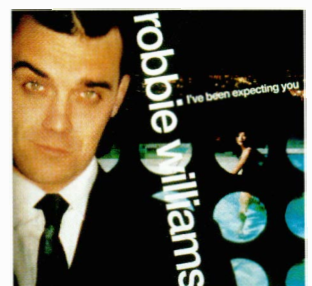
If, however, you're a bit strapped for cash (like most of us) it might be best to let price be your guide, upgrading a component because it happens to be on special offer or one turns up at a bargain price second-hand. You may (temporarily) have an unbalanced system – say an expensive set of loudspeakers with a modest amp and CD player – but at least you're on the road to getting the system you want.



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COMPETITION



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WIN ATC'S QUARTER CENTURY PACKAGE

ATC is celebrating its 25th birthday in style by giving away its integrated amplifier and a pair of loudspeakers to a very lucky *Hi-Fi Choice* reader.

Upgrade your hi-fi system with this month's fantastic high-end competition prize give-away.

With a strong reputation in the professional sound arena, Gloucestershire-based Acoustic Transfer Company (ATC) have an enviable heritage of no-compromise electronic design and manufacture. ATC is well known in hi-fi circles for its active loudspeakers. To celebrate its 25 year milestone the company has put together this special high-end package of integrated amp and loudspeakers for just £2,250 (when



The amp provides four RCA line inputs and one tape loop. The addition of a remote control and a motorised volume knob makes for convenient arm-chair listening.

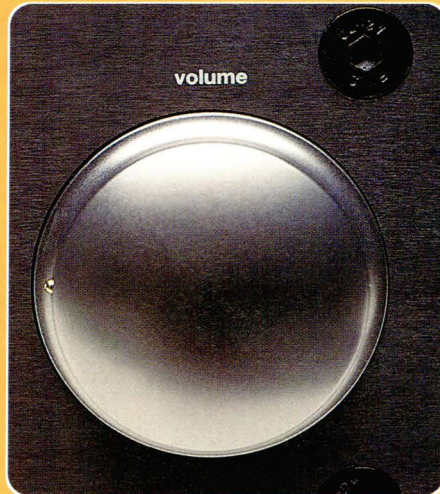
Speakers are a pair of lovingly hand-crafted SCM 10s worth £1,240 – a 38cm stand-mounter featuring a 12.5cm mid/bass driver and finished in a sumptuous rosewood veneer. Partnered with the SIA 2-150 amp, they provide a dynamic and transparent sound. And for the price of a stamp they could soon be filling your living room with music.



purchased as a package). *Choice* has secured the combination for one lucky, lucky reader.

The first correct answer out of the bag will win its sender a SIA 2-150 stereo integrated amplifier plus a pair of SCM 10 loudspeakers.

The SIA 2-150 is a monster integrated, retailing for £1,984 and delivering 150 Watts per channel, which should be sufficient to reproduce realistic listening levels in virtually any domestic situation. Besides its sheer power it's also a tender performer capable of conveying gentler extremes of the music with sensitivity and detail.



HOW TO ENTER

Answer the questions below by circling the correct answers, then fill in your name, address and daytime telephone number in the spaces given.

The Questions

What does ATC stand for?

- a) Audio Technology Company
- b) Acoustic Transducer Company
- c) Advanced Technical Centre
- d) Audiophile Transmissions Conglomerate

Which anniversary is ATC celebrating?

- a) Millennium
- b) 25th
- c) Ruby
- d) 250th

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A DIFFERENT Note



Audio Note has unleashed its entry-level Zero Series system components. But do they sound as neat as they look? **Tim Bown** investigates.

Words like 'neat' and 'convenient' tend to be anathema to audiophiles. They reek of hollow, low-fi compromise, of plastic mini (turn) and micro systems (spit), not the glorious pursuit of real hi-fi sound. Domestic accord isn't the priority, if it takes a rack of dreary boxes the size of a baby elephant to attain the sound you crave, then so be it.

Verily, this is the natural order of things for those who care about how their music sounds. But what if one could attain a true 'high-end' sound from boxes of a more diminutive stature; a 'neat' system in keeping with the miniaturised modern aesthetic? Would that change the perception of even the most hard-bitten audiophile?



Of all the companies one might imagine undertaking such a mission, Audio Note is probably the last that springs to mind. It's not that this high-end valve stalwart has a particular reputation for big, brutish hi-fi. One just wouldn't expect the making of micro-sized components to be high on its list of priorities. Yet its new Zero Series system has five shoebox-sized component pieces at its foundation, each one just 22cm wide.

To spin those discs, there's a two-box CD player comprising CDT Zero transport and DAC Zero digital-to-analogue converter. The units are available separately, at £399 and £369 respectively.

The other three boxes make up the amplification: the M

Sturdy speakers complete the entry-level Zero range at prices from £299 to £669.

"The act of splitting the CD player and amp into five separate components, each housed in its own aluminium extrusion, makes an important sonic contribution."

Zero preamp at £299 and the P Zero mono power amps at £599 per pair. Valve technology is extensively featured, in line with Audio Note's tradition, and there is a choice of black or silver finishes. Three speaker options complete the range, with prices ranging from £299 to £669.

Of course, the act of splitting the CD player and amp into five components, each housed in its own aluminium extrusion, makes an important sonic contribution – it helps isolate delicate signals from nasty electromagnetic fields.

But this system's undoubted aesthetic qualities were also high in its designers' minds. As Audio Note Managing Director Peter Qvortrup put it: 'The market is looking for something small, practical and modular, offering long life and real value for money'.

THE CD PLAYER

The CDT Zero/DAC Zero two-box CD player is clearly an unusual beast. For a start, few transport/DAC combinations look this neat, and fewer still weigh in at just £768 per pair. What's more, like other players in Audio Note's portfolio, the DAC uses a valve to promote a smoother, less processed sound. There's a 6111WA sub-miniature valve in its output stage (see inset) and a Burr-Brown 24-bit/96kHz converter chip at its heart, while the transport packs a Sony-designed mechanism inside its neat little frame.

The result in sonic terms is considerable smoothness and fluidity, successfully avoiding the harsh edginess that Audio Note clearly believes is a

common but unnecessary CD trait. Its midrange is full-bodied and it endows music with a strong sense of ambience, despite being a little muted in the treble. However, bass lacks a degree of definition and drive, and in an unsympathetic system its performance is short of momentum.

As an individual component to slot into an existing set-up, it should be approached with caution. With some amps it simply won't perform, notably those with lowish input impedance around 10 to 20kOhm, but in an Audio Note system context its performance gains a new perspective.

One awkward feature of the transport's design is the omission of controls on its fascia. The only way to perform even basic operation is via the remote, so if you lose it... It might make sense visually and economically, but in practical terms it's a no-no - a fact that affects its mark for build.

THE AMPLIFIER

As a three-box amp combo, the M Zero matched with a pair of P Zeros is as cute as they come. And a combined price of £898 makes it very affordable for an amp of its kind. Each power

amp houses a pair of ECL82 valves and has a quoted power of 8 Watts, while the preamp incorporates a sub-miniature valve in its line stage.

Just four line-level inputs and a tape loop are supplied, so if you're hoping to hook in lots of other sources, be warned.

Performance is notably more lively than that of the CD player, with definite strengths in the dynamic resolution department - a typical Audio Note trait. Its communication skills are considerable - able to impart notes and rhythms with a tactile quality, it presents the whole thing with a fine sense of timing through the midrange.

The M Zero is a little let down in the bass department, showing some of the stodginess often sited by critics of valve technology, and there could perhaps be a little more buoyancy in the treble. But the net effect is still persuasive, and when combined with their undoubted visual appeal these amps do much to tempt the musical palette.

THE SPEAKERS

The speaker pairing supplied for this review is the first to emerge from the soon-to-be three-strong Absolute Zero range. Priced at £449, the AZ-Two is the mid-range model - a 90cm high floorstander incorporating a 15.5cm paper mid/bass cone and a 20mm soft dome tweeter.

Its look is perfunctory, in keeping with Audio Note designs of the past, but rather out of touch with the aesthetic qualities of the electronics.

Bass loading is described by its designer as a 'quasi-quarter-wave horn', exiting via a mouth to rear of the cabinet. Unlike most speakers, its operation dictates a position as close as possible to the rear wall for optimum bass response, preferably tucked into the corners and toed-in. How practical this is depends on the layout of your room, but if space is limited you may find them a boon compared with freestanding designs.

In terms of sound, this review is concentrating on the electronic components and the system as a whole (with these speakers attached), so I'll leave a detailed analysis of the AZ-Two's individual sound until we can include it in a

speaker group test. Suffice it to say that its fast and dynamic character is typical of the brand and, with a quoted efficiency of 92dB, it's particularly suitable for partnering with a valve amplifier.

THE COMPLETE SYSTEM - SOUND QUALITY

There's a common perception among many hi-fi buyers that, by definition, components using valve amplification sound warm and relaxed, in a 'pipe 'n' slippers' kind of way. That's not always the case.

True, one of the breed's identifying characteristics is often a lack of drive in the bass, but put together the right components and the listener can be amply compensated by delightful energy in the mid to treble region.

This system is an ideal example. The way these components work together ensures an effusive, effortless midrange character, enough to give music a wonderful sense of life and purpose. It involves the listener from the very first note and is blessed with the kind of dynamic resolution that pulls the listeners' ears towards the music's very core and begs for complete attention.

The day Audio Note brought this system for my perusal I was in dire need of cheering up - Arsenal had lost to Manchester United in the FA Cup semi-final and life was looking bleak. I hooked it up with the maker's own cable, set the speakers as close as I could to the corners of the room, and settled down.

Several CDs later I emerged with a huge grin on my face: I'd gone through indie, classical, deep house, acoustic jazz and back to indie again, and I found the results compelling.

Sure, there were elements of its sound that could be criticised on closer inspection. Bass lacked some authority and drive, in true valve tradition, and treble seemed a little pinched; voices became a touch hard and shrill with the volume pushed up and imaging wasn't exactly pin-sharp. But the energy and texture with which instrumental sounds were conveyed, showing me their shape as well as their tone, kept me glued to my chair. From Paul Westerberg to Steve Reich, I found it a truly tactile listening experience.

CONCLUSION

It's not the first time a 'quality' brand has tried this approach. The likes of Denon and TEAC make mini systems with a semblance of proper hi-fi sound, while Cyrus has been making high performance shoebox-sized kit for years, not to mention Musical Fidelity's ever-growing 'X-A' range. But a complete, five-box 'micro width' system using valve amplification for about two grand? That's something distinctly different.

You might say it's a sign of our convenience-obsessed times. You might even say that hiding valves in boxes so small is a waste of their glowing aesthetic potential. But by producing a whole system at this price, and by making it so small and tidy, Audio Note is potentially opening up the distinctive sound of valves to a much wider audience. It's 'neat', it's 'convenient' and, if its components are used together, it gives great value for money.



The smaller of these two valves is the 6111WA, an American sub-miniature triode used in the output and line stages of the DAC Zero and M Zero respectively. The larger valve is an ECL82, a multipurpose unit common in the 1950s and 1960s. They're sourced from Yugoslavia, and there's a pair in each P Zero.

CDT & DAC VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £768

An unusually smooth-sounding two-box CD player with an impressively fluid sound in the right system. Needs to be partnered with care.

AMPLIFIER VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £898

A wonderfully neat three-box valve amp, able to impart music with real life and soul. A little sluggish in the bass department, though.

OVERALL VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £2,115

As a complete system, this little lot is great value for money - an engaging and tactile valve-based sound at a very reasonable price.

ONE YEAR GUARANTEE

Audio Note (UK) (01273) 220511

BABY Snails

Jason Kennedy finds small doesn't necessarily mean less with B&W's Nautilus speakers

Before launching into an appraisal of the smallest of B&W's Nautili, I should point out that I carry a bit of psychological baggage when it comes to this variety of loudspeaker. This is as a result of using a pair of Nautilus 802s for the past seven months or so.

This has both pros and cons from the 805's perspective. The good bits include a hi-fi system that has developed to suit the Nautilus style – that is, power-hungry – but the drawback is that the bigger speaker has spoilt me and appreciating the quarter-the-price 805 isn't as easy as it might otherwise be.

The N805 is a two-way standmount design that incorporates the much-vaunted Nautilus tweeter and the standing wave-dispersing internal bracing from the previous Matrix range. The cabinet is an elegant and beautifully finished thing, the veneer on both curved sides and domed top making it rather more attractive than the average standmount speaker.

At £1,400 it's pretty expensive for a small British loudspeaker – there are a few alternatives, such as the AE1 Signature, a ProAc and a couple of others that cost more, but it's in pretty rarefied company. That said, the cabinet construction is easily the most complex – wooden curves cost money. Why do you think they're so scarce?

The drawback with its stature is the added cost of a decent pair of stands – scrimping in this critical area makes the exercise rather pointless.

I started off with a pair of Kudos S100s (£270 but, sadly, no longer in production) and progressed onto Grahams Hi-Fi's recommendation of HNE granite units that cost the better part of £500. I would think the least you could get away with would be the

◉ The tweeter's 'exhaust' allows for reflection free energy dissipation.

£150 asking price of Atacama's R724s, so budget accordingly.

SOUND QUALITY

I think enough has been written about the Nautilus series for me to be able to skip most of the technical stuff, but it's probably worth noting that the 'exhaust' tube on this N805's tweeter housing allows rearwards energy from the diaphragm to be dissipated without fear of reflection. The alloy tube also acts as a heatsink for the driver.

This tweeter housing is not exactly like the N802's, but it features the same 25mm dome.

“What the N805 really shines with is midrange detail; voices, guitars, reverb et al come through with great clarity”

The mid/bass driver is a 165mm Kevlar device.

I used the N805s on the end of my usual SME 20A/Wb Carbon, analogue, and AP Eikos, digital, front ends and powered them via a DNM 3C Twin preamp and Cyrus aPA7 monoblocks, with cabling courtesy of DNM and Electrofluidics.

The step down from the N802s was inevitably a compromise, but this little speaker put



◉ Beautifully veneered with curved sides and domed top: it's a total babe.

up an impressive fight, unwilling to concede anything when it came to timing and imaging. In many respects, compactness is an advantage there, the lack of bass depth helping speed and the lack of cabinet area aiding audio-visual precision.

What the N805 really shines with is midrange detail; voices, guitars, reverb et al come through with great clarity, and it does so without resorting to brightness (has B&W ever made a bright speaker?). Bass extends to 49Hz (-3dB) according to the specs, which is enough for most instruments.

Despite their forward-firing port, they do like a bit of space in which to create acoustic space, if the bass is to remain controlled. They also like a bit of power if you want to really kick it, but aren't as difficult as the N802s – a point proved by the harmonious partnership they made with a DNM PA3 power amp (45 Watts).

This combination had a remarkable effect on detail: obscure lyrics suddenly made sense and all sorts of nuance appeared. If I were to carry on using the speakers I suspect that this is the combination I would use. Until I wanted to play more Sly and Robbie, that is.

Shifting from Kudos to HNE stands (above) was also interesting, these custom-made 20kg units inspiring an increase in tunefulness and bass solid-

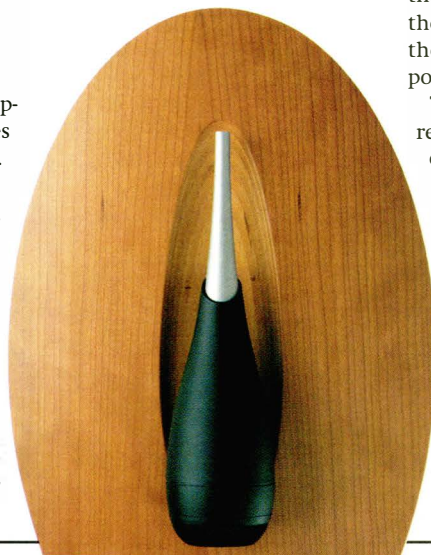
ity, as well as an unexpected upgrade in tonal contrast.

I did occasionally miss the sheer SPLs that the big N802s can deliver, but I've been spoilt in this respect and appreciate the fact that this speaker will deliver the right balance of energy at normal listening levels. Playing at 100dB+ is great if you live in a castle, but is not so wise in the urban environment.

CONCLUSION

The N805 is an energetic little speaker – what it lacks in muscle, it makes up in enthusiasm and resolving power. In many ways it's a domesticated version of the N802, it sounds right at lower volumes and is guaranteed to invigorate even the most tired of music collections.

If you're man enough to use a standmount, there are few that can compete with this on both sound and looks.



VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE **£1,400**

◉ A great looking and extremely capable design with excellent timing and real communications skills.

■ FIVE YEAR GUARANTEE

☎ B&W Loudspeakers (01903) 750750

THE BEAT Generation

Lee Dunkley listens to Densen's latest Beat box – the virile and versatile B-200 preamplifier.

No need for a workout at the gym then, I thought to myself as I lugged the weighty Densen boxes out of the boot of my car and up the stairs to my first floor flat.

With my previous employers, at the Consumers' Association's Research & Testing Centre for *Which?*, there was little exposure to product manufacturers. And so it was with some trepidation that I met Densen's UK agent and embarked on my first review for *Hi-Fi Choice*.

The Beat B-200 preamplifier retains Densen's characteristic bold, black styling and its penchant for enormous brass controls – although there's just the one this time, for the volume. Four small buttons adorn the brushed-alloy fascia, located symmetrically either side of the volume control. Two are step up/down controls for selecting the desired source, indicated by a row of small LEDs along the fascia top.

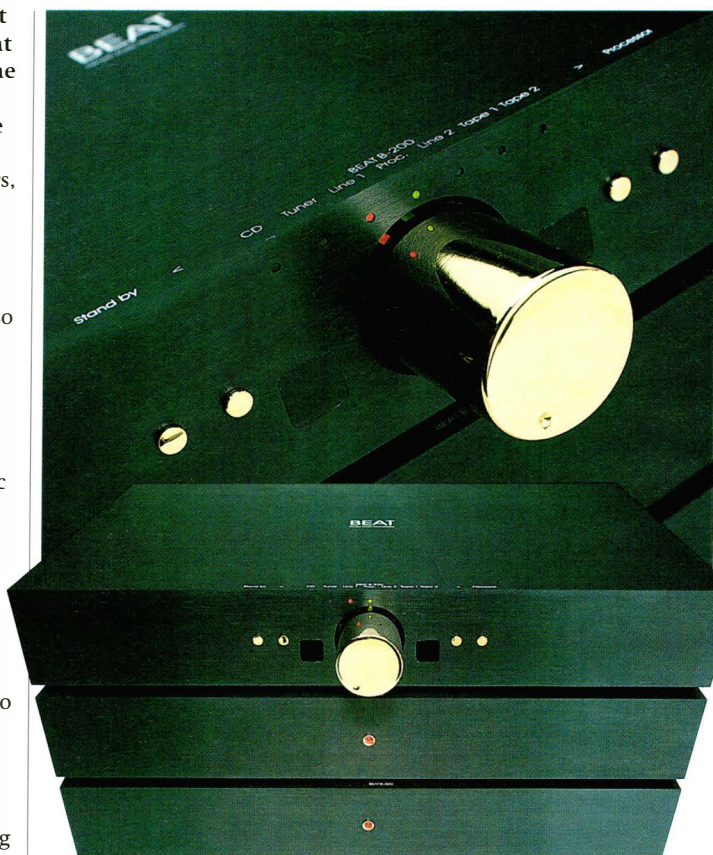
Despite these rather pleasing aesthetics, switching between sources was a little awkward due to their positioning on either side of the large volume control. However, I'm sure familiarity will remedy this over time.

The volume is a motorised control that fades to zero or returns to the memorised level when one of the other buttons, 'standby' and 'processor', are selected/de-selected.

The B-200 is well equipped with a bank of gold-plated RCA connectors, four line level inputs – one of which can be converted to an MM or MC input – and two tape loops, but no tape-monitor facility.

Additionally, a 'processor' loop is provided for integrating the preamp and speakers into a multi-channel system. The four 'active' preamp outputs enable bi, tri or even quad-amping, while the RS232 port allows for future multi-room component linking.

Densen says that an optional aluminium cased system remote control will shortly be available for an additional cost of £100.



“The Densen was so involving that on more than one occasion I found myself captivated and attempting to sing along – an accolade if ever there was one.”

Under the lid, the B-200 has two separate power supplies, one concentrating on the audio circuits while the other supplies the function switching and motorised/memorised volume control.

The B-300 stereo power amp makes up the power end of the combo, a zero feedback design providing 100 Watts a side. We originally tested it in a bi-amp combo with the Beat B-100 integrated amp in issue 183.

SETTING UP

Bi-wired Ruark Equinox speakers were used along with Nordost Flatline speaker cable and interconnects between

◉ **There's just the one enormous brass control adorning the brushed-alloy Densen fascia this time, for the volume**

components. In selecting a source I auditioned two players: the Densen-recommended Naim Audio CD3.5 and the NAD S500, an Editor's Choice from *HFC* 189. I selected the NAD as the optimum source, preferring its bass grunt and altogether more involving music producing abilities. A Cyrus aCA7 preamp and its PSX-R power supply were brought in as a reference point.

Listening was initially conducted with a single B-300 power amp. However, Densen recommended bi-amping for improved stereo and smoother treble, so I gave it a try. It was as if the system had awoken, with revitalised vocals, clear, precise positioning of instruments, openness and an increased level of involvement.

SOUND QUALITY

The Densen exudes an air of competence in all quarters, delivering an engaging and

addictive level of involvement and enjoyment that wasn't apparent to me through the Cyrus. Madonna's *Ray of Light* album gives a wide open soundstage and the B-200's precision placement allowed each instrument to be picked out. Bass, in particular, was deep and rhythmic without being over-bearing or fatiguing.

Annie Lennox's *Diva* CD presented a natural, well balanced performance enticing me to listen more and more. Björk's *Homogenic* transported one on a hypnotic and escapist voyage, while the Oleta Adams track, *I've Got a Right*, was utterly believable in conjuring up the rich smoky atmosphere of a downtown jazz bar.

In fact, on more than one occasion I found myself completely captivated and attempting to sing along – an accolade if ever there was one.

CONCLUSION

So then, does the Densen Beat B-200/B-300 combo live up to its maker's philosophy of conveying the emotions of the music? The fact that I listened to CD after CD of varying styles, from classical to pop and jazz, is testament that the pre/power pairing does, without doubt, achieve this goal.

Its engaging performance and sheer musical involvement demonstrates Densen's 'air guitar' factor, if my launch into song is anything to go by.

I believe you will find this a well matched combination that holds your attention and gives your ears an invigorating workout – whatever your musical tastes.

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE B200 £1,000

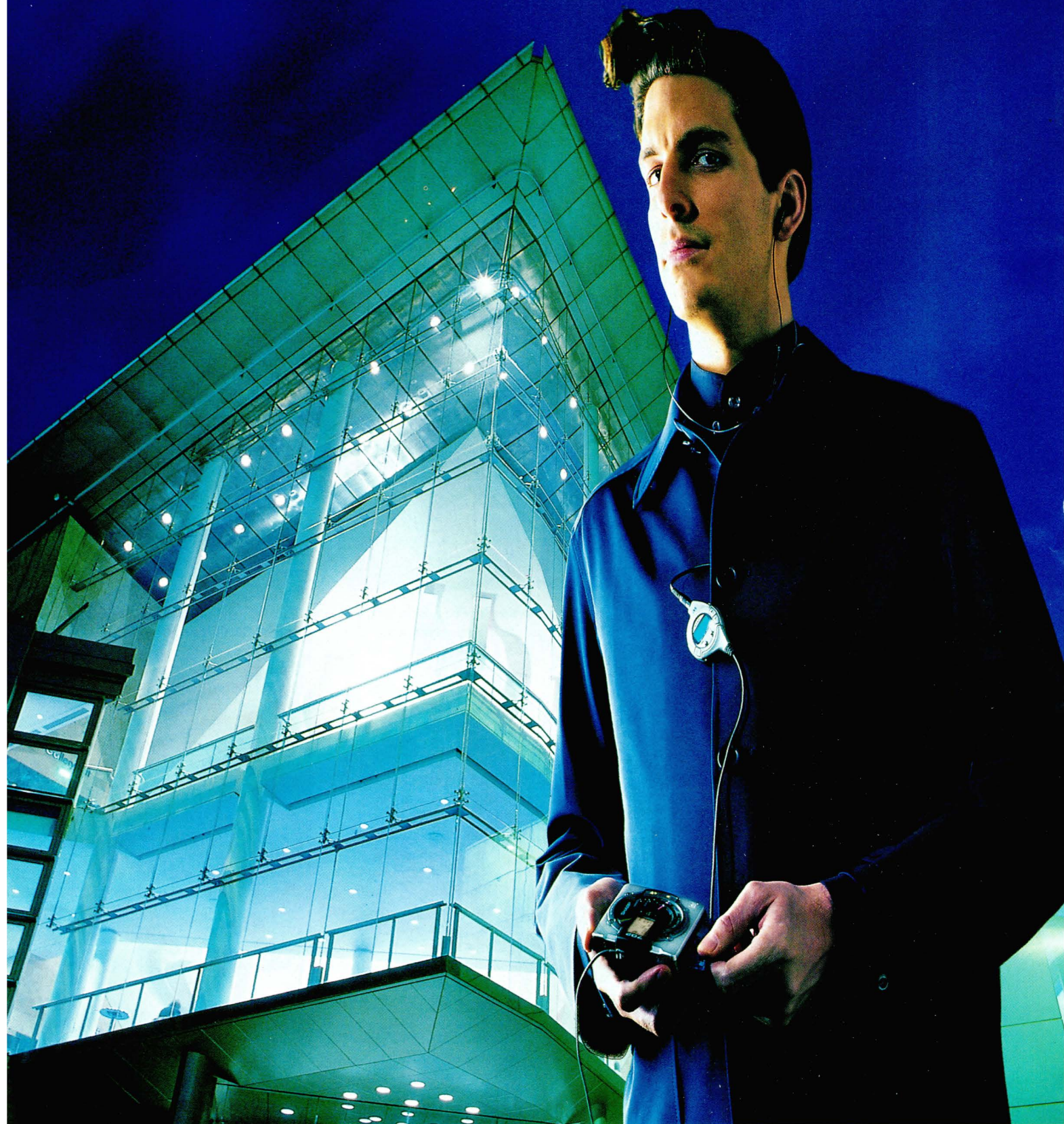
B300 £800 EACH

■ A preamp for all music lovers with the beefy B-300s to get you singing and dancing.

■ ONE YEAR GUARANTEE

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April 1998



MD-R2H
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WHAT HI-FI?



Sept 1998



MD-R3H MD-DECK

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WHAT HI-FI?



June 1998

T3 ★★★★★

March 1998



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JET SET Go

Tim Bownern wings it with the CL 310i JET, ELAC's first speaker to reach UK shores. It's small, but is its sound perfectly formed?

Ever heard of ELAC? Unless you've been keeping a close eye on developments at recent hi-fi shows, there's no reason why you should. Despite having a significant profile elsewhere, this German loudspeaker brand has had no presence in the UK – until now. Compatriot company Sennheiser believes the time is right for a foray into our notoriously tough and crowded market, so it's using its established distribution network to bring ELAC to UK consumers. Here is the first product for our consumption: a miniature speaker with a lengthy name, the CL 310i JET.

Sennheiser reckons ELAC's products are distinctive enough to forge their own niche; on this evidence it may be right. The CL 310i JET is a tiny speaker – considerably less lofty than its price tag suggests and decidedly unconventional alongside the wood-finished floorstanders and substantial standmounters that dominate its price competition.

In fact, one might well doubt the material value of an £800 speaker measuring just 20.8x12.3cm front-on, but that would be missing the point – it's precisely this speaker's diminutive size, and the resultant nature of its engineering, that makes it so fascinating.

The question is: is it possible to get a sound of high-end scope and scale from a box this small? Many have tried, many have failed, but ELAC's approach is unusually well specified. To help lift the sound 'out of the box', it has employed its own 'JET' ribbon-type tweeter, its folded foil forming ten times the surface

area of a standard 25mm dome. Tweeters of this type are typically clean and transparent-sounding, an important contribution when attempting to produce a performance much bigger than the cabinet size would suggest.

The mid/bass drive unit is another proprietary design, employing a diaphragm made from 0.2mm-thick alloy bonded to doped paper. It's intended to be both light and rigid, and uses a long-throw motion (up to 2cm from end to end) to compensate for the air-shifting limitations posed by its small (8cm) diameter. The cabinet is ported at the rear and made

“Is it possible to get a sound of high-end scope and scale from a box this small? Many have tried, many have failed, but ELAC's approach is unusually well specified.”

from 6.5mm-thick extruded aluminium, apparently to form a rigid, low resonance enclosure, although I suspect aesthetic reasoning also came into it – it's finished in a choice of black, white or silver lacquer, with a limited edition blue.

SETTING UP

ELAC supplies its own 80cm high stand for the CL 310i JET, a two-pillar affair sporting a matching finish and a price tag of £200. A wall-mounting option is also available, but not recommended for optimum performance. It works best in free space, although its size might suggest otherwise, and each speaker should be well spaced apart with a toe-in towards the listener.

It's quite a demanding load, as one would assume from a

nominal 4 Ohm impedance, and well-powered amplification is essential.

I tried three different amps with varying



degrees of success – Pioneer's A-400, Musical Fidelity's X-A1 and the A1001, also from Musical Fidelity. The £2,500, 200 Watt A1001 was the best suited by some margin.

ELAC's UK contact suggests several lower cost options, with bi-amped Arcam combos particularly recommended.

SOUND QUALITY

The CL 310i JET is a largely aesthetically driven product. Its concept began with a visual image – that of an extremely small and neat loudspeaker – and its designers have worked within that constraint to create the best sounding product they can. When judging a design like this, reviewers have to apply a degree of contextual insight: who is the product aimed at, and how successful is it on its own terms?

Within these parameters it's a pretty impressive speaker. It exudes designer chic and 'almost invisible' appeal, yet its sound contains many elements that can realistically be classed as 'high end'. The scope of its performance certainly exceeds preconceptions, delivering impressive dispersion and reasonable scale, and the net effect is likely to raise more than an eyebrow.

Upper frequencies are its most admirable sonic aspect, largely owing to the quality of that ribbon tweeter. There's a fresh, transparent air to its treble that opens out well with acoustic material, and female vocal in particular, affording this diminutive speaker a performance of some stature. Of all the discs used for testing, it was probably most successful with Stina Nordenstam's eerily quiet *And She Closed Her Eyes* – it

ELAC's CL 310i JET – a miniature speaker with a lengthy monicker

conveyed her vocal and the stark ambience that surrounds it enticingly well.

Ultimately, though, the speaker's sound suffers some compromise as a result of its size. Bass depth is limited, although it tries gamely to compensate with some quite serious mid-bass thump, and it can't match the impressive extension supplied up top.

Midrange is also a little pinched, lacking the insight to convey the full breadth of texture, and missing the width and grace to really wrap you in a favourite piece of music. It's quite direct, yet heard across a range of music the speaker is strangely uninvolved.

CONCLUSION

Judged simply as an £800 speaker this ELAC has its limits, as the ratings show. Yet it's undoubtedly an interesting and well-engineered product that follows a specific set of design parameters, and within a 'big sound/small speaker' context it's a qualified success. At its best, it's surprisingly good – a designer speaker with a real hi-fi sound.

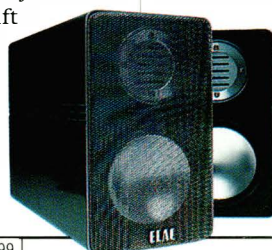
VERDICT

SOUND	★★★★★
BUILD	★★★★★
VALUE	★★★★★
PRICE	£800

It's pricey, and you can buy better performance for the money. But have you ever heard a speaker this small sound this good?

TWO YEAR GUARANTEE

ELAC Helpline (01494) 551 571



WORLDS Collide

Theta's DaViD transport purports to be the definitive disc reader for both music and movies. **Alan Sircom** takes the role of Goliath.



Predicting just what the next generation of polycarbonate disc will be is a bit of a lottery. Instead of trying to second-guess the future, US high-end Theta Digital is maximising what's good about the existing CD and DVD-Video formats. The company's £4,650 DaViD player combines CD and DVD transports in an attempt to get the best from both formats.

It is not a complete DVD player, however, DaViD lacks the analogue output stage found in every other machine. Instead, it comes packed with every possible type of digital output (optical connections aren't fitted as standard, but are available as options).

For those who like their hi-fi really pure, the PCM digital datastream (the CD audio data) is delivered from a dedicated coaxial output, or alternatively twinned with 24-bit/96kHz digital audio, Dolby Digital and dts streams from a second coaxial and balanced AES/EBU connection. (MPEG-2 multi-channel data is not on the DaViD table of contents, but this European format seems less and less likely to survive.)

○ A CD transport is no big thing among the hi-fi fraternity but AV enthusiasts are just starting to realise the benefits.

Not only does this cut out a section of digital switching, but could allow the Theta to be connected to a high-quality two-channel D/A converter and a separate AV processor for no-compromise hi-fi and AV sound from the same transport. You could have the hi-fi and AV systems in separate rooms, if the cable were long enough.

A CD transport is now no big thing among the hi-fi fraternity but AV enthusiasts are just beginning to learn that separating the analogue and digital sections within a digital device is a good idea (if jitter can be held at bay). On the picture handling side, it has component, composite and S-video outputs but no Scart socket, revealing its US origins.

It is no secret that the DaViD is a heavily modified Pioneer DVD player. But considering Theta has been altering Pioneer mechanics successfully for several years, and its well-respected Miles CD player (tested in issue 176) and its top of the range LaserDisc/DVD/CD playing Voyager are both Pioneer-based. Theta has included its own digital audio and power supply circuit boards. In addition, it has buffered and re-clocked the digital datastream to keep the demon jitter under the cosh.

"Whether the music is classical or contemporary, you get an unedited impression of instrumental character wrapped up in a thoroughly engaging package."

The buffer effectively becomes the source, while the master clock stores the signal long enough to realign data.

Despite impressive claims by manufacturers, few DVD players can really cut it as a CD player. The Theta DaViD is a noteworthy exception. Hooked up to a D/A converter of appropriate quality, the transport performs on a par with a Meridian 500, and can even outperform this benchmark of a CD transport in certain aspects, which is no mean feat. The two stand shoulder to shoulder in terms of rhythmic abilities; both can keep to a beat well, but are no match for well-designed integrated CD models (including Meridian's own 508.24 and Theta's Miles). They also match one another in terms of soundstaging and detailing, throwing out a wide

and deep soundstage packed full of insight into what is happening in the mix.

Where the two depart is the tonal balance. The Theta DaViD is considerably warmer-toned than most CD transports. This gives music a touch of richness, although not so much as to give the sound a rose-tinted air. At best, it sounds very natural and pleasant and at worst, the Theta sounds – well, posh.

As with a lot of high-end American gear, the DaViD is geared toward an eclectic and diverse mix of musical tastes. So, for systems geared to a specific musical genre such as classical, jazz or rock, it might not shine like a player that has its strengths in the right areas for one of those particular types. But, if your music tastes run through everything from Bach to Beck, and you have a system that would benefit from a slightly warm, albeit natural-sounding source, then the Theta should be in the running.

Finally, HFC isn't really the place to mention the DaViD's exemplary performance as a DVD player, except in passing. But it would be remiss not to draw attention to the superb low-glitch picture. It makes the package the logical move for many a well-heeled hi-fi buff who wants to explore AV without sacrificing sound quality. I just wish the name wasn't such a typing exercise.

VERDICT

SOUND	★★★★★
BUILD	★★★★★
VALUE	★★★☆☆
PRICE	£4,650

■ Theta DaViD: A top-notch CD transport, that also plays DVD-Video discs well, too. Pricy for a DVD player, but worth it.

■ THREE YR GUARANTEE (ELECTRONICS)
 ■ ONE YEAR GUARANTEE (TRANSPORT)
 Absolute Sounds (0181) 971 3909

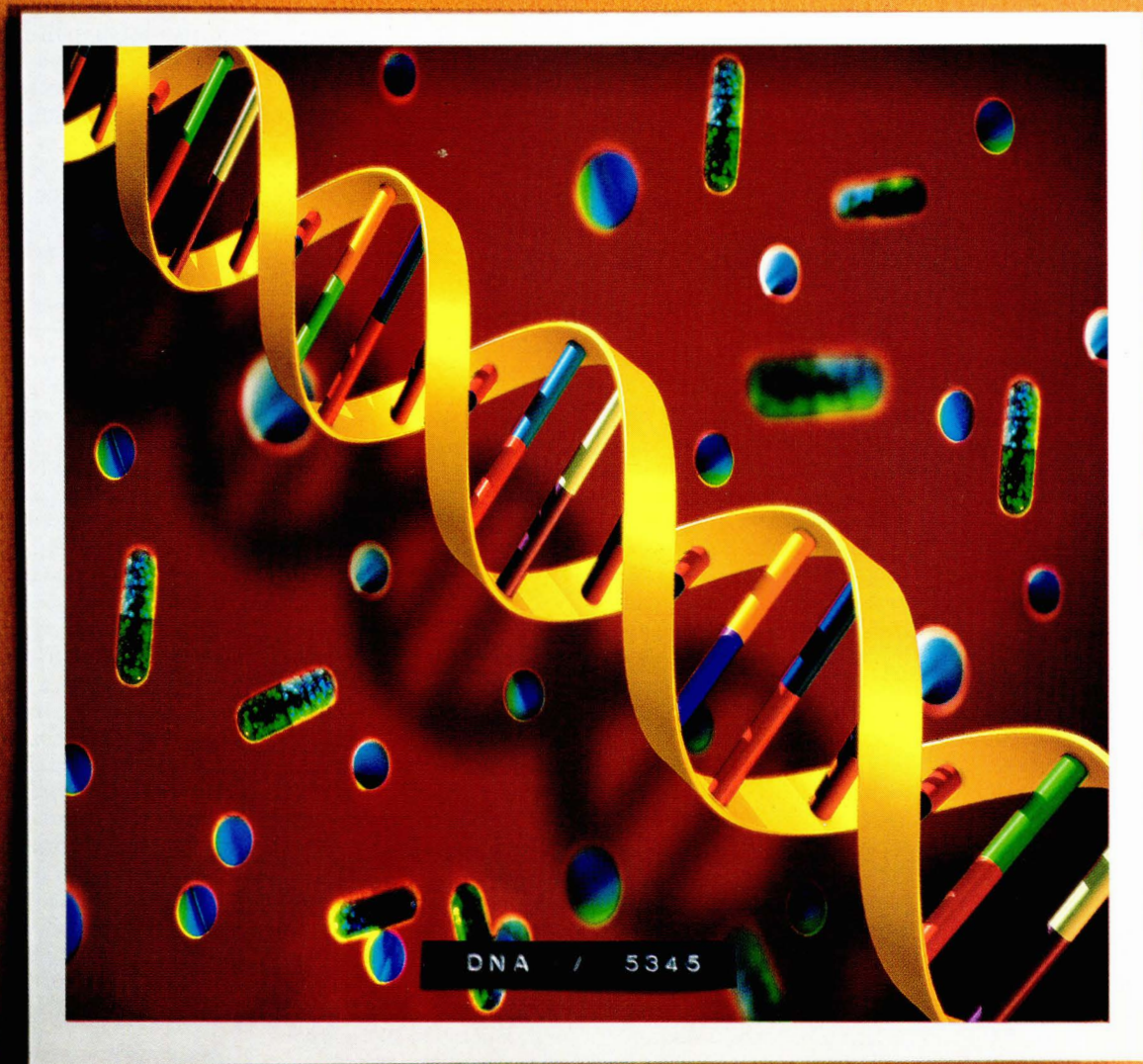
OUTPUTS

■ 2x S-Video output • 3x BNC component video • phono/BNC composite output • PCM digital audio phono • PCM/Dolby Digital/dts digital audio phono/BNC/balanced (AES/EBU) • optional ST optical digital audio





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PHILIPS

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THE TRUTH Is Out There

Paul Messenger looks at how an old-school British brand is helping a new name come to the fore.

Veritas is a new name on the speaker scene, but the H3's use of Lowther drive units goes right back to the very earliest days of hi-fi. I first encountered Veritas at the Bristol show in February, and was surprised to find such a large range of models. They're beautifully built and mostly conventional in size, price and driver complement – which is why the Lowther-driven examples particularly caught my attention.

I guess there's a myth around a brand which can trace its links back to the pre-war era, and still makes drivers which look much like the old models, but with strong magnetic fields, light paper cones and dramatic sensitivities.

Veritas is the third British brand using Lowther drivers I've encountered in recent years, but the first (I'm ashamed to say) I've got around to giving a pukka review. Ironically, Lowther Acoustas were nearly my first serious speakers back in 1968, but I went for Spendor BC1s instead. It's not a decision I regret, because the BC1 remains a loudspeaker milestone, but it undoubtedly influenced my personal hi-fi development. Thirty years later, I reckon I'm ready to tackle a Lowther.

SETTING UP

This Veritas implementation is a large and very substantial loudspeaker, although it's not unduly bulky, especially because it should be placed close to a wall or, better still, a corner. Each H3 uses two Lowther DX2 drivers, one facing forward, the other upwards, and each is loaded at the rear by a folded horn. I can't quite achieve corner location, but I did end up with the speakers further apart than usual.

Given that DX2s cost £258.50 each direct from Lowther, and the double-folded horn, double-layer Isolating Bonding Laminate (ISB) cabinetwork is also exceedingly complex, it's not surprising that the

retail price is expected to be about £6,000 per pair. A slightly smaller, single-driver, single-horn version is available for £4,500. The MDF enclosure is finished in piano gloss black (solid real wood is an option), with nicely radiused edges all round and a plinth to sit on.

On my standard in-room measurements, the H3 gave one of the highest sensitivities I've

“The quality of the bass and the subtle dynamic contrasts it can convey puts conventional box loudspeakers to shame. This speaker doesn't slop around muddling the detail.”

ever encountered, at about 104dB (only matched by the Klipschorn and LV Air Partner). The overall far-field balance is impressive too, holding within +/-3dB between 200Hz and 10kHz. But it is also rather uneven en route, with an unusual overall trend that's significantly stronger than average through the presence and treble (1-10kHz), and about

○ The quality of bass and the subtle dynamic contrasts the H3 can convey puts conventional speakers to shame.

3dB too light through the bass region, from 50-200Hz. There's little output of consequence below 50Hz or above 10kHz.

SOUND QUALITY

Compared directly with more conventional speakers, the H3 does sound distinctly coloured, lightweight and almost aggressively forward. But acclimatisation only took a few hours – then I started falling in love with this speaker.

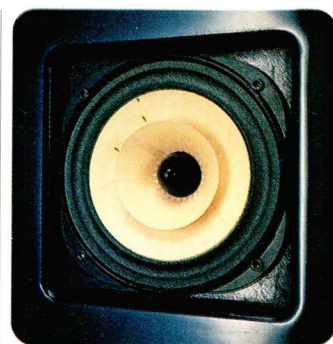
I know it's an oddball, but its faults somehow seemed fundamentally benign, while its astonishing coherence and dynamic integrity brought a new dimension, particularly to acoustic music.

If I only played the Prodigy and Chemical Brothers, I'd probably look elsewhere, because the H3 lacks serious grunt. But the quality of the bass and the subtle dynamic contrasts it can convey puts conventional box loudspeakers to shame. This speaker has true grip and poise, and doesn't slop around muddling the detail.

The real strengths lie in the midband. I ended up leaving the tuner on Radio 3 and letting it burble on at a low level during the day. I didn't want to be distracted, but kept noticing how beautifully subtle orchestral textures were reproduced, especially massed strings, even when playing at a very low level.

Most significantly, the H3's the sort of speaker which could get me into all sorts of new music. It gives so much timing and dynamic information and imbues every instrument with a harmonic richness which makes one wonder how much conventional speakers seem to lose along the way.

The second upward-facing driver makes for a more spacious, room-filling sound, but at some cost in locational precision and focus. On the whole I left them open, but some tracks seemed to work better



with the top driver blocked off. Perhaps Veritas might consider incorporating a switch or bridging link so the top driver can be easily disconnected.

The H3 wasn't a perfect match for my Naim amp, but that didn't spoil the fun. My experiments with alternatives included an Electrocompaniet and a Cary valve combo which served to show how remarkably transparent this speaker is to the sources and amplification that feed it. It seems to point up the inherent characters of driving components, which makes the task of putting a sympathetic system together a challenge, but potentially a most rewarding one.

CONCLUSION

This combination of Lowther's neodymium-magnet drivers with Veritas' excellently inert cabinetwork amounts to a most entertaining speaker. The more time I spend with the H3s, the less I'm looking forward to returning them. Quirky they may be, but get to try them at home over the weekend and you could well be arranging a loan on Monday morning. I know of no alternatives with the same combination of righteous dynamics and full range driver coherence.



VERDICT	
SOUND	★★★★★
BUILD	★★★★★
VALUE	★★★★☆
PRICE	£5,995
<p>📖 Loads of fun with wonderful dynamic and temporal integrity.</p> <p>■ FIVE YEAR GUARANTEE</p> <p>☎ Veritas (01263) 741417</p>	

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(December '96)

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THE VERDICT

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Home Entertainment

(August '98)

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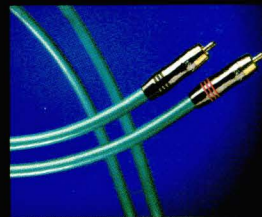
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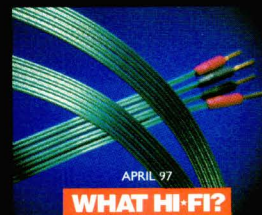
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SUPER TEST

MINIDISC/CD-RECORDERS

Richard Black puts the latest generation of digital recorders through their paces to find out whether MiniDisc really *has* got it taped

THE CAST LIST

Kenwood DMF-9020	£499	p44
Marantz CM635	£499.90	p45
Pioneer MJ-D707	£199	p47
Sharp MD-R1 MkII	£180	p49
Sony MDS-JA20ES	£499.99	p50
Yamaha MDX-793	£299.95	p51
Marantz DR700	£599.90	p52
Traxdata Traxaudio 900	£399	p53

Digital recording in the home is fast becoming a fact of life rather than a futuristic novelty. Most of the major manufacturers include at least one MiniDisc recorder in their line-up and there is also a

GLOSSARY

ATRAC – Adaptive Transform Acoustic Coding. A bit of clever digital signal processing, used in MiniDisc, that squeezes the audio data to about 22 per cent of their original volume. It uses a combination of lossless and lossy techniques to give a near approximation to the original on playback, the accuracy of the approximation depending strongly on the music being processed. The idea is that errors introduced are not significantly audible in practice.

BIT-PERFECT COPIES – as the name suggests, digital copies that are digitally indistinguishable from the original. Given jitter-free playback equipment such copies will invariably sound identical to the source. Most CD-R decks can make such copies: MD can't. **SAMPLE-RATE CONVERTER** – MD and CD both use a sampling rate of 44.1kHz, while DAT and DAB use 48kHz (or 32kHz). An SRC reads in the samples at one rate and calculates a new set at another rate, allowing digital copying of non-44.1kHz sources. An Asynchronous SRC does this for any input sample rate, allowing compatibility with slightly inaccurate, near-44.1kHz, sources (good), but may introduce jitter in the process (bad).

SCMS – Serial Copyright Management System. This system, compulsory in all domestic digital recorders, allows one copy to be made of an original but prohibits copies of the copy. However, analogue copies can still be made.



handful of affordable CD recorders to choose from. Recordable DVD is a reality in the computer world, and it's likely that in some shape or form it will before long infiltrate audio too. Cassette is far from dead and DAT, although seldom considered a domestic format, is actually perfectly viable and available if you look for it.

All the formats have their own advantages and drawbacks. MiniDisc offers unprecedented flexibility, with quite sophisticated editing available and the option of adding titles to tracks, but its sound quality is hampered by the use of data reduction (data

compression or coding), which means it can't play back a perfect facsimile of the input. Recordable CD can do that (as long as the source is at the CD sampling rate of 44.1kHz) but it is very inflexible: you can't do any editing after the fact and even in its 'Rewritable' variant the system doesn't allow anything smarter than erasing the last track or the complete disc.

Cassette is well established and compatible with 30 years' production of decks and tapes, but it will always suffer from limited signal-to-noise ratio and only the very best decks can truly be said to explore its potential to the full.

HOW THE TESTS WERE DONE

All decks were assessed initially in record/pause mode, which tests the DAC and output stages and establishes a limit to overall performance. Next, a selection of excerpts – some long, some short – were recorded on each deck and listened to repeatedly: CD-R copies are a simple enough matter but some of MD's foibles seem to sink in with repeated hearing. It soon became obvious that some tracks are a much tougher test of MD than others, and the first two on the list (right) were particularly useful and are recommended: the very opening of *Dance the Night Away* and a section of *Flamenco Sketches* about 1'40" into the track (especially one particular note at 1'46"). This provided the most obvious illustration of ATRAC's limitations that I've heard to date, with consistently

audible distortion of the muted trumpet, equally audible on Sony's own prerecorded MD version of the track.

Ancillary equipment included Rotel RCD-971 CD player, EAR amps and ATC speakers, with various (mostly custom) interconnects and Kimber and Sony optical leads.

SOFTWARE INCLUDED:

MILES DAVIS: *Kind of Blue* (Track 5, *Flamenco Sketches*), on Columbia CK64935

THE MAVERICKS: *Trampoline* (Track 1, *Dance the Night Away*), on MCA UMD80456

JOSÉ ANTONIO GUZMEN: *Ambrosio*, on Sonora SACD101
Plus a recording of music for roll piano which I had just been editing when the recorders turned up!

The maximum uninterrupted recording time on quality tape is only about 50 minutes, compared with 74 minutes for MD and CD. DAT is great for recording time, giving 2 hours (4 hours in Long Play mode), plus cassette-like familiarity in use and some editability, but the few affordable models are semi-pro units not generally for sale through retail outlets and tape isn't exactly on sale in every high street either.

All four systems cost about the same in recording time, about £2-£3 per hour, and good recorders of each type come in at around £500, although cassette of course starts at much less while MiniDisc has now crept down to a £200 entry price and CD-R has recently dipped below £300. So – what's the bottom line?

I think in the end it comes down to the sort of listener you are. If, like me, you're at heart a hard-line audiophile who can cope with the odd minor creature discomfort, CD-R is probably your thing. If, however, you appreciate a few features – and certainly if you're a true gadgeteer – you'll very likely love MiniDisc.

It's not full CD quality, but the best examples aren't far off the mark and, all things considered, it's probably the best home recording format we've had yet.



HINTS & TIPS

If you're recording digitally there's usually no need

(and on most decks no option) to adjust recording level. But if you're recording analogue sources be careful how you set recording levels. On cassette decks, '0dB' is a nominal level with some headroom above it, while on MD or CD it's absolute maximum, with serious distortion above it. Being conservative will only slightly worsen the noise floor.

Buy the right blank media: avoid non-brand name discs and make sure you get the correct 'For Music Use' CD-Rs. This might all be exciting new-technology stuff but the usual guidelines about using quality cables and supports still apply, as do those about careful handling: CD-Rs in particular do not appreciate being scratched on top or bottom face.

KENWOOD DMF-9020



Phew, what a whopper! Actually, it's only just the largest deck in this survey (the Yamaha is even a little deeper), but somehow it seems to loom. Given the size of the internal subassemblies there's no obvious reason for it to be this big, but it does at least look very smart, complete with Kenwood's new-look front panel.

Said front panel has the usual knobs and buttons, but look hard just below the power switch and you'll see the deck's unique (to date) feature: a 6-pin mini-DIN socket. Eh? Yup, it's a socket for a PC keyboard. After 6 years of MiniDisc, someone has finally addressed the issue of how to title discs without spending half a week over it. It's a brilliant solution: a PC keyboard can be picked up for under a tenner and once you've plugged it in you can title your discs in a fraction of the time it takes with the usual jog dial.

On the audio features front things are less novel, but there's a second coaxial digital input and a

Kenwood wins points for having a keyboard socket to make titling easier.

"The Kenwood DMF-9020 produces a solid sound with a fine bass extension and believable voices, plus quite good retrieval of ambience. Imaging is also good."

coaxial digital output too – and, of course, the usual editing functions, plus digital level control, digital fade in/out and adjustable track marker level.

There are a few minor niggles. Because the 'Power' switch really does cut off the mains supply (most MD decks merely go into standby), there's therefore a danger of switching off before writing the all-important Table of Contents. The ToC is updated after every record operation, which takes a few seconds and is particularly irritating if one hits 'Stop' by accident instead of 'Pause' after recording a track. Kenwood's transport is rather noisy in operation, and emits a whirring noise 10 seconds before the end of a disc, which I could live without in the closing bars of Mahler's Ninth Symphony. But on the whole, operation is reasonably slick and straightforward.

Internal build quality is very good, with one exception – despite the acres of space inside the case, Kenwood has put the headphone output board right next to the mains transformer and there is therefore a permanent mild hum on cans.

Unusually, the digital input is fed through an Asynchronous Sample-Rate Converter, which should ensure ready compatibility with CD players whose master clock is not accurate but has the potential to introduce jitter (although whether that's a major issue when ATRAC coding is also invoked is a moot point).

SOUND QUALITY

Kenwood's MD decks have always done pretty well in HFC tests and this one's no exception. Tested as a DAC or replaying pre-recorded material (given that ATRAC decoding on any deck gives digitally identical results) it produces a good, solid sound with fine bass extension and believable voices, plus quite good retrieval of ambience. Imaging is also good, if not quite at the level of the best current mid-price CD players.

When recording, performance is still among the front runners in the MD world, though certain MD artefacts are not so easily shaken off. In what turned out to be the most difficult test, Miles Davis' *Kind of Blue*, audible distortion on the muted trumpet was kept to as low a level as with any deck, but was still far from vanishing. On less stringent material the sound was generally clear and lifelike, but

hints of 'MD-ness' would creep in from time to time, including a small but unmistakable loss of ambience in well-recorded acoustic music and some grain and lack of detail with very busy recordings. An example of this would be the opening of *Dance the Night Away* (The Mavericks), where in the first few seconds the guitar sounds noticeably processed and some background cymbal crashes are really quite dirty and coarse compared with the original.

Imaging is mostly good, but tends to converge on the centre in loud music. It sometimes feels as if imaging is 'pumping' with the dynamics of the music. The analogue input is good apart from a very slight loss of detail – nothing at all alarming.

CONCLUSION

On sonic grounds, this is one of the more successful MD decks around, and the keyboard socket gives it high marks for useability too. It's still not completely acoustically 'transparent', but it's close. Recommended.

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £499

One of the best MD decks yet for sound quality, and the first to make titling a practical proposition.

ONE YEAR GUARANTEE

Kenwood Electronics UK Ltd, Kenwood House, Dwight Road, Watford, Herts WD1 8EB.
(01923) 816444

SPECIFICATIONS

- Digital Record Level: Yes (1dB steps)
- Analogue Record Level: Single plus balance
- Edit adjustability: Yes (coarse)



MARANTZ CM635



It's not the first time it's been done and you can be sure it won't be the last – the idea of having a CD player and a MD recorder in one box is a good one from many points of view. For a start, it's one box less you've got to find a home for, and then there's a saving in the cost of the metalwork of one unit, one power supply, several front panel controls, one remote control and the DAC and output electronics.

That's not to say one can only dub from the internal CD deck, and there are the usual optical and coaxial digital inputs, plus an optical output. There's also an analogue input, but the level control is conspicuous by its absence. Record level is, in fact, set digitally, via the remote control. That's OK as far as it goes; the real problem is that at any level setting the input overloads quite unpleasantly at 2.6V in, which is not really adequate to cope with modern sources, many of which are capable of putting out higher levels than that. Even if it meant losing a little noise floor, I'd rather see at least 4V headroom.

The CD player functions like any other. The MD side, meanwhile, has the standard track editing

ⓘ The panel is sensibly laid out, but some functions are not all that intuitive.

“Bass, usually a Marantz strong point, is full and clear, but the sound can get rather rough at loud climaxes. Overall, detail is moderate to good.”

functions plus titling, synchronised recording (with the internal CD deck or an external source), double-length mono recording and overwrite recording from the middle of an existing track. This last is appearing in some MD recorders but should be avoided because, unlike drop-in recording on a cassette, it effectively erases absolutely everything after the drop-in point. Usually it's much better practice to record a whole new track on the 'end' of the disc and use the editing functions to join it up to the appropriate point in the sequence.

This deck is well put together, although some of the internal wiring is a bit of a rat's nest. The front panel is sensibly laid out, but even so some functions are not all that intuitive (for instance dubbing from CD to MD), and the display could be clearer – the various indicators are close together and it's not always obvious what's happening. Level metering looks like an afterthought: it's very small and completely uncalibrated. It seems clear that Marantz just

doesn't expect people to do much recording from the analogue inputs! MD disc handling is a little slower than average.

SOUND QUALITY

Tested initially as a straight CD player, the CM-635 seems respectable – roughly in the same ballpark as Marantz's own CD-only machines in the £180-£200 region. Bass, usually a Marantz strong point, is full and clear, but imaging is a little below par and the sound can get rather rough at loud climaxes. Overall, detail is moderate to good. This picture applies equally when replaying pre-recorded MiniDiscs: the digits are retrieved from the ATRAC datastream just the same as on any other deck, but turning them back into analogue signals is a function of the DAC and audio output which, of course, are shared with the CD deck.

Recording performance is middling – in fact, quite similar to the Sharp recorder also included in this test. Following the pattern which emerged with all the MD

decks here, results vary from pretty good with simple music and sounds without much treble, to clearly compromised with the most difficult test, close-miked muted trumpet. This sounded edge and coloured, with subtle but irritating additions to the sound not unlike a mechanical rattle one can't quite locate in a room. The other awkward test track, by The Mavericks, also sounded slightly coloured and developed traces of DSP warbles in the background, while the general texture of the percussion coarsened considerably. On the other hand, most classical music fared better, with little more than some loss of ambience and imaging compared with the CD.

The analogue input proved a weak point, quite rough and lacking some detail, with rather odd imaging that seemed to make everything more recessed.

CONCLUSION

This deck would have looked a lot more attractive at about £150 less. As it is, it seems to offer barely more – in some ways, less – than a £200 Marantz CD player and a £200 Sharp MD recorder.

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £499.90

ⓘ A practical idea, but sound and features don't really match the asking price.

TWO YEAR GUARANTEE

✉ Marantz Hi-Fi UK Ltd, Kingsbridge House, Padbury Oaks, 575-583 Bath Road, Longford, Middlesex UB7 0EH
☎ (01753) 680868

SPECIFICATIONS

- Digital Record Level: No
- Analogue Record Level: Single, via remote
- Edit adjustability: No



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PIONEER MJ-D707



Pioneer was the firm that first brought relatively cheap CD-R to the masses and has continued to pursue that line, but clearly it feels that MiniDisc is something it can't ignore forever, so here for the first time in *HFC* is a Pioneer MD deck.

And it looks promising. For a none-too-alarming sum it offers an impressive list of features – almost matching the Sony MDS-JA20ES (see later), but losing out on ultimate flexibility.

Still, the compromises it makes are arguably the right ones. Starting from the basic features – analogue in and out, of course, plus optical and coaxial digital in and optical out, standard editing and titling functions, the usual CD-style playback programming – it adds Sony-style flexible editing with both rehearsal for track dividing and edit adjustability in single-frame increments (about 12ms). That's good and welcome. There's a digital input level control, adjustable in 0.5dB or 1dB steps

❖ The '707 is easy to operate, with nice large buttons and slick disc handling.

“The Pioneer has a ‘Time Skip’ function that allows much faster searching within a track, a feature I wish was present on all MiniDisc and CD machines.”

from -48dB to +12dB, and the option of fading in or out (many of these functions only work with a digital input if it's at CD's 44.1kHz – otherwise the sample rate converter uses up too much processing power to allow other simultaneous functions).

The fades are of preset length, but that seems to be perfectly acceptable. You can also alter the threshold at which the unit auto-detects a new track, and believe me, you don't know how useful that can be until you miss it.

Pioneer offers its own speciality, too, in the form of 'Digital NR' which acts on record or playback to cut down high-frequency noise in a signal (something of the sort turns up on some of its high-end cassette decks, too). It works fairly well, but there's always a trade-off between reducing real noise and encroaching on the

music. And there's a 'Time Skip' function that allows much faster searching within a track, a feature I wish was present on all MD and CD machines.

The '707 is easy enough to operate, with nice large buttons, clearly labelled, and pretty slick disc handling. The On/Off button does actually kill power to the deck, though, and if that's done with a newly-recorded (or edited) disc in the transport it could result in loss of some or all of a disc's contents, so be careful or use the remote control's 'Standby' button instead. Metering is good and unusually fast to respond (on many decks it's much too slow).

SOUND QUALITY

As a replay deck, or when monitoring the input, things are good, if not great. The sound seems just a little over-bright and lacking some image depth, although bass is on the whole strong and realistic. The midrange is clear and quite detailed – at least as long as there isn't too much treble happening, which tends to cloud things a bit – and complex musical textures are mostly easy to follow.

The Pioneer 'Legato Link' oversampling filter it uses is a rather controversial device and I have reservations based not least on its variable compatibility with different partnering amps and speakers, but if those are good it can give pleasing results.

However, this deck's recording performance was something of a disappointment. With classical music, which in general has less high-frequency content than jazz

and popular styles, it was relatively harmless, although the common MD failing of slight ambience loss – a feeling that the end of a musical phrase has been just subtly curtailed – was sometimes evident.

Where things really came adrift was with treble-rich material such as the test tracks from The Mavericks and Miles Davis. In the former it was not hard to hear the effects of Pioneer's ATRAC encoding in the background, with an effect not wholly unlike a subtly-applied flanger adding a warble to the beautifully-recorded guitar and percussion, while in the latter test Miles' muted trumpet changed tone noticeably. In this context, the slight veiling contributed by the analogue input makes little difference to the overall result.

CONCLUSION

Pioneer's ATRAC seems similar to Sharp's. Could it be that Pioneer's somewhat superior output stage allows the ATRAC effects to be heard even more clearly? Despite that, the deck is flexible in use and quite cheap considering, and can, I think, be given a qualified Recommendation.



VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £199

📄 A handy set of features for the price, although sound is not outstanding.

■ ONE YEAR GUARANTEE

✉ Pioneer Hi-Fidelity (GB) Ltd, Pioneer House, Hollybush Hill, Stoke Poges, Slough SL2 4PQ
☎ (01753) 789789

SPECIFICATIONS

■ Digital Record Level: Yes (0.5dB steps)

■ Analogue Record Level: Single

■ Edit adjustability: Yes (fine)

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SHARP MD-R1 MkII



It's certainly rather small and dinky, though the looks are a bit a matter of taste. For mine, they're a bit too reminiscent of a car radio: more seriously, this miniaturisation has led to the controls being uncomfortably cramped together and in use are, frankly, rather fiddly. However, operation is reasonably straightforward, although disc handling is a little slower than on some other recorders.

Features are essentially the basic MiniDisc set: standard editing (with no rehearsal) and tiling, programmed play, synchronised recording (which actually works, losing no more than a couple of samples), optical digital in and out plus coaxial in only, and a headphone jack that accepts only 3.5mm plugs. The headphone level control, daftly, is at the back.

There are two extras: as on many MiniDisc recorders, it is possible to record in mono for twice the duration of a stereo disc. But Sharp has also thoughtfully incorporated a real-time clock (yes, Y2K compatible) and a timer function so that you can record programmes while you're out or wake up to music. The clock also

❖ This deck offers similar performance to many other players at higher prices.



“As on many recorders, it is possible to record in mono for twice the duration of a stereo disc. But Sharp has incorporated a real-time clock and timer function too.”

date-stamps recordings, which I find very useful for those all-too-frequent occasions when one forgets to put any kind of label on a tape or disc – at least with the aid of a few back issues of *Radio Times* one has a fighting chance of working out what is on there.

Build quality is thoroughly consumer-grade, although given the price that's hardly surprising. The display is distinctively Sharp, with very large letters for the title and the same display giving clear, but rather low-resolution, metering in record mode.

SOUND QUALITY

The initial record/pause monitor listening was not altogether encouraging. Compared with other MiniDisc recorders and a couple of modest CD players, the MD-R1's DAC and output stage clearly loses some imaging precision and a degree of bass extension and weight. As a result, images tend to collapse towards the centre while sounds like pizzicato double bass recede into the mix. Loud climaxes also err on the rough side.

Sharp not only makes its own DSP chips, it even has its own version of ATRAC coding, so it was initially something of a surprise to find that replay gave identical results to other machines in this group, digitally speaking. This

means that, on the one hand, its replay performance will be dominated by the imaging and bass losses mentioned above, while on the other hand with an external DAC it should, in principle, be very much of a muchness with any other MD deck.

However, Sharp's record encoding is clearly not identical to everybody else's and, to my ear, is less successful than some in concealing its operation. Subtracting the encoded version from the original suggested Sharp gets closer to the truth on some material such as solo piano, but it turns out that ATRAC is in general pretty good at handling that sort of thing. With more treble-rich stuff, this Sharp is prone to add borderline-audible background garbage, something evident not only on subtractive comparison but on normal listening too.

The practical upshot is that while simple musical textures come over fairly well, complex ones are not so kindly treated. Miles Davis, for instance, sounded more obviously distorted than with the Sony and Kenwood recorders (although the Pioneer, Marantz and Yamaha decks gave similar results). The Mavericks track suffered some coloration and sounded generally processed, although again, not as badly as on some players.

On the classical music side, recordings with a moderate amount of ambience lost some of it, phrases sounding unnaturally truncated, although tonally there was little to give things away. A few odd effects also crept in: in *Ambrosio*, the consonants and vowels sung by the female choir sometimes seemed to come from different points in the stereo image. The analogue input almost counters the output with a little plummy, but it is not perfectly clear either.

CONCLUSION

In the context of its price this deck is not so severely compromised, and indeed it would appear in many ways to offer similar performance to some models at rather higher prices. It works well enough, and its small size may well be attractive to many – just Recommended.

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £180

It's cheap – sound is not outrageously bettered by rather pricier competition. A bit thin on features, though.

ONE YEAR GUARANTEE

Sharp Electronics UK, Sharp House, Thorp Road, Newton Heath, Manchester M40 5BE

(0800) 262958

SPECIFICATIONS

- Digital Record Level: No
- Analogue Record Level: Single
- Edit adjustability: No

SONY MDS-JA20ES



One year ago (*HFC 177*) I reviewed the JA30ES, this model's big brother. Frankly, the two are really very similar indeed: the few features of the '30 not found on the '20 are pretty esoteric.

And this being a Sony, features are the name of the game. Some are more useful than others. 'Time Machine Recording' – which stores six seconds of audio in a buffer so that you can start the machine just after you hear the opening notes of your favourite tune on the radio and still not miss anything on the recording – must be one of the smartest additions yet. Digital level control is also handy, and moreover can be set independently, in 0.1 dB steps and with a range from -60 to +12dB, for each of the three digital inputs. Replay speed/pitch is variable in small increments over a wide range, and replay and recording can be faded in and out with adjustable fade times.

Potentially most powerful of all are the editing functions which, although still based on the MiniDisc fundamentals of dividing,

• This scores highly for its ergonomics, but there's still room for improvement.

“Time Machine Recording — which stores six seconds of audio in a buffer so that you don't miss anything on a recording — must be one of the smartest features yet.”

combining, moving and erasing tracks give far more flexibility than most other recorders by allowing both rehearsal of edit point and adjustability to less than 1/80s accuracy. (Pioneer and Yamaha have also caught up on this one.) This makes professional-quality edits possible in the middle of a passage of music.

Another unusual feature is the ability to set the trigger threshold at which the auto track-marker function operates when recording from a non-CD source. Input and output digital word length can be up to 24-bit, and there is a choice of four oversampling filters to tune replay, although I would strongly recommend leaving this on 'Standard'. Programming and titling features are much as usual.

In use, this machine scores highly for its ergonomics, but there's still room for improvement (editing isn't amazingly intuitive, for instance). But it all feels very

solid, disc loading is quite fast, the display is nicely informative (and gives good resolution of recording level) and it's friendly to operate.

SOUND QUALITY

Once again, Sony comes up trumps with a MiniDisc recorder of rather superior performance. As a first test of the audio electronics I always treat any recorder as a 'pass-through' device in Record/Pause mode: this tests the input and output stages as well as ADC and DAC, but not the ATRAC coding. Not all recorders sail through this test as the JA20ES does. OK, it's not completely inaudible, but it comes pretty close, with just the smallest hint of plumminess. A good first impression, and one generally maintained by the performance on record and replay.

There is still some degree of 'MiniDisc-ness', a small loss in the sense of involvement that one should feel when listening to a well-recorded piece of good music. But that seems to be getting less with every generation of recorders and is not a major limitation here.

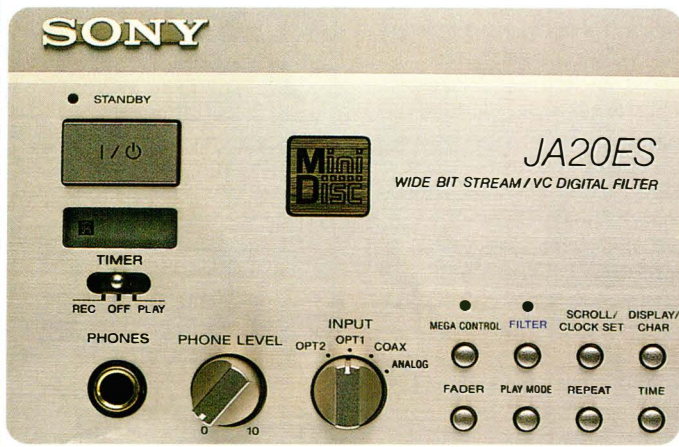
In music that contains a lot of high treble (struck cymbal and the like) there is some coarsening of the sound, but in fact this deck gave very good results with the two toughest tracks from The Mavericks and Miles Davis, barely affecting the former (still not perfect, but without any immediately obvious coloration) and at least producing less distortion on the latter than some other decks in this survey.

Tonally, the sound is always solid and well balanced, with particularly fine bass that never overwhelms but is always there when required. Imaging is on the whole good, although at times the front-back definition falls a little short and sound sources become a little two-dimensional.

The digital input level control works well, as does the sampling rate converter. Subtracting the recorded version from the original showed that this deck gave the closest approximation of any in the group: taken out of context this is a questionable result, but the difference signal was also such as to add relatively little to the overall sonic picture.

CONCLUSION

This must be one of the most attractive MiniDisc recorders around. It may not be the absolute best, but it is certainly among the leaders and combined with the impressive range of useful features it makes for a very flexible and sophisticated home recorder. A Best Buy seems to be quite in order.



VERDICT	
SOUND	★★★★☆
BUILD	★★★★★
VALUE	★★★★★
PRICE	£499.99
<p>Sound quality about as good as it gets with MD to date, and a very comprehensive features set too.</p> <p>■ ONE YEAR GUARANTEE</p> <p>✉ Sony UK Ltd, The Heights, Brooklands, Weybridge, Surrey KT13 0XW.</p> <p>☎ (01932) 816000</p>	
SPECIFICATIONS	
<p>■ Digital Record Level: Yes (0.1dB steps)</p> <p>■ Analogue Rec. Level: Separate per channel</p> <p>■ Edit adjustability: Yes (fine)</p>	

YAMAHA MDX-793



Like Kenwood's contribution to this group, this Yamaha is an usually deep unit and there's no obvious reason why – there's a good two-inch gap inside between transport and main circuit board which could easily be reduced. Still, styled to match the rest of Yamaha's latest generation of hi-fi separates, it's an elegant unit with an orange display which for one find much more pleasant than the usual greenish-blue.

The layout of controls, although neat, possibly ends up with rather too many identical buttons, but basic operation is simple and straightforward and other functions are readily accessed. There's a medium feature set: the usual editing and titling are supplemented by a rehearsal and adjustment (to 12ms) function when dividing tracks. Alongside the conventional optical and coaxial digital inputs is a second coaxial socket. There's one optical output. 'Time Rescue Recording', similar to Sony's 'Time Machine Recording', uses the unit's buffer memory on recording to allow recording from four seconds before you press the 'start' button.

❏ In case you make a mistake while editing tracks, there's an 'Undo' button.

"Styled to match the rest of Yamaha's latest generation of hi-fi separates, it's an elegant unit with an orange display which is more pleasant than the greenish-blue."

'Synchro Recording' works perfectly in starting recording when music is detected, and in case you should make a mistake while editing tracks there's an 'Undo' button, something not all manufacturers implement.

Disc handling is fast and efficient, but, as with the Pioneer deck, it's important to make sure the disc is ejected before turning off the power – there's no standby function, even on the remote control. Build quality is good: like most current MD recorders, the inside of the case is dominated by the small transport assembly and a board about 6 inches square which carries most of the audio-related electronics. It's all neatly put together and, not surprisingly, makes use of Yamaha's own integrated circuits.

SOUND QUALITY

Starting, as in all these reviews, with the unit functioning purely as a DAC, the sound was just on the good side of middling. There's a

comfortable solidity to almost any kind of music, but subtle bass sounds like quiet piano or double-bass pizzicato can sound a little soft and massed voices can become rough and edgy. Imaging is good but not outstanding and climaxes can be undramatic. Similarly on replay, things aren't quite as good as the best but overall there's little between the music and the listener.

When recording and replaying, unfortunately, things deteriorate markedly. In fact, this recorder produced results quite similar to the Sharp and Pioneer, including the intriguing (but in important ways inconclusive) test of digitally subtracting the recorded version from the original, which gave a very similar-sounding residual.

As with any data-reduced audio system, results vary considerably depending on the type of music being recorded, and in general the less treble there is the less difference there will be between before and after encoding. Hence, once again, quite good results with the classical selections used: solo piano, for instance, comes over well with minimal loss of presence and life, and even quite complex orchestral and operatic excerpts suffer no more than the usual mild reduction in the feeling of involvement. Imaging loses some depth, but paradoxically at the same time sounds from the front of the image can sound even closer to the listener.

With more energetic material audible artefacts start to appear. Again, The Mavericks provided a simple 'go/no go' test, one this

recorder failed as it added the familiar plasticky coloration and borderline-audible background warbles to the introduction to *Dance the Night Away*, and reduced the crash cymbal to mere breaking crockery. The other MD torture track, with Miles Davis, also showed up the Yamaha's tendency to alter the timbre of muted trumpet considerably, an effect one cannot easily miss having heard it once. It sounds as if the maestro were blowing his horn into an empty baked-bean tin, compared with the purity of the original.

The analogue input seemed slightly noisier than on the other decks but otherwise performed unexceptionally. It seemed to add some slight fullness in the bass, though not unpleasantly, and slightly reduced image depth.

CONCLUSION

Again, a slightly disappointing result. This is a nicely thought-out machine, but neither its recording performance nor its features list appears to offer anything substantial over, say, the Pioneer.

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £299.95

It's a nice machine to use and has some useful features, but sound quality doesn't place it at an advantage over some cheaper models.

TWO YEAR GUARANTEE

Yamaha Electronics (UK) Ltd, 200 Rickmansworth Road, Watford, Herts WD1 7JS

(01923) 233166

SPECIFICATIONS

■ Digital Record Level: No

■ Analogue Record Level: Single

■ Edit adjustability: Yes (fine)



MARANTZ DR700



This CD recorder has in effect been reviewed before in *Hi-Fi Choice*, although you might not think so: it's basically identical to the Philips CDR880 (issue 184). And if you read on, you'll find it reviewed again in a different guise in this issue.

In case you missed *HFC* 184, here's a re-run of the features. This CD-R offers the potential to make bit-perfect copies of CD (or other 44.1kHz-sampled) sources, something MiniDisc can't do, but it lacks a lot of the convenience features of MD. OK, so this deck is actually a CD-RW variant which allows limited editing and rewriting of discs (you can erase either the last track you recorded, or the whole disc). But that's not total flexibility and is further hampered by the fact that CD-RW discs won't play in many conventional CD players. 'Ordinary' CD-R discs will play in all players once they have been 'fixed up', but after that you can't record on them any more. So altogether, CD-R is by no means a convenience format.

In truth, this isn't a convenience deck, either. It's well equipped with coaxial and optical digital in and out but otherwise features are sparse and in my view somewhat

❖ The Marantz DR-700 has no obvious vices – overall, it's very listenable.

“This CD recorder offers the potential to make bit-perfect copies of CD (or other 44.1kHz-sampled) sources, which is something MiniDisc can't do.”

ill-judged. That's particularly true of the 'auto' mode, which is the only way to copy track numbers from the source CD: even when using a digital input the recorder will stop when it detects a 20-second 'silence' (below -50dB) which can lead to it quitting in the middle of a legitimate passage of very quiet music. If the deck can start when it detects valid data from the source, why can't it stop similarly?

Metering is very poor, with a low-resolution bar graph and very slow response which can easily lead to slight overload on very dynamic music.

Like the Philips CDR880, the DR700 includes an Asynchronous Sample-Rate Converter which allows for compatibility with any digital source. The ASRC is, however, automatically switched out of circuit when digital input is at 44.1kHz (± 100 ppm) so true bit-perfect copies can be made. And they really are perfect – I've tested this on several samples of the same basic deck and not found a difference. Internally the unit is highly integrated and fairly

tidily assembled. A metal front panel and rather smarter buttons distinguish it from its Philips and Traxdata twins.

SOUND QUALITY

It's important to realise that the whole concept of bit-perfect copying means any differences between source and copy are down to jitter alone and, although that can vary between discs, a good CD player should (ideally) not care. So in the case of copies from CD source material this deck ends up being judged simply as a player, as far as sound quality goes. On that basis its attainments are modest but certainly not unacceptable in a £200 player.

It has no obvious vices – bass is deep and assured, although not quite as firm as on the best CD players, the midrange is pretty well detailed if not outstanding and treble is generally clean, losing a little purity in very complex music. Imaging is just fine side-to-side though perhaps not quite a sharp front-to-back as one might like. Overall, there isn't quite the sense

of tangible sonic reality that the best players – these days, even some around £300 – can achieve, but it's very listenable.

Such differences as there are between original and copy are hard to pin down, and in any case dwindle even further when the discs are compared on a really low-jitter deck. However, copies made from originals at other sampling rates must pass through the sample-rate converter and lose a little detail, and the analogue input, while capable, has a slight veiling effect.

It's worth mentioning, though, that the results still exceed those of any MiniDisc deck tested here. I've used the analogue inputs on the 'pro' version of this deck (which is identical in that area) frequently with perfectly acceptable results straight from line-level microphones.

CONCLUSION

Given the near-100 per cent similarity between this deck and those from Traxdata and Philips, both of which typically sell for £100 less, it's hard to get too excited about the DR700's value. But it does look smarter!

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £599.90

❖ The dearest of three near-identical models, with apparently only a smarter front panel to show for it.

■ TWO YEAR GUARANTEE

✉ Marantz Hi-Fi UK Ltd, Kingsbridge House, Padbury Oaks, 575-583 Bath Road, Longford, Middx UB7 0EH

☎ (01753) 680868

SPECIFICATIONS

- Digital Record Level: No
- Analogue Record Level: Single
- Edit adjustability: No editing



TRAXDATA Traxaudio 900



Now here's a turn-up. Over the ten years that I've been reviewing hi-fi I can't recall another instance of two manufacturers offering the exact same product under different names. Plenty of CD players and tuners come mighty close, but they've usually got a few bits different: however, between this Traxdata and the Marantz DR700 (also in this group) – and, indeed, the Philips CDR880, the only differences I can find are in the detailed design of the front panel.

Yes, there are a few internal components differences, but the ones I could spot seem to be no more than the small differences you'll always get between batches of the same product – largely identical capacitors from different makers and so on. But all the integrated circuits seem to be the same, the transport's the same, so are the power supply, the input arrangements, the control logic, the remote controls... It also has the same automatically switched sample-rate converter and the same poor metering.

Philips and Marantz have, of course, had a long and friendly association. But what of Traxdata? According to the company's website, it's a young outfit which

❖ **As the cheapest of a group of similar CD-Rs, this would be the one to choose.**

“The Traxdata is capable of decent replay performance and surprisingly good recording, and as a ‘bit bucket’ it’s exactly as good as any other such device”

specialises in recordable media for computer back-up applications and recordable CD-ROM drives. In both blank media and computer circles it's quite common to find a lot of rebadging going on, so perhaps it's not surprising that Traxdata should simply buy in a complete CD-R deck and 'badge engineer' it.

It would have been nice to report that they had at least programmed a slightly different set of commands into it, but apparently there's not even that much difference. At least you get 8 free Traxdata blank discs, which makes it the best value of the three. The front panel, like that of the Philips version, is plastic and possibly the ugliest (by a short head), but I don't find any of them exactly attractive.

This is a domestic audio CD recorder, a specific subset of the generic CD-R breed, that can be used to make copies of all or part of a CD or any other digital or analogue source, subject to certain restrictions. Basically, that means it must implement the Serial Copyright Management

System (SCMS, also found on all domestic MiniDisc decks) which prevents multiple-generation digital copying; it must write a unique Recorder Identification code (RID) to each disc; and it must use special 'audio' CD-R blanks, which are physically similar to computer blanks but cost more.

Those limitations on CD copying, and the quite deliberate hamstringing of the system to limit its flexibility, have their roots in a legitimate wish by the powers that be to prevent unrestricted pirating of recordings (it costs a lot to produce a recording – I should know, I've lost enough money on it – and those mad enough to attempt it are surely entitled to some recompense).

However, it must be admitted that with computers being the price they are, anyone can easily assemble a full digital editing and CD-burning system, maybe using one of Traxdata's own CD-ROM writers, that blows even MiniDisc away for flexibility. Meanwhile a simple deck like this allows the easy assembly of compilations for the car or for a party.

SOUND QUALITY

Given the minute level of differences between this and the Marantz, it should be no great surprise to discover that sound quality is, well, as near identical as makes no difference. I certainly couldn't hear anything repeatable.

In other words digital copies of CD are basically 'blameless', limited only by the deck used to replay them. Playback sound on this deck is good, although not outstanding, and its recording quality from digital sources at 32 and 48 kHz, and from analogue inputs is good – although just detectably short of perfection.

CONCLUSION

As the cheapest of three identical machines this would seem to be the one to choose. It's capable of decent replay performance (though presumably you'll already have another CD player before you buy a recorder, or what are you going to copy from?) and surprisingly good recording, too, from the analogue inputs, and as a 'bit bucket' it's exactly as good as any other such device. The generic model also seems to be reliable in use. Recommended.



VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £399

Identical to Philips and Marantz models: it makes bit-perfect copies of CDs and has perfectly acceptable replay and analogue input performance too.

ONE YEAR GUARANTEE

Traxdata UK Ltd, IDC House, The Vale, Chalfont St Peter, Bucks SL9 9RZ

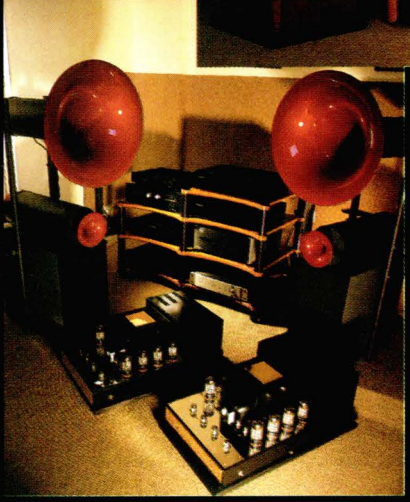
(01753) 891444

SPECIFICATIONS

- Digital Record Level: No
- Analogue Record Level: Single
- Edit adjustability: No editing



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MINIDISC/CD-RECORDERS CONCLUSIONS

A pattern is starting to emerge among MiniDisc recorders. As already stated, they all work the same on playback in terms of deriving a datastream from the ATRAC'ed signal, so replay differences are down to the quality of analogue electronics, power supply, etc.

But on record, performance is dominated by the success of the particular ATRAC implementation used, which arguably dominates over the quality of DAC (and ADC) in the decks.

“We’re all on a learning curve with MiniDisc. It isn’t perfect, but it’s a joy to use and can at best give sonically pleasing results.”

That seems apt to create a tiered ranking of decks according to ATRAC version, but there are two serious difficulties with assessing sound quality. One is that by its nature any psycho-acoustic coding system (of which ATRAC is one) relies to a large extent on the hearing thresholds of ‘average’ listeners, and you might not be average. Worse, copying a given recording will not

give a unique result – in fact, because of the way ATRAC works there are 512 possible encoded versions of any one recording, and although they can be expected to sound similar they won’t necessarily sound identical. We’re all on something of a learning curve here, so please, if you have any interesting MD listening experiences to relate, do write and let us know.

MiniDisc isn’t perfect, but it’s a joy to use and at best can give sonically pleasing results. There is an irony in the fact that just as data-reduced digital systems are gaining ground, the cost of data storage is falling through the floor and on economic grounds we barely need data reduction at all. But powerful political forces are against making perfect copying too readily available. Data reduction is here to stay, but we can hope it will continue to be refined and – importantly – that it will not be made an excuse for any overall lowering of standards.

For my taste, Sony is turning out the most accomplished MD decks, but other makers aren’t napping. Kenwood in particular is taking MD very seriously indeed, and both Sharp and Pioneer seem intent on offering value for money. No doubt the coming year or two will see some strong competition in the field.

And what of CD-R? Philips (and its re-badgers Marantz and Traxdata) and Pioneer are ploughing a lonely furrow here. It’s really a bit of an oddity but the Philips generic model is a useful tool and has its place. It’ll be interesting to see how well the format does in the face of MD.



THE BEST IN THE TEST



SONY MDS-JA20ES

A pretty classy recorder, this one, with arguably the best sound among the MD decks here and more features than you can shake an optical fibre at.



KENWOOD DMF-9020

It looks impressive – and actually it is, giving good sound and joyfully easy track titling. A little more editing flexibility would make it a killer.



PIONEER MJ-D707

Possibly not the most transparent MD deck around but it works well enough and offers a lot of features for the price.



SHARP MD-R1 MkII

Sound is only just below that of a few dearer decks and although the features are limited it’s cheap enough to retain its appeal.



TRAXDATA Traxaudio 900

Dead ringer for dearer Marantz and same-price Philips models: think of it as a decent £200 CD player that can also make perfect copies. Frustrating to use, though.

D I G I T A L R E C O R D E R S C O M P A R I S O N T A B L E

MAKE	KENWOOD	MARANTZ	PIONEER	SHARP	SONY	YAMAHA	MARANTZ	TRAXDATA
MODEL	DMF-9020	CM635	MJ-D707	MD-R1 MKII	MDS-JA20ES	MDX-793	DR700	TRAXAUDIO 900
PRICE	£499	£499.90	£199	£180	£499.99	£299.95	£599.90	£399
SOUND	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BUILD	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
GUARANTEE	1 year	2 years	1 year	1 year	1 year	2 years	2 years	1 year
SIZE (HxWxD, MM)	123x440x360	93x435x335	102x420x290	90x270x300	123x430x335	107x435x395	90x435x320	90x435x320
DIGITAL INPUTS	2 coax, 1 opt	1 coax, 1 opt	1 coax, 1 opt	1 coax, 1 opt	1 coax, 2 opt	1 coax, 2 opt	1 coax, 1 opt	1 coax, 1 opt
DIGITAL OUTPUTS	1 coax, 1 opt	1 opt	1 opt	1 opt	1 coax, 1 opt	1 opt	1 coax, 1 opt	1 coax, 1 opt
DIGITAL INPUT SAMPLE RATES	32-48kHz	32, 44.1, 48kHz	32, 44.1, 48kHz	32, 44.1, 48kHz	32, 44.1, 48kHz	32, 44.1, 48kHz	20-60kHz	20-60kHz
TIMER REC/PLAY	Yes	Yes	Yes	Yes (built in)	Yes	Yes	No	No

BURNING Issues

Just as CD-R machines can vary widely, so too can the discs you'll be recording on.

But how can 'perfect' copies be different? **Paul Miller** investigates

Recordable, write-once, CD-R has been with us for about eight years now and this attractive technology, along with MiniDisc and re-recordable CD-RW, has significantly undermined the sales of the once-ubiquitous compact cassette. So much so, in fact, that a detailed exploration of the new media is long overdue. We'll begin our look with domestic CD-R media and ask the question: if CD-R makes perfect digital copies, does it really matter which disc you buy? Like us, you'll be amazed at the outcome.

CD-R: HOW IT WORKS

In a recent *Oasis* (see *HFC* 187) we looked at how a waveform is represented as a 16-bit digital code. In a conventional CD, this stream of 0s and 1s is stored as a series of 'bump' and 'land' structures pressed into a spiral on the disc's surface (grey strip, Figure 1, below).

As the laser beam passes between a land (reflective) and bump (non-reflective) area, (A) and (B) respectively, the player registers the transition as a digital 1 (C). The reverse pass also represents a transition and a digital 1.

Importantly, the transitions are regularly spaced because the so-called 'run-length' of a

bump or a land area is an integer (whole number) multiple of the Master Clock period, known as big 'T'. In practice, the shortest permissible bump or land run-length is 3T and the longest equal to 11T. We'll explore the reasons behind this in next month's *Oasis* where we will take a look at CD's so-called 'Channel Code'.

With CD-R, a digital 1 is represented as the transition

"A great deal of R&D is expended on the chemistry of these dye layers, ensuring that they react in a predictable fashion to the heating effect of the laser during recording."

from a reflective land to a sunken, unreflective pit structure or vice-versa (blue strip, Figure 1). To keep the laser 'on track' it follows a 'groove' that's pre-pressed into the disc's polycarbonate underbelly (1, figure 2). This spiral meanders at 22.05kHz (+/-1kHz) to give the CD-R player a frame of reference when recording. Absolute recording time and position are derived from this

'wobbling' groove as the laser scores its way through the disc.

READING AND WRITING

The disc itself is more complex than a conventional CD. In Figure 2 below, the laser 'reads' or 'writes' through a transparent polycarbonate layer (1). During playback (reading) the beam is reflected back, to a greater or lesser extent, by a metallic sheen (3). This mirror-like layer can be made of aluminium, gold or, more recently, silver. Sandwiched between is a heat-sensitive cyanine or azo-dye (2) that, point by point, regulates just how much laser light is reflected back.

Here's how it works. During recording, or 'writing', the laser power is increased to between 4 and 8mW, heating the polycarbonate (1) and dye layers (2) in its path to about 250°C. The dye layer collapses and the polycarbonate swells to fill the void, leaving an opaque 'pit' that diminishes the brightness of the reflecting layer (3) behind.

This is illustrated by the magnified portion in Figure 2, which shows a slice through the continuous pre-groove spiral (the blue notches). Recording causes permanent

changes to the disc, leaving melted pits that are about 50 per cent less reflective to a 'reading' laser beam. Once again,

it's the transition from these less- to more-reflective areas, and vice-versa, that represents a digital 1.

A great deal of R&D is expended on the chemistry of these dye layers, ensuring that they react in a predictable fashion to the heating effect of the laser during recording. Precisely-shaped pits are required - not irregular splotches! Incidentally, it's this chemistry that lies behind the spectacular blues and greens of different manufacturers' discs.

Returning to Figure 2, the reflective layer is protected by a UV-cured resin (4) and finally backed by an external printing surface (5).

Naturally, every disc has a centre hole (7) and a clamping area (6) that's used by most conventional CD transports to keep the disc steady as it spins. In these respects, the CD-R disc is just like a silver CD.

The blue/green recording layer (2), however, does incorporate other subtle revisions beyond its pre-groove spiral. At its innermost edge, for example, there is the Program Calibration Area (or

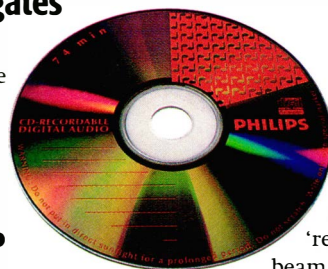


FIGURE 1

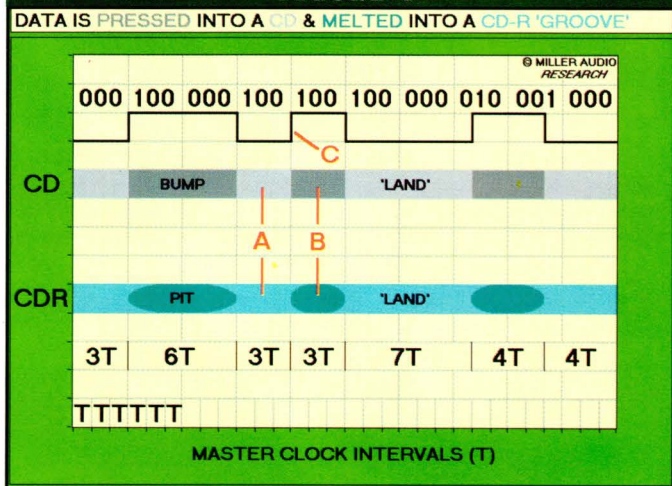
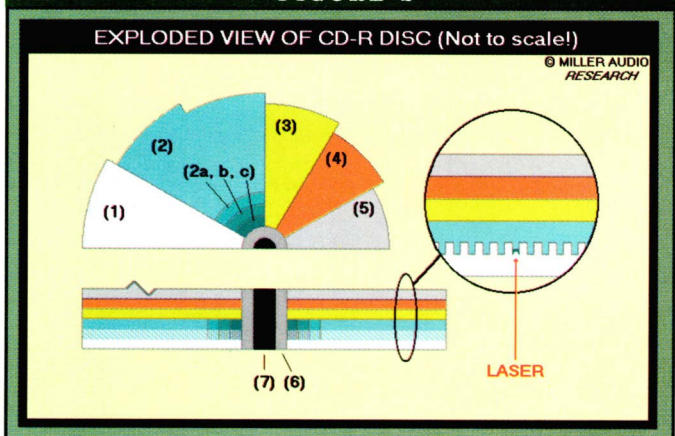


FIGURE 2



PCA, 2c) where the CD recorder will establish the optimum laser power for recording.

Next comes the Program Memory Area (or PMA, 2b). The numbers and playing times of recorded tracks are stored here, ensuring the CD recorder begins new sessions at the end of earlier recordings, even if the CD-R disc has been ejected and subsequently re-loaded.

To prevent any further recordings and ensure that the CD-R is compatible with conventional CD players, the disc must be 'fixed-up' by the CD recorder. This 4-5 minute automated process transfers all the relevant TOC (Table of Contents) data to the disc's lead-in area (2a).

Recordable CDs are a one-shot option: once an area has been recorded on, it can't be erased though it can be 'ignored' by deleting its track location from the disc's Table of Contents (TOC) before 'fixing up'.

THE LISTENING TESTS

The purpose of this survey was to evaluate the quality of domestic CD-R media rather than professional/data-storage discs, although the physical descriptions of the respective discs are identical. To this end, Pioneer's top-quality PDR-05 domestic CD-Recorder was drafted in, with Theta's Data Basic transport employed as a low-jitter digital source.

Our original (silver) music CDs included Christy Moore's *Reel in the Flickering Light* (East/West 9031-75351), Whiskeytown's *Strangers Almanac* (Outpost OPD 30005) and Lesley Garrett's *Prima Donna* (SongCD 907). Selected tracks were recorded in identical positions on all seven of our competing CD-R discs, along with specialised test signals for level-matching and subsequent lab investigation.

To ensure both impartiality and completeness, all seven CD-R recordings were auditioned in a random order and at a fixed listening level under blind conditions.

Our listeners were asked to rate the recordings against the originals, the latter representing a score of 10/10. The listening was repeated and further randomised by the use of two separate front-ends: a high-end Theta Data Basic/DSP

Pro Progeny combination and a budget NAD 514 CD player. Not only do these players span the audio divide, but they also employ distinct transport/laser technologies. This would expose any sensitivity to the pit definition, dye-layer colour and reflective layer utilised by the different discs.

Our thanks to our 'blind' but diligent panel: Roger Batchelor (Denon), Kevin Edwards (Talk Electronics) and Mark Hockey (Kenwood UK).

UNDERSTANDING THE LISTENING TESTS

Free from the subjective prejudice of knowing which disc was in play, our panel returned a consistent but startling result. After all, who would have predicted that the masters of blank recording technology – TDK and Maxell – would be usurped by an OEM-sourced disc of no obvious pretension?

Moreover, why did Pioneer's own discs fare so miserably when, on the face of it, our use of the PDR-05 recorder could only help bolster its position?

Contrary to popular belief, the answer is unlikely to lie in the disc's data integrity because, even if significant block errors were to exist, the player's decoder will correct or conceal the errant data.

I fully accept that repeated concealment or correction of damaged data would exert some sonic penalty, but this doesn't explain why discs with the lowest BLER (Block Error Rate) like the Maxell and Pioneer fared worst of all.

To find the answer, we first have to appreciate what the laser pick-up 'sees' as the CD-R disc spins. We have already looked at how CD's 16-bit digital code is represented by a series of variable-length 'land surfaces', bumps or pits on CD and CD-R discs.

What the laser 'sees' is a sequence of reflective and non-reflective patches that modulate the returning beam of light. This fluctuating beam is converted into a fluctuating electrical output by photodiodes in the laser mechanism.

As a result, what emerges from the laser pick-up is not digital data but a stream of superimposed and typically rather distorted sine waves that

represent each of the nine available run-lengths, 3T to 11T. This waveform is called the RF eye-pattern, and it's from here that the original 16-bit data is extracted by the player's decoder circuit. Down the line, it's the player's DAC (Digital-to-Analogue converter) that transforms this 16-bit code into recognisable music. Back on

"Recordable CDs are a one-shot option: once an area has been recorded on, it can't be erased"

FUJIFILM



'boominess', an added warmth and plumpness in the upper bass that, in both instances, 'smudged the lower octave of Christy's voice'.

Nevertheless, and despite betraying a hint of 'CD-R smoothness', the Fuji-based copies maintained the bite of guitar and sparkle of percussion with sufficient style to hold the panel's attention.

This disc was clearly preferred over the Maxell and Pioneer copies that preceded it with a generally brighter, sweeter and livelier sound that was deemed closer to the vigour of the original. This view was repeated with both the Theta and NAD players as was a suggestion of

SPECIFICATIONS

DISC	FUJIFILM
LENGTH	74 MINS
DYE LAYER	BLUE/GREEN
REFLECTIVE LAYER	SILVER
RATING	7/10
PRICE	£3.99
☎ (0171) 586 5900	

HI-SPACE



Garrett's powerful vocals were described as "slightly smeared" with the Theta front-end and "veiled, not in touch with the orchestra" with the NAD player. A sense of the music being disjointed rather than over-smooth or civilised was a theme our listeners returned to time and again with the Hi-Space disc.

SPECIFICATIONS

DISC	HI-SPACE
LENGTH	74 MINS
DYE LAYER	LIGHT BLUE
REFLECTIVE LAYER	SILVER
RATING	6/10
PRICE	£2.49-£2.99
☎ (0181) 600 3900	

Copies on MPO's Hi-Space disc suffered some loss of attack and sustain with percussive sounds – a weakening of the music's core energy that prompted our panel to describe it as "a facsimile rather than a perfect copy".



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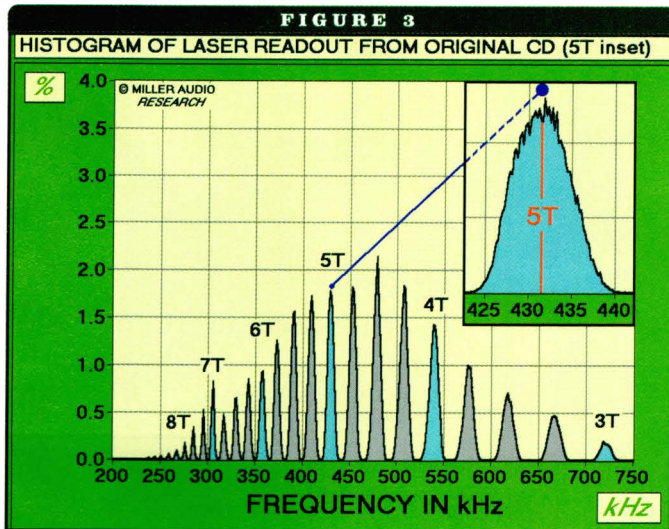
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“Who would have predicted that the masters of blank recording technology would be usurped by an OEM-sourced disc of no obvious pretension?”

reveals the digital code laid down on the disc. The smallest (higher-frequency) pit-lengths are especially important because they encompass the highest concentration of transitions (finally realised as digital 1s) per unit time.

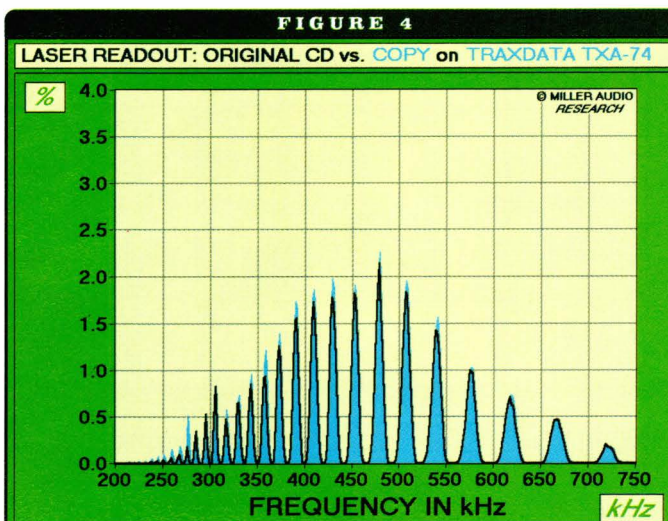
BUMP TROUBLE

We can get a good idea of the relative concentration of 3T, 4T, 5T etc. bump-lengths from the histogram (Figure 3) recovered directly from the laser pick-up of my Lab CD transport (a dissected TEAC P-10). Thanks to Mission Cyrus for the loan of its Modulation Domain Analyser,

used here in combination with proprietary GPIB data-acquisition and VI processing software to yield figures 3-5.

Taken from the first 60 seconds of Lesley Garrett's *The Laughing Song* (original CD), this histogram shows the relative occurrence of the nine permissible run-lengths (3T to 8T) are highlighted in bright blue) along with the one-quarter clock intervals (in grey). We can ignore the latter but, ideally, the bright blue run-lengths should appear as sharp vertical lines on the histogram.

I've expanded the 5T bump-length histogram to show that the total of '5T bumps' includes a few closer to '4.9T' and '5.1T' in length. This is caused by wear-and-tear on the stamper used in the CD's injection-moulding manufacturing process. Hence, a percentage of recovered frequencies lie above and below each of these ideal frequencies because some of the bumps are either slightly shorter or longer, respectively, than anticipated.



NEAR IDENTICAL

The histogram in Figure 4 illustrates why the Traxdata CD-R copies sounded closest to our original CD master. Once again, we're looking at all the principal pit-lengths (and quarter clock intervals) recovered by the laser pick-up as it reads the same Lesley Garrett track on both original (black histogram) and CD-R (blue histogram).

The near-identical match between the two discs is

remarkable. This means that the definition, length and (probably) shape of the pits burned into the Traxdata CD-R disc have exactly the same 'quirks' demonstrated by the original, silver CD! Using my jitter measurement software, the increase in data-induced jitter caused by copying onto Traxdata's CD-R also registered only +0.5 per cent. No wonder our blind listening panel voted this disc closest to the original.

MAXELL



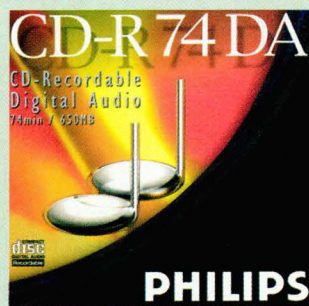
remaining strong but peripheral instruments becoming less distinct. Christy's track was described as suffering a 'lightweight "plink-plonk" character', although there was still plenty of body and resonance. Remarkably, this same 'plink plonk' description was only used on one other occasion by our panel: when the same disc was auditioned in the cheaper NAD CD player! Here the copies were described as "silky but a bit soupy"!

SPECIFICATIONS

DISC	MAXELL
LENGTH	74 MINS
DYE-LAYER	BLUE
REFLECTIVE LAYER	SILVER
RATING	5/10
PRICE	£3.10
☎ (01952) 522222	

With strung bass sounding more like it was plucked than bowed, our listeners declared that "something wasn't quite right about this one". Vocals were reported to sound less natural and strings slightly mushy rather than crisp or precise. Yet, there was less of the smoothing or veiling heard with other copies, instead the coloration is one of uncertain focus with central imagery

PHILIPS



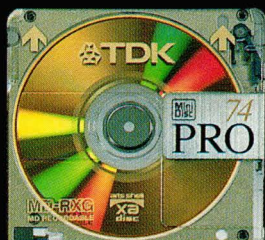
along naturally enough, but it tends to lack darkness and mystery, sounding less atmospheric – somehow artificial or "plasticky" while obviously maintaining the same musical structure. For whatever reason, this was one disc that scored slightly higher with the budget NAD player where its 'bounce' brought a vibrancy and conviction to Garrett's performance that seemed closer to the original.

SPECIFICATIONS

DISC	PHILIPS
LENGTH	74 MINS
DYE-LAYER	GREEN
REFLECTIVE LAYER	GOLD
RATING	6/10
PRICE	£2.75
☎ (0181) 665 6350	

At its best, Philips' Far Eastern-sourced disc was likened to a combination of the openness and freshness experienced with TraxData's disc with some of the smoothness of the blue TDK disc. Garrett's soaring vocals were kept under control but delicately open acoustics, like Christy's *Reel in the Flickering Light*, were unduly dampened. So the music bobs

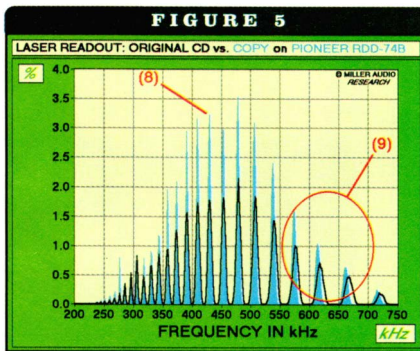
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BLACK AND BLUE

But what of the less successful discs from Pioneer and Maxell? Figure 5 highlights a clear difference between the physical disposition of the pits on Pioneer's CD-R copy (blue histogram) and the equivalent bumps on the original CD (black histogram).

First, although there are no more 5T pits or less 4T pits, for example, than 5T/4T bumps on the original disc, the pits are better defined on the copy. This is indicated by the sharpness of the blue histogram (8), which shows less variation about each

of the 8T, 7T, 6T (and so on) centre frequencies. This 'improvement' over the original is possible because the melted 'pits' are re-clocked onto the CD-R disc with reference to a quartz oscillator within the CD-R recorder. And this 'clock' promises a better definition than

the stamper used to press the original CD, provided the CD-R's coloured dye-layer is sufficiently responsive. Which, in this case, it is.

While the Pioneer, Maxell, Philips and – particularly – the TDK discs all produce sharper-looking histograms, there is also a trend for the longest pit-run lengths to be shorter than expected and shortest pit-run lengths to be longer.

This is most obvious with the least-liked Maxell and Pioneer discs and is highlighted by the shift in position of the important 4T-3T area (9) on Figure 5.

COMPARISON OF SHIFT AND VARIATION IN PIT LENGTHS, JITTER AND LISTENER'S RATING IN RANK ORDER:

Recording Source	Max Shift in Pit Length (%)	Max variation in Pit Length	Increase in Data Jitter (%)	Listener's Rating
Original Disc	N/A	5.49kHz	N/A	10
Traxdata TX Audio	0	5.39kHz	0.5	9 (BB)
TDK CD-RXG 74	0.3	3.97kHz	0	7 (REC)
FujiFilm CD-R Audio	0.4	4.45kHz	2.0	7 (REC)
HiSpace CD-R Audio	0.2	5.03kHz	2.5	6
Philips CD-R74DA	0.5	4.08kHz	2.0	6
Maxell CD-R74MU	0.6	4.85kHz	1.0	5
Pioneer RDD-74B	0.75	4.14kHz	0	4

This suggests the pit-lengths are no longer integer multiples of the Master Clock period, T (see *How it works*). Interestingly, the degree to which this shift is observed, tempered by any increase in jitter, broadly correlates with the degree of 'smoothing' and loss in vitality heard by the panel.

CONCLUSIONS

Quite why we experienced such differences is a question we'll leave open to the disc manufacturers themselves, because much of it boils down to the different chemistries

of their vividly-coloured dye-layers. This determines how accurately the pits are formed as the recording laser pulses beneath and how proficiently, in turn, the CD player's laser reads the information back.

Now we can say that Traxdata's TXA74 offers a performance that most closely matches the original while the best of the rest, including TDK's CD-RXG and Fuji's CD-R, offer a slightly smoother and warmer rendition without actually modifying the data itself.

Who said digital audio was simply a matter of 1s and 0s?

TDK



preferred this disc for its lack of any harshness, suggesting that it "sounds very musical, much more analogue".

Other listeners pointed to the slight loss in top-end air and freshness that would otherwise accompany Christy's track and the impression that Lesley Garrett's trademark ebullience was somehow muted. Easy listening, certainly, but accurate listening? Well, that's a different matter.

In both high-end and budget CD systems, recordings made on this 'high-tech' CD-R formulation were described as "smoother, possibly slightly more compressed and certainly less weighty". It's as if the music is 'cleaned up' – forced to sound more civilised, but stripped of some spontaneity en route. Nevertheless, one listener

SPECIFICATIONS

DISC	TDK
LENGTH	74 MINS
DYE-LAYER	BLUE
REFLECTIVE LAYER	SILVER
RATING	7/10
PRICE	£3.99
☎	(01737) 773773

PIONEER



Despite using Pioneer's reference domestic CD-recorder, Pioneer's own discs were the least favoured of the group. Copies invariably sounded a little bland, lacking some treble energy and vitality and, while the bass was 'tuneful', it lacked the solidity of the original.

Complaints from the panel centred on a lack of atmosphere,

the music sounding 'more like a rehearsal than the performance', it was suggested. 'Will you turn the treble control back up?' quipped one listener in response to the slightly muffled and rounded tone of these discs in NAD's player. Even Christy lacked his customary inspiration, the bass line seeming to wander and the music picture lacked drive and focus. Inoffensive then, but clearly lacking the spirit of the original.

SPECIFICATIONS

DISC	PIONEER
LENGTH	74 MINS
DYE-LAYER	GREEN
REFLECTIVE LAYER	DULL SILVER
RATING	4/10
PRICE	£2.49
☎	(01753) 789500

TRAXDATA



with every other CD-R recording. Whiskeytown's *Strangers Almanac* remained full of drive and energy thanks to the banjo that retained the spine-tingling jangle of the original.

It was impossible to distinguish copies from originals using NAD's player. Whichever disc was in play, the natural gruffness and character of voice was retained, capturing every quirky phrase. And, for once, Garrett sounded as bright and airy as she had on the original.

This Kodak-sourced CD-R proved a revelation with copies that sounded closer to the original than any other disc. The Theta revealed a slightly 'busy' sound but one that was intriguing, enjoyable and bubbly. The treble proved open, expressive and utterly free of the cloying smoothness that – to one degree or another – persisted

SPECIFICATIONS

DISC	TRAXDATA
LENGTH	74 MINS
DYE-LAYER	LIGHT GREEN
REFLECTIVE LAYER	GOLD
RATING	9/10
PRICE	£2.99
☎	(01753) 891444

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

For Value

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

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 decision making process.

Putting together a successful hi-fi system might not be as difficult as it was twenty or thirty

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

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.

Paul Messenger

The specialist Dealers listed here are professional and enthusiastic.

Give your nearest a ring for a demonstration.

STAR QUALITIES

value for money	★★★★★
service	★★★★★
facilities	★★★★★
verdict	★★★★★

LONDON

N1 GRAHAMS HI-FI

190a New North Road
0171 226 5500

SW11 ORANGES & LEMONS

61/63 Webbs Road, Battersea
0171 924 2040

W4 MARTIN-KLEISER Ltd

109 Chiswick High Road
0181 400 5555

SOUTH

Ashford, Kent

SOUNDCRAFT HI-FI

40 High Street
01233 624441

Chelmsford RAYLEIGH HI-FI

216 Moulsham Street
01245 265245

East Grinstead

AUDIO DESIGNS

26 High Street
01342 314569

Kingston-upon-Thames

INFIDELITY

9 High Street Hampton Wick
0181 943 3530

Lakeside Retail Park

RAYLEIGH HI-FI

Dansk International Furniture
World

01708 680551

Rayleigh, Essex

RAYLEIGH HI-FI

44a High Street
01268 779762

Southend-on-Sea

RAYLEIGH HI-FI

132/4 London Road
01702 435255

Uxbridge UXBRIDGE AUDIO

278 High Street,
01895 465444

MIDLANDS

Banbury OVERTURE

3 Church Lane
01295 272158

Birmingham SOUND ACADEMY

152a High Street, Bloxwich
01922 493499

Leicester CYMBIOSIS

6 Hotel Street
0116 262 3754

Northampton LISTEN INN

32 Gold Street, 01604 637871

Shrewsbury CREATIVE AUDIO

9 Dogpole 01743 241924

NORTH

Cheadle (Stockport)

AUDIO COUNSEL

14 Stockport Road
0161 428 7887

Oldham AUDIO COUNSEL

12/14 Shaw Road
0161 633 2602

Sheffield MOORGATE

ACOUSTICS

184 Fitzwilliam St
0114 275 6048

SCOTLAND

Edinburgh

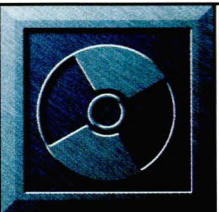
RUSS ANDREWS HI-FI

34 Northumberland Street
0131 557 1672

Glasgow STEREO STEREO

260 St. Vincent Street
0141 248 4079

ON TEST!



CD PLAYERS

Do you really have to spend seriously big bucks to get what you want from a CD player? **Alvin Gold** (listening tests) and **Paul Miller** (lab tests) lend an ear to the latest offerings.

THE CAST LIST

Audio Analogue Paganini	£750	p79
Cyrus dAD1.5	£399	p73
Denon DCD-435	£129.99	p67
harman/kardon HD740	£299.99	p75
Kenwood DPF-3010	£179.95	p68
Micromega Premium 18	£650	p80
NAD 524	£250	p69
Pioneer PD-S507	£190	p71
Rotel RCD-951	£300	p77
Sony CDP-XB920	£299.99	p78
Talk Thunder 2	£699.95	p81
Yamaha CDX-493	£179.95	p72

GLOSSARY

DIGITAL CONVERTERS: The slice of silicon that converts the digital music data off disc into an analogue (music-like) waveform. They come in various forms: multibit, Delta-Sigma, the one bit or Bitstream type and variants. dCS (through Arcam) has just introduced the Ring DAC, a radical technology that largely overcomes the failings of both multi and one-bit DACs.

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

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

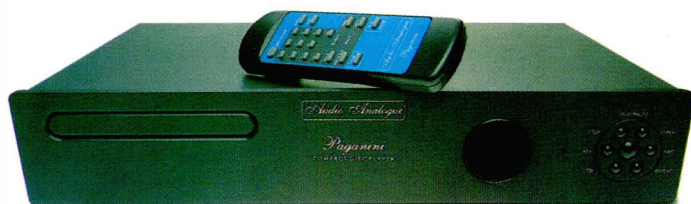
JITTER: Jitter represents the uncertainty in the timing of digital signals. High values have such effects on sound quality as harshness and loss of resolution. State of the art is a bit below 150psec, but figures over 1000psec are not uncommon.

We can no longer talk of recorded audio on small silver discs as being synonymous with compact disc. You can't buy one yet, but the introduction of the audio variant of DVD, DVD-A, and the Sony/Philips audiophile disc, SACD, are close enough to be a factor in any CD player-buying decision made right now, and some segments of the market for players are already suffering as potential buyers play a 'wait-and-see' game.

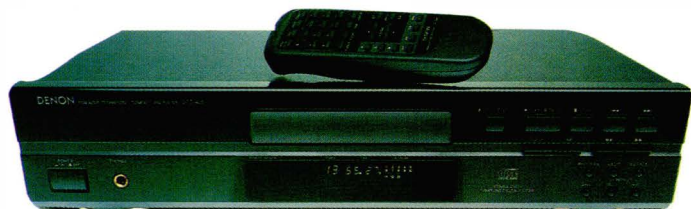
Wait for what? Well, both the new audio media are scheduled for launch this year, but that's in Japan and, just possibly, the US – and even then, we're talking tiny quantities, high prices, very few recorded titles and, certainly, immature performance standards. There is still a lot of confusion about what form the players and software will take, if only because so many options have been left open to the record companies to make the kind of disc that they feel they can sell.

There are strong rumours that SACD will launch initially in two-channel form to meet Japanese home market requirements, which from the UK vantage point suggests they might have lost the plot. One thing we do know about both new media is that players at least will be backwards-compatible with ordinary CDs, which underlines much of the current 'wait and see' thinking.

If this is the case with you, think again. We already know from our experience with DVD-V that CD replay works physically, but that sound quality suffers, and while there are relatively inexpensive CD players that offer the performance standards of the best of this month's group, your existing investment in compact disc is undoubtedly best served by having a dedicated CD player. This



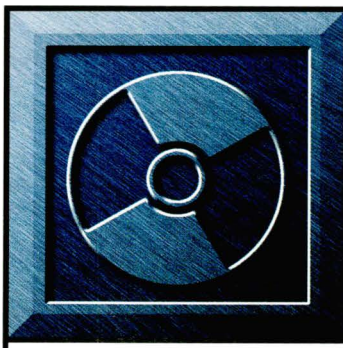
From top to bottom:
Audio Analogue Paganini p79
Cyrus dAD1.5 p73
Denon DCD-435 p67
harman/kardon HD740 p75
Kenwood DPF-3010 p68



is especially the case as compact disc will continue to be the main repository for the world's library of recorded audio for many years to come, no matter how successful a launch the new high-resolution media enjoy.

In this context, it is encouraging to find that the standard of CD replay hardware (and, indeed, the recorded material on which it is

dependent) continues to improve, or at least the best of it continues to improve. As one of the panel members so rightly pointed out during the tests, the kind of quality levels routinely available from quite inexpensive players today would have been available only from much more costly players a few years ago, if it was available at all.



CD/DVD Players

All CD players offer a basic selection of facilities, and some can keep you entertained for hours as you programme in disc names and track orders. All but the excessively inexpensive feature remote control. Most CD players can be upgraded by adding an outboard DAC (see below). To do this the player needs a digital output of either electrical or optical type. The former is preferable for the ultimate sound. A CD player can be split into two basic components: the disc drive or transport, and a device which converts the disc's digital bitstream into an analogue audio signal. This is called a digital to analogue converter, or DAC. Although most players are contained within a single box, expensive players are usually two-box affairs. The first new DVD players have not excelled with CD software.

KEY TO SPECIFICATIONS

- **ELECTRICAL DIGITAL OUTPUT:** For electrical connection to an outboard DAC.
- **AES/EBU ELEC DIG OUTPUT:** Balanced digital output to be used with similarly equipped DACs.
- **OPTICAL DIGITAL OUTPUT:** For optical connection to an outboard DAC.
- **ST OPT DIG OUTPUT:** High-speed optical output to be used with similarly equipped DACs.
- **BAL ANALOGUE OUTPUT:** Balanced analogue output for amplifiers equipped with balanced inputs.
- **HEADPHONE SOCKET:** For 'car' users.
- **VARIABLE OUTPUT:** Remotely adjustable output level (usually non-audiophile).
- **MULTI-DISC:** Equipped with a carousel or multi-tray system for continuous play of multiple discs.
- **DAC TYPE:** BS - Philips Bitstream; MB - multibit; Hyb - hybrid of multibit and bitstream technologies; 1bit - single bit types eg MASH, bitstream, PWM, etc; CC - constant calibration.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full information, see the Factsback advert on the penultimate page of the magazine.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared. Factsback information page.

B BEST BUY

R RECOMMENDED

E EDITOR'S CHOICE

H High End Review

CD/DVD Players

SPECIFICATIONS

- ▲ ELECTRICAL DIGITAL OUTPUT
- ▲ AES/EBU ELEC DIG OUTPUT
- ▲ OPTICAL DIGITAL OUTPUT
- ▲ ST OPT DIG OUTPUT
- ▲ BAL ANALOGUE OUTPUT
- ▲ HEADPHONE SOCKET
- ▲ VARIABLE OUTPUT
- ▲ MULTI-DISC
- ▲ DAC TYPE
- ▲ FACTSBACK NO.
- ▲ ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	ELEC DIG OUT	OPT DIG OUT	ST OPT DIG OUT	BAL ANALOGUE OUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	DAC TYPE	FACTSBACK NO.	ISSUE NUMBER
▲ Acurus ACD11	899	First-rate if costly player, which combines a delightful transparency with an uncontrived naturalness	●								1bit	1962 166
Acoustic Precision Eikos	1,850	Seriously customised Pioneer with extraordinary resolution and world beating imaging and bass	●								1bit	165
Alchemist Kraken	1,249	Distinctive looking player likely to suit a Alchemist system, but will result in variable results elsewhere	●		●						24/96	190
▲ Alchemist Nexus APD32A	597	Refined treble, constrained yet capable bass and attractive all-round presentation	●								Hyb	169
AMC CD8A	150	Has balanced output, but is otherwise rather grey and unremarkable				●		●	●	●	BS	2071 172
▲ AMC CD9/DAC8	200	Beer-budget two-box system (player + DAC) is smooth, attractive and easy on the ear	●								CC	2261 179
Anthem CD1	1,595	Unusual combination of high-end player, complete with HDCD, and changer. Good, but noisy	●		●						MB	2219 178
▲ Arcam Alpha 7	330	Mildly rehashed favourite comes up smelling of roses	●								BS	1872 179
▲ Arcam Alpha MCD	450	Excellent bass and natural midband, but just a touch of treble dryness, from this very listenable changer	●								MB	2220 178
▲ Arcam Alpha 8	520	Refined, intricately detailed but a little cautious. Should be broadly compatible with a variety of amps	●								BS	1873 163
▲ Arcam Alpha 8SE	600	Excellent (and ve y reasonably priced) HDCD-compatible player is a strong all-rounder	●			●					1bit	176
▲ Arcam Alpha 9	800	Refined, a ticulture player which employs new DAC technology to great effect	●								Ring DAC	188
Audio Research CD1	3,290	Suspends disbelief with a real yet obviously coloured sound. A rare proposition among CD players	●		●	●	●				BS	1875 163
Audio Note CD1	600	Easy on the ear, and for a valve player, easy on the pocket, but a bit Radio 2 flavoured	●								Hyb	188
AVI S2000MC2	899	A chip off the old block. This model's in-er-face balance obstructs an otherwise finely detailed sound	●								MB	2179 176
▲ AVI S2000MC Reference	1,399	Lean, dry, high resolution player, built to outlast most of us. A fine performer in a sympathetic system	●								MB	169
▲ 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 encountered at the price, considerably more refined and convincing than the CD4	●								BS	1877 163
▲ Cambridge Audio CD6	250	A sharp, articulate player, a real thoroughbred in fact, perhaps too sharp and lively for some systems	●					●			BS	159
▲ Copland CDA-266	1,199	Simple yet elegant design is unexpectedly sophisticated under the skin, and effective in execution	●								MB	2183 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	●			●					MB	1880 163
▲ Symbol CDP12	1,299	Clean, detailed and airy HDCD-equipped player with minimalist trappings	●						●		Hyb	2184 176
Cyrus dAD1	398	Typical excellent Cyrus packaging, but sonically more enthusiastic than polished	●								Hyb	188
▲ Cyrus dAD3	598	A relaxed style of delivery that convinces with guile and subtlety rather than orchestral ordnance	●								BS	1887 163
▲ Cyrus dAD3Q	898	Lucid, transparent and uncontrived sound quality, superb build, and readily upgradeable	●				●				MB	1887 169
▲ Denon DCD-635	180	Modest presentation gives little due to the thoroughbred electronics ticking away inside	●				●		●		MB	2075 172
Denon DCD-625	200	DCD-615 replacement is generously equipped but lacks sophisticated sound of its forebear	●						●		MB	1269 147
▲ Denon DCD-835	280	Refined version of Denon's multibit technology is a bit of a star	●			●				●	MB	184
Denon DCD-1550AR	350	Disappointing bland and ploddy sound from an immaculately constructed, high tech player	●			●			●	●	MB	2266 179
▲ 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	●			●					MB	1881 163
Exposure CD player	1,049	Slightly weak sounding, but otherwise well optimised, if costly player	●								MB	188
harman/kardon HD710	200	A player of integrity, but can sound a bit hard and rough when extended, and is amplifier fussy	●						●		1bit	159
▲ harman/kardon HD730	300	Competitive at the price, with a coloured but dynamic and outgoing sound, good features	●						●		BS	1957 166
▲ harman/kardon FL8300	300	Generally capable changer with relaxed sound and firm bass. Just a hint of roughness on occasion	●			●			●		MB	2220 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	2180 176
Helios Model 3	650	Disappointing entry level model from Helios lacks verve and transparency.	●								DS	188
▲ JVC XL-V184BK	120	Excellent budget player, well presented, a little opaque, but its heart is in the right place	●						●		1bit	2072 172
▲ JVC XL-V284BK	140	Featuring a new set of bitstream innards, this flexible player has a refined sound	●			●			●		1bit	1270 147
JVC XL-Z574	250	Strong resolving power, good midband and dynamics, but slightly raw and thin	●			●					1bit	159
▲ JVC XL-Z674BK	300	Even-handed, but glosses over the most intimate moments	●			●			●		1bit	1637 151
▲ Kenwood DP-3080	170	Bold, dynamic and outgoing sound, though somewhat aggressive. Poor build quality and finish	●				●		●		1bit	159
▲ Kenwood DP-4090	250	Focuses a clear, wide aperture lens on the music - and has CD Text too!	●			●			●	●	1bit	2076 172
Kenwood DP-5090	300	Disappointing senior brother to the excellent DP-4090, but surface interface is good	●			●			●	●	1bit	2267 179
▲ Kenwood DP-7090	400	A lively and compelling performer with an even-handed and coherent disposition	●			●					MB	1885 163
Linn Mimik	875	Useful multi-room features matched to strong bass, but poor imagery and transparency	●								Hyb	1762 155
Marantz CD-48	200	Somewhat inconsistent, middle ranking player which hints at better things	●						●	●	1bit	2077 172
▲ Marantz CD-67 Mk II	250	The digital equivalent of a safe pair of hands. Smoooooth	●			●			●	●	BS	2268 179
Marantz CD-670SE MkII	300	Lacks dynamic consistency to justify the stunning performance with simple material	●			●			●	●	BS	184
▲ Marantz CD-63 MkII Kl Sig	400	It's the quintessential sound of Marantz - warm, open, and smooth almost to a fault	●			●			●		Hyb	169
▲ 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	2181 176
▲ Meracus Tanto	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	●			●					1bit	2182 176

CONTINUED

CD/DVD Players

STATUS

SPECIFICATIONS	ISSUE NUMBER
AES/EBU ELEC DIG OUT	FACTS/BACK NO.
OPTICAL DIG OUT	
ST OPT DIG OUT	
BAL ANALOGUE OUT	
HEADPHONE SOCKET	
VARIABLE OUTPUT	
MULTI-DISC DAC TYPE	

PRODUCT	(£)	COMMENTS	AES/EBU ELEC DIG OUT	OPTICAL DIG OUT	ST OPT DIG OUT	BAL ANALOGUE OUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC DAC TYPE	FACTS/BACK NO.
Monrio Privilege	995	Costly and well-engineered, but ultimately rather heavy-handed and dull, if refined player	●							MB 1963 166
Musical Fidelity E60	300	This entry-level player lacks proper stereo localisation and clarity	●							BS 1959 166
Musical Fidelity E624	500	Similar to X-RAY, but both better sounding and cheaper	●	●						MB 188
Musical Fidelity A2	500	Warm (too warm), attractive and open player, a great improvement on (related) E60	●	●						BS 169
Musical Fidelity X-RAY	799	Brilliantly packaged and clean but slightly antiseptic sounding player	●							MB 184
Myryad T-10	400	Rather ordinary player fails to shine with good music recordings	●							DS 184
Myryad MC100	700	A little extra get-up-and-go wouldn't go amiss, but its sheer maturity and composure ensure listenability	●							BS 1889 163
Myryad MCD500	1,300	Well-built, attractive player, showing much promise, but can be a little heavy-going on audition	●							1bit 2185 176
NAD 522	170	Crude, mechanical sounding player fails to tickle the music buds	●							1bit 2262 179
NAD 512	250	Simple, well-focused presentation, and articulate with it. Hard-nosed quality is not everyone's cup of tea	●							1bit 159
NAD 514	370	Boisterous sound, but undeniably attractive	●						●	BS 1639 151
NAD S500	1,100	24-bit player with considerable transparency and bass grunt	●	●				●		MB 189
Naim Audio CD3.5	1,000	Forward and explicit sound needs careful system matching								Hyb 188
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
Naim NACDSII/XPS	5,625	Brings you the Naim sound, but for once doesn't have to rely on Naim ancillaries to get the results								MB 188
Onkyo DX-7210	260	Well-bred CD player features an unusual digital filter, is smooth and cultured without appearing 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 1964 166
Parasound C/DP-1000	499	Comes on like a high end player, but ultimately sounds a tad weak and soft-centred	●							Hybrid 184
Philips CD-721	130	Surprisingly well-sorted, articulate if slightly glossy and attractively presented sound. Captive signal lead								1bit 159
Philips CD751	150	Inconsistent and occasionally opaque and scrawny sounding cheapie	●						●	1bit 172
Pioneer PD-S705	300	This machine was loved by some for its articulacy and disliked by others for sounding too impressive!	●							BS 1891 163
Pioneer PD-S707	300	Idiosyncratic Legato Link dominated sound, but always subtle and interesting	●			●		●		MB 184
Pioneer PD-F906	350	Interesting appearance and concept, but this changer's sound is lacklustre and ergonomics frustrating								1bit 2223 178
Pioneer PD-S904	400	Too much legato - literally - in sound, but a very smooth performer	●							1bit 1641 151
Pioneer PDS-06	550	Technologically sophisticated. Pioneer's first multi-bit player for years is polished and capable	●			●		●		MB 2176 176
Pioneer PD-S505 Precision	460	Assured, fluid-sounding player, with great spatial coherence	●						●	1bit 1965 166
Primare D20	799	Well presented player doesn't quite cut the mustard, though it performs promisingly	●							BS 188
Quad 77	900	A true thoroughbred combining a penetrating insight into detail with poise rarely found at the price								Hyb 1893 163
Revox Exception E426	2,250	Very stylish with a light, agile sound that extends superbly and has fine timing	●					●		BS 182
Roksan DP3P	1,495	Dramatic and compelling. Classical listeners should be ready to 'air conduct' when auditioning	●							BS 1896 163
Roksan Caspian	895	Solid, articulate, and fundamentally well-engineered player, but with some subtle low-level limitations	●							Hyb 169
Rotel RCD-971	350	Odd disc handling logic, but bold, detailed and refined sound make this a must	●							MB 184
Rotel RCD-970BX	375	A combination of solid build, useful facilities and an attention-grabbing sound make this a winner	●							BS 1897 163
Shenwood CD-4030R	180	Easy on the ear, smooth-sounding player, with limits set by the slightly soft, compressed quality				●			●	BS 159
Shenwood CD1	1,100	A very neutral, even handed sounding player with a rather flat, lifeless sound. Beautiful construction	●							BS 1899 163
Sony CDP-XE510	140	Excellent value and bright as a button, but can sound OTT in some systems					●			1bit 179
Sony CDP-XE510	180	Souped up CDP-XE500 which tells a rather bland and unengaging story						●	●	1bit 172
Sony CDP-XB720E	200	Good basic performance and a number of filter settings make this an interesting player for tweaks	●			●			●	Low bit 184
Sony CDP-XE900E	300	Refined and analytical disc scavenging tool, some distinctive colorations make auditioning vital					●			BS 159
Sony CDP-XA20ES	450	High tech, with a long list of gadgets, oddly configured player that ultimately sounds less than compelling	●						●	1bit 2177 176
Sony CDP-X3000ES	500	Shoebbox format player, looks to die for, switchable digital filters to tweak the already excellent sound	●	●						BS 169
T+A CD1210R	1,185	Intriguing player with rather pushy basic sound, but has switchable digital filters.	●							DS 188
TAG McLaren CD20R	1,249	Dry and unatmospheric, but plenty of presence - recommended with caution	●							BS 188
Teac CDP-3450SE	200	For once a budget player where gadgets take second place to respectable, budget amp-friendly sonics	●			●		●		1bit 1960 166
Teac CD-5	350	Bright, breezy and up-beat - but short in the trouser department	●						●	BS 1643 151
Teac VRDS-7	599	Although bold and outgoing, this player can sound both intrusive yet lacking in fine detail	●							BS 1769 155
Teac VRDS-8	600	Superb build quality is matched to good, but not exceptional sound quality	●							MB 184
Teac VRDS-9	700	Well-presented. This Teac is crisp, yet shallow, and inconsistent in sound quality and partnering skills	●							1bit 2178 176
Teac VRDS-10SE	850	Superbly built and presented, but rather leaden bass, with an over-prominent mid/top	●							BS 169
Teac VRDS-25	1,300	A solid player in all respects, combining powerful sound with state-of-the-art technology	●							MB 1903 163
Technics SL-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					●		●	1bit 2264 179
Technics SL-PS770D	250	High tech and well built technology battleship which smooths the rough edges off the music						●	●	BS 2080 172
Technics SL-MC410	250	If you fancy a CD player that holds 111 discs, this one's cheap, pretty capable, and easy to use								Hyb 2224 178
Thule Spirit CD100	600	Definitely a try before you buy machine, but the bass and mid are excellent	●							DS 188
Trichord Genesis	549	Breathed-on Pioneer is warm and mellifluous, but ultimately lacks drive and authority	●						●	Hyb 169
Trichord Revelation	799	Well-ordered and clean sound that may be a little too refined for some, images well	●							1bit 1966 166
XTC CDP-1	1,250	Bright and sometimes abrasive, but detailed player	●							MB 2186 176
Wadia W830	3,000	Envelope busting dynamics, power and imaging in a rather unexciting box (digital volume control)						●		MB 183
Wadia 860	7,450	Flagship CD player has unique digital volume control, superb neutrality and awesome bass	●	●	●	●	●	●	●	MB 189
Yamaha CD-X993	400	A bit of a lush, though the sound is singularly free of grain, and equipment levels are strong	●							BS 184

TRANSPORTS

Linn Karik	1,850	Based on early Linn transport, the Karik is dry but very positive, detailed and engrossing	●							1323 144
PS Audio Lambda	2,250	With Ultralink Two, sound positively sparkles with colour and resonant detail	●	●						1106 133
Roksan Attesa ATT-DP3	1,295	Not the most detailed or refined but capable of sounding exciting with the right material	●							1bit 1867 162
Teac VRDS-T1	550	Superb quality engineering is mated to tidy and composed sound (tested with D-T1)	●							1325 144
Theta Data Basic II	2,397	Uses a Philips CDM9 Pro mechanism and works a treat with more lively DACs	●							1494 130
Thorens TCD2000	999	Lively presentation not helped by rather loose bass and splashy treble. (Tested with TDA 2000 DAC)	●							1867 162
Trichord Digital Turntable	699	Very detailed, precise, controlled yet involving; a first-rank performer	●	●	●					1867 162
Wadia 8	3,195	Budget version of Teac's VRDS mechanism in a fancy case; too expensive for the performance on offer	●	●	●	●				1495 130



LEFT top to bottom: Micromega Premium 18 p80, NAD 524 p69, Pioneer PD-S507 p71, Rotel RCD-951 p77, BELOW top to bottom: Sony CDP-XB920 p78, Talk Thunder 2 p81, Yamaha CDX-493 p72



GROUP A £129-£250

GROUP B £251-£400

GROUP C £401-£750



HINTS & TIPS

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

CD PLAYERS GROUP A

£129-£250

Most of the CD players sold in this country are found in the price band up to £275, and competition is fierce. Here are five new or recent additions to your dealers' shelves, all of which offer strong equipment levels while in most cases at least paying more than lip service to the cause of better sound quality. One of the models of greatest interest is the Denon DCD-435, which costs £50 less than its nearest competitor. Does it stack up to its rivals, or is this too little to pay for serious music making? Conversely, is the extra outlay for the others really ploughed into better sound?

Denon DCD-435	£129.99
Kenwood DPF-3010	£179.99
NAD 524	£250
Pioneer PD-S507	£190
Yamaha CDX-493	£179.95

CD PLAYERS GROUP B

£251-£400

Our middle group this month come from four very solid middle market names, and represent four very different design traditions, the result of which is more than routinely interesting. Note that three of the four – the harman/kardon, Sony and Rotel – are at the strategically important £300 price point. Only the Cyrus model, which replaces the previously tested dAD1, breaks the mould by selling for £395, which you might reflect on as the price you pay for the unusual, glamorous and space-saving packaging. One clear message that comes over from this strong group is that there really is good reason for paying more.

Cyrus dAD1.5	£399
harman/kardon HD740	£299.99
Rotel RCD-951	£300
Sony CDP-XB920	£299.99

CD PLAYERS GROUP B

£401-£750

Do you know the one about the Englishmen, the Frenchman and the Italian? You don't? Then read on to find out how national stereotypes live up to scrutiny, or whether ideas about how CD players should sound transcend such artificial barriers. The answer is not a straightforward one, and the real curiosity here is that although our three protagonists really couldn't look much different, there is a distinct family feel about the way they perform.

Points of particular interest in this case include this burning question: do any or all of these players comprehensively trounce the less costly models in the cheaper groups? And the answer is...

Audio Analogue Paganini	£750
Micromega Premium 18	£650
Talk Thunder 2	£699.95

HOW THE TESTS WERE DONE

Our eleven compact disc players were subject to the usual battery of tests, including a close physical examination, unsighted panel-based listening tests in a high-grade system, hands-on listening, mainly using a more representatively priced range of speakers and amplifiers, and a computerised measurement test programme. Each player was run in and warmed up prior to being auditioned.

Panel testing, spread over two days, included a large number of repeats, with no panel member knowing the identity of the player on test, and with levels carefully normalised between test runs. The system used for these tests

included a Musical Fidelity X-P100/X-AS100 pre/power amplifier for the unsighted and hands-on tests, and the unfeasibly expensive Egglestone Works Rosa speakers. Speaker cables and interconnects were from Nordost.

Hands-on listening references included an Arcam Alpha 10 integrated amp and an NAD T-750 AV amp used in stereo mode, and speakers included were from Tannoy (the R1), Celestion (the A1) and others. The CD player used for reference purposes was the Primare D30.2

THE LISTENING PANEL

Once again, our thanks go to those who contributed their listening skills and

time – industry luminaries one and all. This month's panel included: David Gamble (NXT), David Inman (Castle), Julian Maddock (Mission), Keith Haddock (JBL & harman/kardon), Robin Marshall (NXT), Terry Murphy (Yamaha) and Russell Kaufmann (Morel & Densen). The local Pizza Express provided suitable sustenance once we had bribed them into turning the ruddy background music off. If you're reading this, Mr Pizza Express, the address for letters is on page 3.

WHAT MUSIC DID WE USE?

Extracts from the following four CDs were used for the blind panel tests:

WEBER: Clarinet Quintet I:

Allegro/Anthony Michaelson etc – Musical Fidelity MF028

ALISON KRAUSS: Now That I've Found You from the album of the same name – Rounder CD 0325

PROKOFIEV: Piano Concerto No 1 III: Allegro scherzando/Martha Argerich (piano)/Dutoit/Orchestre Symphonique de Montréal – EMI Classics 7243 5 56654 2 3

JAMES TAYLOR: Line 'Em Up from Hourglass – Columbia 487748 2 Plus various others, including HDCD titles for the solitary compatible player from Rotel, for hands-on testing.

JM lab

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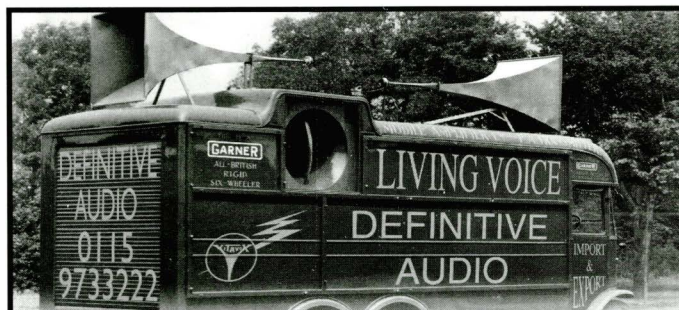
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Item	Sale Price	New Price
2 x Vitavox RH330 mid range horns	£ 300 pair	
3 x N.Analogue Mentor Tonearms	£ 450ea	(£800ea)
1 x Hadcock special Tonearm		£
400 (£ 600)		
Sugden SDT 1 CD Player	£ 400	(£1000)
Carver Platinum loudspeakers	£ 650	(£2700)
Ariston RD 80 Turntable (no arm)	£ 100	
Snell Type K & Huyden K4 stand	£ 400	(£ 900)
AudioNote P4 Monos	£2700	(£4000)
AudioNote Dac3 Sig	£1850	(£2850)
AudioNote ANV iconnect 2m	£ 250	(£ 500)
2 x M.O.D. 1-1 Isolation Transformers 3KVA	£ 200 each	
Kelly KT3 loudspeaker (new)	£1200	(£1850)
Impulse H2 loudspeakers Mahogany	£1500	(£2500)
Orchid Precision PLL 1 loudspeakers	£3900	(£7900)
Naim 72 pre-amp	£ 400	(£ 745)
Naim CD2	£1200	(£2000)
Naim CDS	£1950	(£3940)
Solatron SR 152 Valve regulator p/supply	£ 300	
Denon Transport and DAC	£7000	(£15000)

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DENON DCD-435



Replacing the DCD-425 (reviewed in issue 147) and intended as a matching partner for the PMA-250SE amp and TU-215 tuner, this is Denon's new entry-level player – and a strong candidate for inclusion in any low cost hi-fi system. It seeks to combine sensible engineering with low build costs and features that will give it wide acceptability. Physically, it is a lightweight with a simple plastic fascia, but the mechanism is smooth and quiet and the display can be dimmed or switched off, with some benefit to sound quality.

The digital clockwork includes a Burr Brown 1716 Delta Sigma DAC, with noise-shaping and 8x oversampling digital filters. An optical digital output is fitted for connection to a MiniDisc or CD-R, and play features include random track access and an output volume control, both on the remote only, the latter varying the output of the player's main output and the headphone socket. This isn't such a clever idea, although it might have been done for cost reasons. Ideally, the control should

“Physically this is a lightweight with a plastic fascia, but the mechanism is smooth and quiet and the display can be dimmed or switched off.”

be limited to the headphone feed or omitted altogether. A full range of programme and tape editing features are included, many of which are only accessible from the well featured yet ergonomically sound remote control.

SOUND QUALITY

The hands-on testing painted a picture of a slightly ill-disciplined but fundamentally quick-witted and likeable player. Commenting on the Weber clarinet quintet, one panel member felt that imagery was well defined, but the stringed instruments lacked naturalness, while another wrote that the clarinet was edgy. 'I quite liked this player,' another remarked, 'but the

strings have a slight buzzy and tizzy quality.' Allison Krauss' voice sounded 'less angelic and less smooth' than usual, and if the Prokofiev recording was not as well defined as with earlier players wheeled out that day, it was 'reasonably enjoyable' – although one listener remarked strong tone was 'grainy'. With the throttles wide open, James Taylor was felt to 'lack force' and sound 'polite and rounded', although the panel member also felt the player would be a good long-term bet, perhaps because of this natural restraint.

Each of the panel members had their own take on this player, but there were common factors including a slightly congested treble, which may be jitter-related, and a lack of deep, subterranean bass, although the midband was sound and the player bounced along nicely when necessary. In hands-on testing the player sounded rather shallow in tone, with modest levels of detail and constrained dynamics, but tonally and spatially the Denon performed up to par, and was notably consistent from system to system.

CONCLUSION

It's easy to pick holes with this player, but the price is extremely keen and the trade-offs are well judged. As one panellist put it: 'If this is a cheap CD player, it's astonishing compared with what was possible a few years ago. If it's expensive, it's barely average.' At £130 it's not merely inexpensive, it's practically a giveaway, and it's undeniably value for money. This earns it a Recommended flag, although ultimately the Denon's musical limitations are necessarily strictly limited. **AG**

VERDICT

SOUND	★★★★☆
BUILD	★★★★☆
VALUE	★★★★☆
PRICE	£129.99

Fine low-cost player, with plenty of features for dubbing CDs and an attractive, enthusiastic, if not especially detailed or refined performer.

■ TWO YEAR GUARANTEE

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

THE LAB REPORT

What's this? No 'Lambda Processing', 18-bit or 20-bit logos to grace the fascia? Even Denon's colourful brochure can't quite bring itself to use the 'bitstream' word because – yes, folks – the DCD-435 is Denon's first non-multi-bit CD player. Gracing this seminal product is nothing short of Burr-Brown's 24-bit PCM1716E DAC (see the NAD 524 test), which explains the Denon's much-improved low-level linearity (+0.3dB/-0.4dB).

Jitter is high at 897psec, but that's not uncommon at the price (unless your name is Sony) and is composed of two very characteristic series of 'colorations'. One is related to interference from the power supply and the other is a highly

specific pattern that repeats at intervals of 590Hz. The former will add a warmth or 'bloom' to the player's bass while the latter might give it a subjective 'edginess'.

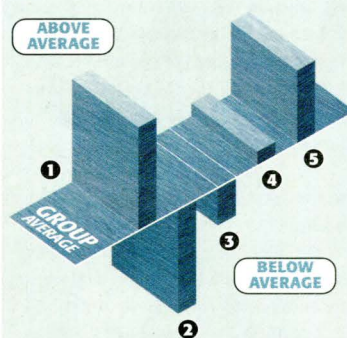
Odd-order intermodulation distortion amounts to a high -63dB where, at peak output, THD also climbs quite alarmingly at high frequencies. Unlike the DCD-835 reviewed in HFC 184, this increase is consistent between left and right channels and is a design, rather than an obvious QC issue. I can only assume that Denon knows THD amounts to 0.14 per cent at 20kHz/0dBFS, a figure that's atypical for the PCM1716 converter. Either way, the DCD-435 will sound quite unlike all previous budget players from this popular stable. **PMI**



HOW IT COMPARES

This player is strained at peak output where distortion rises to 0.006 per cent (0.15 per cent at 20kHz) but is actually lower at -30dBFS, yielding an impressive 0.002 per cent. BB's DAC ensures spurious digital images are well suppressed, but jitter suffers.

- | | |
|---------------------------------|------|
| 1 SUPPRESSION OF DIGITAL IMAGES | 70% |
| 2 JITTER | -70% |
| 3 PRACTICAL DYNAMIC RANGE | -25% |
| 4 HARMONIC DISTORTION VS LEVEL | 10% |
| 5 LINEARITY | 50% |



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBFS	0.005%	0.006%
■ Maximum output level	2.0V	2.2V
■ A-wtd S/N ratio	103dB	104.3dB

KENWOOD DPF-3010



Towards the bottom of the broad price band covered in this test, the DPF-3010 replaces the DP-3080 Mk II, but it turns out to be a very different animal under the skin. A rather busy-looking mid-engined player – the transport was previously on the left – the DPF-3010 features an upgraded version of DRIVE (Dynamic Resolution Intensive Vector Enhancement) technology, a digital low-pass filter intended to reduce step (quantisation) distortion. The power supply has been improved and the signal path has been significantly shortened. So why does it sound worse?

The Kenwood is well endowed with features that are important to many at this end of the market, leaving it looking over-dressed. Besides the remote control, the Kenwood offers a random access track keypad and a display with a matching calendar-type readout – irritatingly, without the usual option of dimming or dousing the display using the native controls or the remote handset.

But there are some useful tape editing features, including a peak search facility to help set record

levels, and from the remote control – a neat, chunky number – it is possible to adjust the main analogue output, but, as is often the case, using the full output and adjusting levels on the partnering amplifier instead usually delivers noticeably better sound quality. The DPF-3010 is also CD Text ready. It won't show CD Text titles in its own display, but digitally made MD dubs will include CD Text information.

Rear panel socketry is limited to an optical digital output and a pair of system link sockets for existing Kenwood owners to allow a complete system to be operated from a single handset – oh, and headphones can be connected.

SOUND QUALITY

'I struggled with this,' was a typical comment after the player's first presentation to the panel. 'It sounds tippy and would prove tiring in the long term.' Another described it as 'too recessed, and with messy timing', noting that the Allison Krauss sounded coarse, and the player generally sounded increasingly messy as the complexity of the music increased.

“There are some useful tape editing features, including a peak search facility to help set record level, and you can adjust the analogue output.”

These opinions were repeated with remarkable consistency the second time through, although this time the shallow bass was highlighted, along with what was described as a 'slightly artificial rhythm kick', which often goes hand-in-hand with a lightweight bass balance.

Most of all, though, it was the lack of clarity that was highlighted, leading to such descriptions as 'synthetic', 'localisation difficult to pin down', 'something cloudy about the detail' and 'tonally bright'. The tonal imbalance, which is related to the earlier comment about sounding recessed – a recessed midband is another way of saying that treble is exposed – was also apparent in the hands-on

tests. However, the high-output impedance will result in losses of extreme treble with some amplifiers – those with a low input impedance or which use long, high-impedance cables such as some of the van den Hul carbon types.

CONCLUSION

The bright, lean sound is probably a reflection of design priorities that favour other markets. By UK standards, the lack of information is a severe impediment, and it's disappointing to find that the DP-3080 Mk II's replacement is inferior to the original. **AG**

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £179.95

ⓘ **Upfront yet lacking clarity, this rather Germanic-sounding player is an inferior follow-up to the DP-3080 Mk II.**

■ **ONE YEAR GUARANTEE**

✉ Kenwood Electronics UK Ltd, Kenwood House, Dwight Road, Watford, Herts WD1 8EB
☎ (01923) 816444

THE LAB REPORT

Although this DPF-3010 replaces Kenwood's DP-3080 (HFC 159), my test results suggest that the two players have little in common. The higher levels of stop-band images certainly indicate that the 3010 uses a different digital filter technology to the 3080 and also points to some unpredictability in partnering it with different amplifiers. The high-ish 770 Ohm output impedance also renders it more cable/amp sensitive, although this player's distortion is improved at <0.02 per cent (re. -30dBFS) over and above the older NPC-based DP-3080.

An internal investigation reveals that the 3010's technology is actually derived from the DP-4090 (HFC172) which uses a combination of Sony processing

ICs and Kenwood's own KAN03 'DRIVE' oversampling and bitstream DAC.

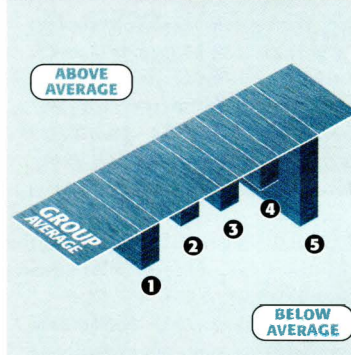
Now the pieces fall into place. This chipset offers an adequate resolution (+1.8dB/-2.6dB over 100dB range) and a similarly adequate 99dB S/N ratio, although jitter is somewhat higher than anticipated at 490psec. Here we find a mix of second-order data-induced and low-rate patterns that might have the effect of disturbing the sharpness of stereo imagery, if not the vibrancy and natural colour of the music itself. Other than that, any gritty-sounding noise modulation is held to a low +2dB, its response is flat, separation excellent and output level is pretty much on the nail at 2.1V. **PMI**



HOW IT COMPARES

By modern standards, the 38dB suppression of digital images is poor, but its impact on the barchart is blunted by the antics of Pioneer's PD-S507 (p71). This player, like the DP-4090, shouldn't stand in the way of creating a good musical story.

- | | | |
|---|-------------------------------|------|
| 1 | SUPPRESSION OF DIGITAL IMAGES | -25% |
| 2 | JITTER | -10% |
| 3 | PRACTICAL DYNAMIC RANGE | -15% |
| 4 | HARMONIC DISTORTION VS LEVEL | -15% |
| 5 | LINEARITY | -55% |



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBFS	<0.006%	0.004%
■ Maximum output level	2.0V	2.1V
■ A-wtd S/N ratio	100dB	99.0dB

NAD 524



Developed from a player called the 522 (tested, not altogether favourably, in issue 179), and newly blessed with a modestly increased price, the 524 is said to perform to a standard appropriate to the next level of players. It is certainly a focused design, with relatively few baubles, a fairly simple finish in regulation NAD house grey, and an unusual and attractive back-lit LCD display. It seems that most of the money has been spent inside.

NAD is one of an increasing number of players to employ the 24-bit (word length) Burr Brown DAC, in this case with a four pole filter, which is a long way from the MASH converters that used to be standard equipment with NAD players. Power supply has received particular attention. The transformer is a toroid, with three independent windings to feed the display, the analogue, digital and servo electronics, in each case with independent regulation.

Polypropylene capacitors are specified for critical areas and there is only one capacitor in the signal path. Philips (née Signetics) op-amps are specified and the

digital output is fed through a wideband transformer, which is said to provide the sharp leading and trailing edges necessary to reduce jitter, with what is claimed to be an accurately specified 75 Ohm source impedance.

Apart from analogue and electrical digital outputs, circuitry is limited to NAD system link sockets; there is no headphone provision. All the usual operating controls are available on the front panel, supplemented by a chunky trapezoidal remote control. The drawer action is slow, but smooth.

SOUND QUALITY

Given a clean bill of technical health, the performance of this player was a little underwhelming, although far from being actively disliked, it had its fans on the panel. 'I was not inspired, but not put off [by this player]. It does most things well, but nothing spectacularly well,' was one fairly typical comment, although another panellist felt the NAD told him more about the music than the preceding players. He also commented on the good quality

“Digital output is fed through a wideband transformer, which is said to provide the sharp leading and trailing edges necessary to reduce jitter.”

of the bass, the high level of detail and the subtle dynamics which he felt helped to communicate the feeling behind what performers were doing – although this must be set against other comments referring to rather flat dynamics and a lack of control in the bass and lower midband, along with scattered comments of stridency and a hardness with vocals.

The separate hands-on testing was broadly favourable to the NAD. While not the most enticing or the smoothest sounding player in the test, it was consistently clear and detailed and provided easy access to the music. Although not exactly unobtrusive, the NAD was fairly transparent on balance and imagery was handled well,

with a clear impression of depth information. The bass lacked power though, which perhaps accounted for a rather constrained image scale.

CONCLUSION

A good player in the classic NAD mould. Sound quality is favoured over gadgetry, and the 524 goes about its business with a quiet confidence. It doesn't cover all the bases and it's a little expensive for a player of this standard, but its fundamentally musical stance makes it an attractive buy, with particular relevance to existing NAD owners.

AG

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £250.00

■ Good mid-price player with plenty of detail, good stereo and solid dynamics, though less organic than some.

■ TWO YEAR GUARANTEE

✉ The Audio Club, 15 Faraday Road, Aylesbury, Bucks HP19 3RY.

☎ (01296) 482017

THE LAB REPORT

NAD is using the same PCM1716E Bitstream converter that has driven both Musical Fidelity's X-Ray and E624 CD players to great acclaim. This converter will accept word lengths up to 24 bits and sample rates up to 96kHz, so CD's 16-bit/44.1kHz specification is well within its compass.

In this instance, a proprietary 4-pole active filter network employing Signetics' NE5532 op-amps not only drives down HF distortion (by suppressing ultrasonic harmonics), but also successfully squeezes out the ultrasonic requantisation noise left by its noise-shapers.

The result is far less ultrasonic rubbish than the competing '24-bit' Crystal bit-stream converter used by Talk and

Audio Analogue, for example. Distortion is very low at peak output (<0.007 per cent all frequencies) but looks a little less tidy at lower levels through the midrange, where quantisation errors manifest as harmonics rather than innocuous white noise.

In this respect it's weaker than the Denon DCD-435 (which uses the same DAC), but NAD's implementation does infer far lower levels of jitter.

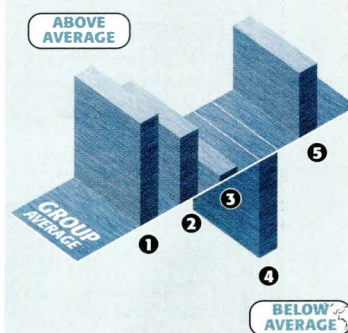
In absolute terms, jitter is about 100psec worse than that achieved by MF and is almost entirely data-induced in origin – although, at 220psec, it will not prove subjectively bothersome. Excellent low-level linearity, a

flat response and good 104dB S/N ratio complete a handsome package. **PMi**

HOW IT COMPARES

The '24-bit' DAC, shared by Denon, offers a similarly fine rejection of digital 'images' while jitter is suppressed to lower levels. Distortion, however, is higher than I would have anticipated at mid-signal levels and contributes to its droopy bar graph.

- 1 SUPPRESSION OF DIGITAL IMAGES 70%
- 2 JITTER 45%
- 3 PRACTICAL DYNAMIC RANGE 5%
- 4 HARMONIC DISTORTION VS LEVEL -65%
- 5 LINEARITY 40%



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBFs	0.007%	0.0008%
■ Maximum output level	2.2V	2.3V
■ A-wtd S/N ratio	>100dB	104.2dB

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PIONEER PD-S507

Pioneer CD players are usually awash with

intriguing and unusual home-grown technologies, and this one is no exception. For a start, there's the inverted Stable Platter Mechanism, which means not forgetting to flip the disc before playing. A Hibit (24-bit) version of Pioneer's Legato Link filter attempts to extend the music bandwidth above the nominal 20kHz cut-off by clever filter arithmetic, although there are other ways of looking at Legato Link, which starts to attenuate high frequencies within the audio band and also lets through significant amounts of ultrasonic energy which can make the player rather amplifier-dependent. In this case, the Delta Sigma 24-bit D/A converter is claimed to offer 24-bit resolution, not just the ability to handle 24-bit word lengths from the digital filter, and in a data format said to be less sensitive to jitter than 1-bit converters.

The well equipped PD-S507 includes a full feature display with the usual calendar-style track read-out, although various alternative displays can be called up, or the whole display can be switched off to reduce visual clutter. Pioneer has included features to make it easier to dump the contents of a CD onto cassettes of specified lengths, some of which will also be of use when recording on digital media like CD-R or MiniDisc



"There are features to make it easier to put the contents of a CD onto cassettes of specified lengths, which will be useful when recording on digital media."

using the optical digital output – there's no electrical equivalent. Headphones can be connected and their volume controlled, as can the main output using the remote control, although the player defaults to full output. The handset itself is neat and well laid out, and includes a numeric keypad for random track access.

SOUND QUALITY

This one received a lukewarm reception on the whole, and the character of the Legato Link filter was recognised by each of the listeners, even though it wasn't identified by name. 'Transients sound softened and timing is off,' and 'a little slurred-sounding, although not lacking in detail' were

typical comments, along with one suggestion that the player sounded 'disjointed' and 'muddled'. One intriguing comment made after hearing the Prokofiev was that the '(stereo) perspectives sound wrong – it seems to get closer as it goes louder'. One panellist felt the Weber sounded 'big and solid, with no dynamics, like a lump of butter'. But that view was extreme, and balanced by kinder epitaphs, including 'good textures and detail, and good dynamics without sounding shouty', although even this listener was prompted to ask: 'Why am I not convinced?'

It is not that this player is incapable of worthwhile music making; indeed, there were occasions when it sounded very presentable. But there were clear indications of a lack of consistency in sound – it would inexplicably sound dull with one amplifier, or one piece of music, or even with certain passages within a particular piece. From the hands-on test, the Pioneer sounded presentable, but was clearly more at ease with simpler recordings and sometimes flustered with complex recordings,

Various displays can be called up or the whole read-out can be switched off

suffering a lack of focus and a sluggishness in timing that underlines the panel's views.

CONCLUSION

The slightly tame balance is not necessarily a disadvantage in many systems, but the lack of consistency and sometimes slurred timing and a loss of resolving ability make this a difficult choice to justify given the more even-handed strengths of the best of the competition. **AG**

VERDICT

SOUND	☆☆☆☆☆
BUILD	☆☆☆☆☆
VALUE	☆☆☆☆☆
PRICE	£190.00

Well equipped, and safe, but somewhat inconsistent sound; not one of Legato Link's finest hours.

ONE YEAR GUARANTEE

✉ Pioneer High Fidelity (GB) Ltd, Pioneer House, Hollybush Hill, Stoke Poges, Slough Berks SL2 4QP.

☎ (01753) 789500

THE LAB REPORT

Improvements to Pioneer's proprietary digital filter ensure only moderate levels of ultrasonic noise (on a par with Sony's player) are allowed to escape the noise-shapers. Furthermore, the 8x oversampling 'Legato-Link' stage has been tweaked to remove any stop-band images above the 44.1kHz (Fs) sample rate. As before, however, the audio signal is allowed to reflect back between 20kHz and Fs to create the impression of a more extended frequency response.

It is important to realise, however, that this is not some form of sophisticated HF processing but simply the release of rather spurious digital energy that bears no harmonic relationship to the music at

hand (see *Oasis*, HFC 188-189). In practice, different amplifiers can respond unpredictably to these signals immediately outside the audio range.

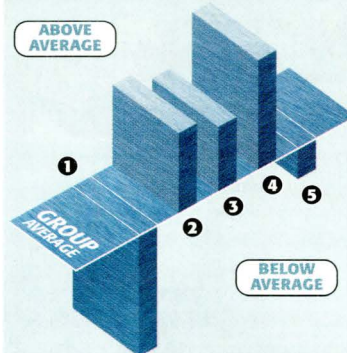
Otherwise, the PD-S507 is a model of concise digital engineering. Jitter is very low at 185psec, distortion held to within 0.003 per cent from 0dBfs-30dBfs (mid-band) and the 'real-life' S/N ratio a fine 105.5dB. Low-level resolution is held to within +0.0/-0.9dB over the top 90dB of its dynamic range and only drifts by +/-2.3dB between 90-100dB where there's little or no sensible musical information. Output level is healthy at 2.2V (+0.9dB over standard) but the 980 Ohm output impedance is too high, in my view. **PMi**



HOW IT COMPARES

In common with all Pioneer's Legato-Link players, the PD-S507 chooses a very gentle filtering of the digital 'images' traditionally knocked for six by conventional machines. This ensures the PD-S507 will typically sound 'different' from its peers.

- 1 SUPPRESSION OF DIGITAL IMAGES -80%
- 2 JITTER 55%
- 3 PRACTICAL DYNAMIC RANGE 45%
- 4 HARMONIC DISTORTION VS LEVEL 75%
- 5 LINEARITY -20%



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	0.002%	0.001%
■ Maximum output level	2.0V	2.2V
■ A-wtd S/N ratio	110dB (EIAJ)	105.5dB

YAMAHA CDX-493



This player is a straightforward budget design with a rational and ergonomically sound control set on the machine itself, supplemented by a rather more extravagant set of bells and whistles on the remote handset. The remote includes a numeric keypad to allow random track access, a display dimmer (three steps but not off, curiously), and a set of tape-editing keys for CD-to-tape synchronised recordings when using a compatible Yamaha cassette deck, with a single-key record start. The handset can also access the main output level control and includes index search.

Front panel controls are limited to simple CD navigation keys, but that includes track number keys and an output level control. Headphones can be accommodated and volume adjusted via the output level control. The display is a standard Yamaha item, fluorescent yellow with a calendar-style readout on the bottom edge and standard track, time and status indicators above. Rear panel socketry includes an optical digital output. There is no electrical digital option.

“The Yamaha has a set of tape-editing keys for CD-to-tape synchronised recordings when using a compatible deck, with a single-key record start.”

SOUND QUALITY

Auditioned three times by the panel over a two-day period, there was a significant spread of scoring. It took some digging around the comments to see what was going on and to uncover a measure of agreement about what was on offer. In fact, one panellist correctly identified the player on its return.

One common factor which went down well on the whole with the panel was a degree of liveliness, although at times it verged on overkill. One described the player as ‘quite successful and together... it bounces along nicely, but it’s a bit of a tearaway – a bit over-exuberant’. A second agreed: ‘Forward and a bit aggressive in the upper-mid,’ he wrote –

although, paradoxically, the extreme treble was consistently described as muted.

More substantial criticisms were made of a lack of real clarity. ‘Lots of fine detail interplay is completely glossed over,’ one panellist wrote of the Prokofiev, while a second noted the Yamaha was ‘tonally OK, but it misses out huge chunks of information that other players resolve easily’ (Weber). A third concluded that the sound was ‘closer to FM radio than compact disc’.

Hands-on testing led to a slight marking-down of the Yamaha, which on balance is a little too raucous, especially with naturally aggressive or complex material. There were significant losses of detail, space and image depth compared with the best at this price level, giving the impression of detail substituted by a degree of granularity that was imposed on the music independently of the music content. The bass was also characterful – not as obviously extended or as powerful as some, it was tuneful and it had a way of cutting through the low frequency congestion and excess of some

systems. Another plus with this player is that it is open and lively, with neutral tonality.

CONCLUSION

This player stubbornly performs better than the numbers suggest, in part because some of its characteristics are complementary to typical failings of budget amps and speakers (the bass provides the clearest example here). But the lack of resolving ability and messy mid/treble means it sounds more like a good package system component than good hi-fi, and doesn’t meet the strict criteria for recommendation. **AG**

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £179.99

Perfectly acceptable player at the price, but ultimately limited by modest resolving ability and some congestion.

TWO YEAR GUARANTEE

Yamaha Electronics UK Ltd, 200 Rickmansworth Rd, Watford, Herts WD1 7JS (01923) 233166

THE LAB REPORT

Not unlike HK’s HD740, and in common with earlier MASH/PWM-based players from Yamaha, the CDX-493’s jitter spectrum is dominated by lone second-order data-induced sidebands. These typically infer a grey or uninteresting sound, though they are tempered here by a pair of higher-rate (and typically grittier-sounding) patterns. The overall influence of this jitter, however, is unlikely to be devastating at just 360psec.

Indeed, it’s Yamaha’s choice of the highly integrated MN66271 signal processor, oversampling filter and DAC, that has the biggest influence on its sound – that, and the high 1.1kOhm output impedance. The processor includes a digital volume



control that operates over a 35dB range (35mV to 2000mV), although

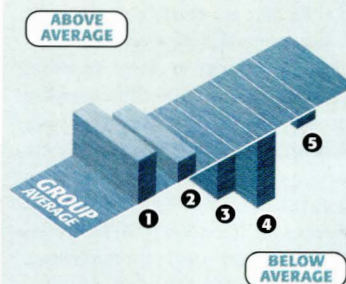
the ideal performance is maintained by leaving the player at full output. By employing a bitstream-style DAC, however, ultrasonic noise is closer to the likes of the Sony and Pioneer models than the 20-bit HK, although distortion harmonics are unusually extended at high frequencies.

The figure of 0.1 per cent (re. 20kHz, -30dBfs) includes components as high as a 15th harmonic! Despite what appear to be quantisation errors and a 102dB S/N ratio that’s compromised by some +5.6dB of noise modulation, the player’s low-level resolution is rather good at +0.0/-0.2dB over the top 90dB of its range. **PMI**

HOW IT COMPARES

Distortion is low through the midrange, but increases markedly at HF. However, the CDX-493 does not meet the specified S/N ratio nor does it achieve a 2.5V peak output. In practice, both the 102dB S/N ratio and 2V output are more than adequate.

- 1 SUPPRESSION OF DIGITAL IMAGES 30%
- 2 JITTER 15%
- 3 PRACTICAL DYNAMIC RANGE -25%
- 4 HARMONIC DISTORTION VS LEVEL -45%
- 5 LINEARITY -5%



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBfs	<0.003%	0.002%
Maximum output level	1.5-2.5V	0.04-2.03V
A-wtd S/N ratio	>105dB	101.9dB

CYRUS dAD1.5

It is possible – but if so, Cyrus isn't letting on – that the dAD1.5 is a response to criticism in our previous review of the dAD1 some months ago, which described a detailed but rather flat, mechanical sound which didn't wear well in extended listening. That's the easiest way to explain the dAD1.5 nomenclature.

The mechanism is the Philips CDM12.1, a fairly old model, chosen perhaps to avoid the reliability problems of the later CDM12.4, used with a suspended pickup and self-centring magnetic disc clamp. Multiple regulated power supply rails feed the analogue and digital circuits, the motor and the control servo and display circuits independently.

Updates to the dAD include a change in the oversampling rate, in the digital filter, and some retuning of the post DAC analogue low pass filter. The results, says Cyrus, are enhanced timing and detail levels. Otherwise, all is as before. Built into a standard Cyrus half-width (215mm) box, made from alloy with an ABS moulded base instead of the all-magnesium alloy castings of more costly Cyrus components. The player features a simple backlit display and a remote control which offers no more than basic navigation and play controls. A more sophisticated controller is available as an accessory and is bundled with the Cyrus IIIi integrated and the Cyrus preamp.

The dAD1.5 can also be patched into a Cyrus system using the control data sockets on the back, and an electrical digital output is available on the back



“The balance had the useful side-effect of helping propel the music along at a good clip: this is a player with strong, propulsive timing.”

panel. In common with previous Cyrus players, the dAD1.5 is smooth and quiet in operation, but not especially quick acting.

SOUND QUALITY

The panel made criticisms that mirrored those made of the dAD1, but they tended to be milder in tone, and this time around there were no complaints that the player was hard to listen to for extended periods. This is still no dAD3, but it seems to be a usefully improved player which has a generally more natural and transparent sound, though one panellist complained of a 'steely' coloration or glare in

the midband which tended to make everything 'matter-of-fact and impersonal'. He noted that while the player did add a certain crispness and sharpness to the music, he found himself listening more to the detail than to the music, and concluded that other players in that test group sounded more 'natural and communicative'.

Recorded percussion, especially cymbals, came in for some criticism for the way they added a 'glare' to the music, and it's certainly a drier-sounding player than most of the others, the bass being lean and tuneful rather than authoritative. The *quid pro quo* is that this balance had the useful side-effect of helping propel the music along at a good clip: this is a player with strong, propulsive timing, although it doesn't come across as particularly strong and propulsive otherwise.

CONCLUSION

It's not possible to make absolute assertions about the relative merits of two players unless they

are compared directly, and it was not possible to do so here for the dAD1 and the dAD1.5.

All the evidence, however, leans towards the conclusion that the model has been weaned away from its previously rather synthetic quality. Now all that stands in its way are a couple of stars from elsewhere in this month's group. Taking packaging into account – Recommended.

VERDICT

SOUND	★★★★☆
BUILD	★★★★☆
VALUE	★★★★☆
PRICE	£399

■ A significantly improved version of the dAD1, this is now a respectable, if not class-leading performer, and if compact packing is important, they don't come much better.

ONE YEAR GUARANTEE

✉ Cyrus Ltd, Stonehill, Huntingdon, Cambs PE18 6ED
☎ (01480) 451777

THE LAB REPORT

Issue 188 saw our review of Cyrus' dAD1.0 CD player chastised for its below-par performance, since when a revised model – the dAD1.5 – has been brought to the boil with, among other things, an 'upgraded filter'. This refers to both analogue and digital filters, the former revised to accommodate the reduction from 4x to 2x oversampling in the latter. This remains part-and-parcel of Philips' TDA1311 hybrid DAC and dominates the performance of both dAD1.0 and dAD1.5 alike.

Once again, this filter only weakly suppresses the level of digital stop-band images (30dB) that encourage an uncertain performance with different amplifiers. Distortion remains below average at 0.05

per cent (re. 0dBfs) and the audioband is still contaminated by spurious digital products, giving a 'messy' look to its spectrum.

There's no change in the player's S/N ratio (still only a 15-bit value of 90dB) but its low-level linearity is improved, even if +6.0dB/-3.6dB errors at -100dB are hardly worth writing home about.

Both players suffer an identical and highly distinctive jitter 'pattern' (amounting to 851psec in this instance) that repeats at 334Hz. This, together with the random

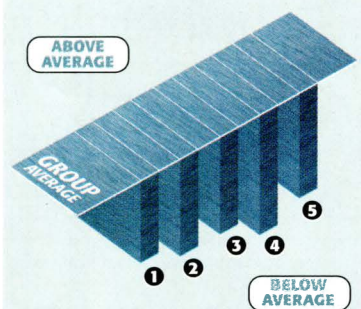
or noise-like jitter that persists, contributes to those less favourable sonic qualities carried over from the dAD1.0 to the dAD1.5. **PMI**



HOW IT COMPARES

With the best will in the world, the modifications haven't fundamentally altered the specification of the dAD1.0/dAD1.5. Hence the below-par 90dB S/N ratio, poor linearity and higher-than-average distortion.

1 SUPPRESSION OF DIGITAL IMAGES	-55%
2 JITTER	-65%
3 PRACTICAL DYNAMIC RANGE	-65%
4 HARMONIC DISTORTION VS LEVEL	-80%
5 LINEARITY	-70%



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	0.03%	0.02%
■ Maximum output level	2.3V	2.4V
■ A-wtd S/N ratio	>98dB	89.9dB

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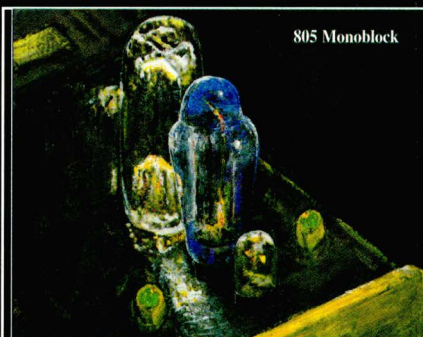
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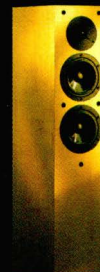
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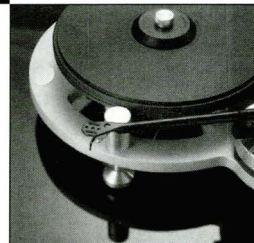
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HARMAN/KARDON HD740

Harman/kardon was relaunched last September following what is euphemistically described as 'difficult trading conditions in the UK', and this is one of three CD players in the launch range, which also includes some multi-disc players, amplifiers and receivers. If the HD740 looks familiar, that's because it follows the pattern set by previous ranges, which are best described as solid, straightforward and honestly specified.

The technology includes a pair of 20-bit Burr-Brown 1702 D/A converters with 8x oversampling filters feeding a discrete analogue output stage. Harman/kardon lists an infra-red remote control repeater as an option. At about £80, it allows a system to be placed out of view, in a suitably ventilated housing, for instance.

Visually and operationally, the HD740 is typical harman/kardon, with its characteristically unfussy front panel layout with widely spaced controls, which consist of a mixture of domes and rocker switches. A feature of the HD740, and of other players in the range, is that it is designed to help with making cassette dubs from CD, including rearranging the track running order to make best use of the length of tape programmed into the player.

The HD740 also has a display dim/off switch and can perform the usual intro scan and repeat



play modes. Headphones can be connected, and the volume controlled, but the main analogue output is at a fixed level.

Harman/kardon has fitted remote control in and out sockets for system linked operation, too. The handset is chunky and solid, but is perhaps not the most helpfully organised.

As well as the usual analogue main outputs, both electrical and optical digital outputs are fitted on the back panel, along with an autplay switch which allows the user to decide whether the player enters play mode on power up, which could be used as the basis for a high-tech alarm clock using a compact disc instead of a cuckoo or bleeper. All you'll need is the CD player, an amp and speakers, a mains timer and a full-on equipment support to replace the bedside table!

SOUND QUALITY

This player was liked by the panel for its innate transparency – its ability to play music without getting in the way. It was consistently described using terms like 'neutral' and in discussion

"If the HD740 looks familiar, that's because it follows the pattern set by previous ranges, which can be described as solid, straightforward and honestly specified."

after one presentation it was described as having a balance that 'felt right' and that 'didn't draw attention to itself'.

There was mild but consistent criticism of the frequency extremes, the bass being described as 'slightly overblown' (James Taylor) and 'boomy' and 'flabby' on several occasions, though post-panel hands-on testing showed this was at least partly a function of the system as a whole, and that realistically, in well controlled systems, it is not a problem. The treble was sometimes accused of being 'hard', and the player as a whole of 'struggling when (the music became) complicated', but that

should be set against others, such as one made after the Allison Krauss track, praising the player for its 'light and airy presentation' and in the Weber for its 'good string separation and its natural acoustic'. The hands-on tests vindicated these results in full.

CONCLUSION

As suggested earlier, this is a solid and honestly specified player, and it makes music which is focused, articulate and alive, with a near ideal blend of dynamic integrity and subtlety. Recommended.

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £299.99

Excellent mid-price player – the resources have obviously gone into the interior clockwork where it can do the most good.

TWO YEAR GUARANTEE

Gamepath Ltd, 25 Heathfield, Stacey Bushes, Milton Keynes MK12 6HR
(01908) 317707

THE LAB REPORT

Harman uses a mixture of different technologies throughout its CD range but the HD740 is, arguably, the most straightforward and elegant of the bunch.

A ripple-free response and superb >110dB rejection of stop-band images is maintained by NPC's SM5843AP oversampling filter while two surface-mount PCM1702 DACs from Burr-Brown provide the widest S/N ratio (111dB) of any player in this month's test. On the other hand, noise modulation is also up at +10dB, such are the compromises of a 20-bit multi-bit DAC.

On the plus side, ultrasonic noise is very well controlled and this, along with the moderate 160 Ohm output impedance, suggests that the HD740 will perform

consistently with different amps.

As to the tenor of the HD740, well, that's dictated by a hint of compression at peak output where HFTHD climbs to 0.06 per cent along with a similar dose of IM distortion. At lower, possibly more important levels, distortion hovers around 0.01 per cent across the audio band (re. -30dBfs).

Similarly, the jitter spectrum is significantly tidier than in earlier HK players, but remains high-ish at 409psec thanks to a single, second-order data-induced pattern.

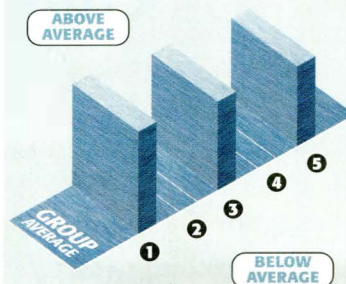
From experience, we know that – in the absence of stronger colorations – this pattern encourages a lack of musical vitality, leaving a 'grey' or 'uninteresting' quality in its wake

PMI

HOW IT COMPARES

A good performer, this offers a wide dynamic range and a lack of the ultrasonic noise that accompanies the average bitstream-DAC player. Excellent digital ICs yield fine low-level resolution and, below peak output, low distortion.

- | | |
|---------------------------------|-----|
| 1 SUPPRESSION OF DIGITAL IMAGES | 70% |
| 2 JITTER | 0% |
| 3 PRACTICAL DYNAMIC RANGE | 60% |
| 4 HARMONIC DISTORTION VS LEVEL | 0% |
| 5 LINEARITY | 55% |



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBfs	0.005%	0.0028%
Maximum output level	2.0V	2.1V
A-wtd S/N ratio	106dB	110.5dB

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ROTEL RCD-951



Welcome to the RCD-951, a simplified version of the RCD-971 which earned itself a big fat Best Buy back in issue 184. Beneath the RCD-971's skin beat the twin hearts of two Burr-Brown PCM63Ps locked in eternal embrace in noise-cancelling dual differential mode. In the RCD-951's case, one of the DACs has gone west, and the remaining one has a slightly lower spec. The power supply has also been simplified, with the toroidal transformer of the 971 going out the front door while a frame type EI transformer creeps in through the back. Unchanged is the Pacific Microsonics PMD100 digital filter, which means that the RCD-951 is fully HDCD compatible.

Also unchanged in the transition is the player's build and styling, which are solid and stolid, respectively. The RCD-951 breaks no new ground, but it really didn't need to. In common with its predecessors, it is a little heavier and more solidly engineered than most, and the mechanism is smooth and well oiled, but not quite silent. Front panel controls include track-skip and cueing at

opposite ends of the fascia. With most players, these controls are the best of friends, and this is a curious decision, but the controls are otherwise well grouped, with the play and navigation controls on the right and programming, random play, repeat and display mode keys on the left.

The only really disappointing feature is the remote control – buttons are cramped and it's ergonomically a mess, an unfortunate oversight given the improvement in the handsets supplied with a number of the Rotel's rivals. It does add usefully to the Rotel's functionality though, not least thanks to the direct access track keypad.

SOUND QUALITY

A mixed bag on audition, it was clear both to the panel and to the author in the hands on testing that the RCD-951 is not in the same league as its senior brother. The RCD-971 is a polished and refined performer, where the 951 sounds alternately grainy and glassy, with 'unsubtle' timing and a mid/treble that sounded 'gritty' and 'splashy'. There was a strong measure of consistency in the comments

"In common with its predecessors, it is a little heavier and more solidly engineered than most, and the mechanism is smooth and well oiled, though not quite silent."

made with different musical tracks, and in different presentations to the panel, and this of course tends to underline and reinforce the complaints. Other than that, the panel had difficulty in engaging with the music from this player, not because it sounded particularly poor, but because the music lacked the articulation and coherence necessary to make a strong aural case for itself.

None of the musical excerpts used for the panel tests involved HDCD recordings because this would have presented a less than level playing field for those players without decoders. In fact, the RCD-951 is the only player of the 12 so equipped, and with good

recent HDCD recordings the RCD-951 came to life somewhat. Even with non-HDCD recordings, the player sounded rather better focused than it did in the panel sessions, but this remains at best a modest performer.

CONCLUSION

Our advice to potential buyers of the RCD-951 is: wait, save up the extra £50 and buy the RCD-971 instead. Unless they look closely visitors won't realise it's the 971 they're listening to, but they will hear the difference.

Even with HDCD compatibility, this is a mundane deal.

VERDICT

SOUND ★★☆☆☆

BUILD ★★☆☆☆

VALUE ★★☆☆☆

PRICE £300

Non-differential, lower resolution version of RCD-971 still offers HDCD but turns out to have feet of clay.

TWO YEAR GUARANTEE

Gamepath Ltd, 25 Heathfields, Stacey Bushes, Milton Keynes, Bucks MK12 6HR
(01908) 317707

THE LAB REPORT

In common with Rotel's costlier RCD-971 (HFC 184), the RCD-951 also employs the popular PMD-100 8x oversampling filter from Pacific Microsonics, lending this machine full compatibility with HDCD-encoded software and providing excellent rejection of digital 'images'.

However, in place of the 971's 20-bit DACs, the RCD-951 makes use of Burr-Brown's 18-bit PCM69AP hybrid converters which offer a lower 96dB S/N ratio, slightly poorer low-level linearity (+0.0/-3.0dB over a full 100dB dynamic range) and proportionally higher distortion.

All this is moderated by the high quality analogue output stage, based on Burr-Brown's OPA2604 op-amps and featuring



Rotel's favourite Rubicon BGF capacitors. In practice, distortion is consistent at 0.03 per cent – where most of the musical action

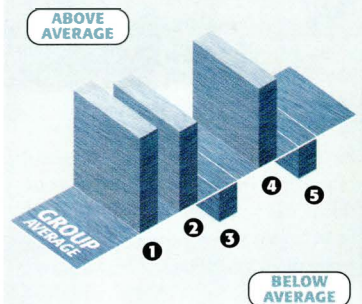
takes place (-30dBfs) – instead of varying with frequency. This is preferable to achieving vanishingly low levels of THD through the midband only to see it rise by a factor of 10 through the treble as is often the case.

Freedom from high-order noise-shaping yields a clean, low-noise ultrasonic spectrum that's very 'amplifier-friendly'. Compatibility is further enhanced by the moderate 105 Ohm output impedance. Jitter is very low indeed at 165psec – possibly the lowest value currently achieved with this PCM69 DAC technology. **PMI**

HOW IT COMPARES

The only way a 105dB S/N ratio can be achieved is by digital muting (where the DACs switch themselves off). In practice, the figure is a 16-bit value of 96dB, despite the use of notional '18-bit' DACs. However, this is perfectly adequate for 16-bit CD software.

- 1 SUPPRESSION OF DIGITAL IMAGES** 65%
- 2 JITTER** 55%
- 3 PRACTICAL DYNAMIC RANGE** -20%
- 4 HARMONIC DISTORTION VS LEVEL** 55%
- 5 LINEARITY** -20%



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
Distortion @ 1kHz/0dBfs	0.0045%	0.0028%
Maximum output level	2V	2.2V
A-wtd S/N ratio	>105dB	96dB

SONY CDP-XB920

The CDP-XB920 feels heavy, and is clearly well built. Press the drawer button and the mechanism opens with an unusual hush, and the sense of well-oiled precision is a constant in all operating modes. The fabricated box, with non-magnetic copper fixing screws, makes a welcome change from the usual pressed steel. This isn't necessarily the player for Granny, however, with its removable disk puck adding an operation every time a disc is inserted or removed.

The CDP-XB920 isn't the first with a switchable coefficient digital filter with four settings – normal, spline, plane and analogue – but it is the first Sony to feature an enhancement to standard anti-jitter measures called synchronous time accuracy control which address the effect on the D/A converter of switching noise from the digital filter and noise-shaper.

This model has been subject to a number of enhancements aimed at improving sound quality. These modifications include slanted circuit boards to reduce internal standing wave problems, chassis reinforcement, the use of a fixed transport with a magnetic disc stabiliser, off-centre isolating feet and changes to the damping and transport suspension, as well as revised grounding and detailed adjustments to the analogue low-pass filter and the amplifier output capacitors.



“The more I listened to the Sony player, the more the sheer consistency of the standard brick wall filter made itself apparent. There really is no alternative but to ‘suck it and see’.”

Features include a wonderful rotary track selector, display off, a line output control and a number of programme and tape-editing features, including a fader. CD Text is supported and both flavours of digital output are fitted, alongside system link terminals. The international model's headphone socket has been deleted to improve sound quality. If this models starts being grey imported, this could be the giveaway.

SOUND QUALITY

Discussing the different filters is fraught with problems. As with previous Sony players with the same switchable coefficient digital

filters, there are clear benefits from at least some of the alternatives to the standard brick wall. The Pioneer Legato Link-like spline filter has a certain quality, a way of organising spatial cues which helps produce a more rounded and three-dimensional quality from many recordings, and to an extent the same happens with the plane filter, though with less consistency and space.

The analogue filter is perhaps the weakest of the lot, although it might appeal to those who find the other filters too steely, though that's unlikely with this player. But the more I listened, the more the sheer consistency of the standard brick wall filter made itself apparent. There really is no alternative but to 'suck it and see'.

The panel tests were limited to the standard (brick wall) filter, which elicited some enthusiastic responses, of which the following are a random selection: 'Good dynamics, good scale'; 'Complexities are handled well'; 'Breathes well'; 'This is excellent (with) real homogeneity'; 'Quite dry, but neutral, well controlled and musical, if not as dynamic and

fulsome as possible... well integrated'. Two panellists independently remarked it was their favourite of day up to that point (it turned out to be downhill all the way thereafter), and one described the player as putting in 'a spirited performance' and as being 'almost realistic' – praise indeed from the hard-bitten panel.

CONCLUSION

Clear Best Buy material, this player just about has it all. It sounds smooth, well integrated and detailed and is effectively an open window on the music. So what are you waiting for?

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £299.99

■ A technological tour de force, and musically a knockout: probably the definitive £300 player

■ ONE YEAR GUARANTEE

✉ Sony UK Ltd., The Heights, Brooklands, Weybridge, Surrey KT13 0XW.

☎ (01932) 816000

THE LAB REPORT

With its default 8x oversampling filter, the CDP-XB920E behaves in textbook fashion. This includes a >105dB rejection of stop-band images, a mere 168psec of jitter, errors in low-level linearity of just +0.0/-0.3dB over a 100dB range and distortion as low as 0.003 per cent through the midband at -30dBfs. THD increases by about 20dB at HF, however.

Digital filter No.1 utilises a spline filter algorithm (see *Oasis*, HFC 188-189) which mimics Pioneer's 'Legato Link' (see PD-S507). Once again, we see the deliberate merging of a digital image or 'reflection' with the upper treble, itself gently rolling off to -3.6dB at 20kHz. Filter No. 2 (plane) with its equi-ripple stop-band response



provides the boldest stop-band images and the greatest output of ultrasonic energy. If any amplifier was to prove sensitive to such energy, then filter No. 2 will prove the most problematic – or colourful, depending on your musical tastes!

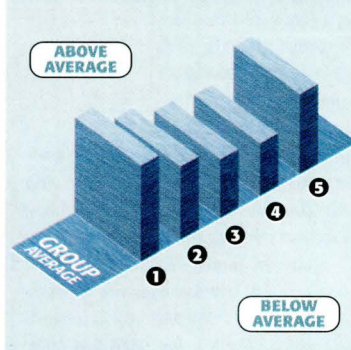
Filter No. 3 provides a seventh-order Butterworth roll-off (-2.3dB @ 20kHz) which Sony describes as 'analogue'. When switching from filter to filter, do bear in mind that the mean midband levels vary by up to 1dB and can prompt a false subjective impression.

The default 2.5V output level is also +1.8dB higher than normal, further confusing A/B comparisons with other players. **PMI**

HOW IT COMPARES

Distortion is low in the midband, but increases with frequency as the amount of applied feedback also falls. Sony's digital technology ensures excellent linearity and very low jitter, but its figure for S/N can only be achieved if the DACs are switched off.

- | | | |
|---|-------------------------------|-----|
| 1 | SUPPRESSION OF DIGITAL IMAGES | 65% |
| 2 | JITTER | 50% |
| 3 | PRACTICAL DYNAMIC RANGE | 40% |
| 4 | HARMONIC DISTORTION VS LEVEL | 35% |
| 5 | LINEARITY | 65% |



SPECIFICATIONS

PARAMETER	MANUFACTUR'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	<0.0025%	0.0009%
■ Maximum output level	2V	2.5V
■ A-wtd S/N ratio	>113dB	103.2dB

AUDIO ANALOGUE Paganini

Italian producer Audio Analogue was set up to cover mid to high-end territory, and its products are named after the musical traditions associated with the country. We have looked at the Puccini integrated amplifier in the past and this is a possible partner, although the disparity in price may favour a more expensive amplifier.

Clearly a quality product, the Paganini weighs much more than any of the others in this month's group, thanks to a 3mm thick steel chassis (although a non-magnetic material might have been better), a 10mm slab aluminium fascia and a beefy power supply which includes a total of eight separately regulated power supplies for the analogue and the digital circuits.

Internal hardware centres on a Crystal 24-bit word length dual differential D/A converter with 128x oversampling, while the output is DC coupled with a low output impedance and is built with close tolerance, audiophile quality capacitors and resistors throughout. The Sony laser pickup is mounted in a novel way to reduce resonances – one of a number of measures employed throughout to the same end – and is mated to proprietary servo and decoding circuitry.

The quality theme continues around the back, with high grade connectors for the analogue and switchable digital outputs and an IEC mains socket, which allowed us to use quality mains



“Clearly a quality product, the Paganini boasts a 10mm slab aluminium fascia and a beefy power supply which includes a total of eight separately regulated power supplies for the analogue and the digital circuits.”

cables (from Nordost) for our tests. Operating features are lean-to-standard, with the *telecomando* adding the obligatory numeric keypad and other minor embellishments in a rather more straightforward way than the perhaps over-stylised control cluster on the front panel.

SOUND QUALITY

Whether or not cost has anything to do with it, the panel responded to the Audio Analogue Paganini in much the same way they reacted to the similarly priced (although

physically less well endowed) Talk Electronics Thunder 2. Although big and authoritative, there is a certain slackness in its dynamic ability and detail levels are not all they might be, which mirrors the Thunder 2 findings.

The panel also detected a touch of ‘jangle’ in the Prokofiev piano recording and in the Allison Krauss track, which is a superb recording. The player was described as ‘finding it hard to achieve any kind of note precision – it’s not exactly one-note, but it’s verging on it’, a reaction echoed by the panel in group discussion. In a subsequent presentation, the bass was again criticised variously as lacking ‘precision and definition’ and lacking ‘energy’. However, one panel member pulled no punches, describing the bass as ‘horrible’, proving that with sound there’s no accounting for taste.

Later listening showed a degree of sensitivity, and the Paganini sounded much better balanced with a pair of Wilson Benesch Act Two speakers than the test Egglestone Works Rosas (at £8,500 and £9,000 respectively, they’re both science fiction in this context, but were employed in

their roles as ‘open windows’ and because, well, they were there). The reason is simple: the Act Two has much better focused and more discretely proportioned bass. The Rosa is simply too much of a good thing with a CD player that shares a similar balance.

CONCLUSION

None of this absolves the Paganini from criticism for its limitations, but at worst, it is just perceptibly warm, with a strong focus and reasonable levels of detail and dynamics. However, it remains a capable and enjoyable player in the right surroundings.

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £750

■ Sympathetic system matching is required for this gracious but slightly slack-sounding player.

■ TWO YEAR GUARANTEE

☒ UKD Distribution, 23 Richings Way, Iwer, Bucks SL0 9DA

☎ (01753) 652669

THE LAB REPORT

This is a very solidly constructed player featuring a large but neatly-laid PCB, employing good quality ancillary components and – at its heart – one

of Crystal's ‘24-bit’ CS4390 converters (see Talk Thunder 2 test). Jitter is low at 240psec, but still 100psec higher than we know can be achieved with the CS4390 by the likes of Meridian, for example.

Distortion is also extremely low at <0.001 per cent through bass and midrange at peak (2V) output, but typically increases by 20dB (10x) at high frequencies. At the important -30dBfs level, distortion settles out at 0.03-0.006 per cent, and at lower levels still, its resolution holds to within tight +0.0/-0.5dB limits (100dB range, 20Hz-20kHz).



This is a typically good performance from Crystal's converter that, while notionally

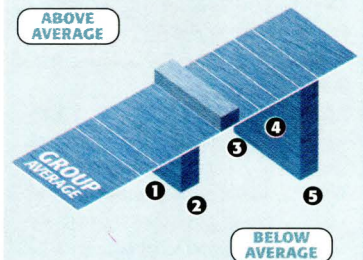
accepting a 24-bit word length, still only provides a 104dB S/N ratio in practice. This is, of course, more than adequate for a 16-bit CD format and betters the noise performance of any integrated amplifier that's likely to be its partner.

The exceptionally low 1 Ohm output impedance also bodes well for its tolerance of ‘difficult’ amplifier/cable combinations, although the CS4390 does still eject significant levels of ultrasonic requantisation noise. And, as we know, not all amplifiers are entirely comfortable handling this type of digital refuse.

HOW IT COMPARES

This is a textbook example of Crystal's so-called ‘24-bit’ CS4390 DAC in action, providing low distortion, impressive low-level resolution, low audio band noise and low jitter. However, the ‘ultrasonic’ noise created by this chip is never fully dealt with.

- | | |
|---------------------------------|------|
| 1 SUPPRESSION OF DIGITAL IMAGES | 0% |
| 2 JITTER | -25% |
| 3 PRACTICAL DYNAMIC RANGE | 10% |
| 4 HARMONIC DISTORTION VS LEVEL | -10% |
| 5 LINEARITY | -65% |



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	0.001%	0.0005%
■ Maximum output level	2.0V	2.0V
■ A-wtd S/N ratio	Not Specified	104.0dB

MICROMEGA Premium 18

For years, Micromega based its CD players on Philips CDM12.4 mechanisms, and was badly affected when it started to suffer reliability problems that Philips initially failed to adequately address. Players in the field were being returned to the distributor with faulty mechanisms 'like old friends', which eventually led to a change in distribution as Surrey Sounds took over the reins.

Now the Premium range has been introduced, featuring a Sony mechanism (the KSM-2130CCM) which has a reputation for reliability. Other highlights include a Crystal SC4327 Delta Sigma 20-bit D/A converter in an all-surface mount circuit.

The Premium 18 is part of a range which includes the 20 and, shortly, the 24 (with a 24/96 DAC) to sell at £850 and about £1,100 respectively. As with its predecessors, the Premium 18 is upgradeable to either of the other models for the difference in retail price, but where the upgrade used to use a software routine that interrogated the player's firmware each time it was turned on, the Premium upgrade path is less Gallic, consisting of a new internal PC board and matching fascia.

The Premium 18 looks much like earlier Micromega products. Its fully machined case gives it a quality engineered appeal, but the new model has more conventional controls, although



"The Premium 18 looks much like earlier Micromega products, with its fully machined case, but the new model has much more conventional controls – although some idiosyncrasies remain."

some idiosyncrasies remain. The 'mode' key, for example, enables and disables the digital output, and is also used to adjust the headphone playback level. This player is supplied with a busy-looking remote control handset, which includes a numeric track access keypad, programming keys and a display key. The player itself is more simply kitted out, with basic controls, headphone socket and an electrical digital output.

SOUND QUALITY

If there was one overriding objection to this player, used with the digital output switched off, it

was that it lacked real power, a concept whose meaning is clear enough with amplifiers, but which may not make obvious sense in the context of a compact disc player. In fact, CD players consist of some tricky digital clockwork with an amplifier at the output, and although the output level is fixed over a very small range, it may have more or less authority, slam and all the other qualities commonly ascribed to real amps.

In the hands-on testing, this model sounded like an amp with limited current reserves and seemed to have difficulty in completely mastering the load. The panel felt it sounded 'weedy' (Krauss) and 'lacking substance' (Prokofiev), while the bass was described as 'thuddy' (Taylor), although it was also thought to be well extended. Out of the panel context, the bass varied in quality with the test system, and some level of interaction with the amplifier input was suspected as performance varied from thin and metallic to perfectly satisfactory.

There were also consistent complaints that the player had a 'grey' and 'cloudy' quality, and the

treble was generally felt to be 'thin' (a word used several times by different panellists) and 'gritty' in the Weber clarinet quintet. There were also more positive comments, but the overall scoring was not encouraging for a model at this price. Perhaps one of the upgrades will address the issues.

CONCLUSION

A good-looking player with ample upgrade potential and a strong guarantee, the base level Premium model nevertheless sounds curiously antiseptic and underpowered.

VERDICT

SOUND ★★☆☆☆

BUILD ★★☆☆☆

VALUE ★★☆☆☆

PRICE £650

The Premium 18 retains the upgradeability of its predecessors, but sounds unbalanced and rather charmless.

TWO YEAR GUARANTEE

✉ Surrey Sounds, Enterprise House, 44-46 Terrace Road, Walton-on-Thames, Surrey KT12 2SD

☎ (01932) 254297

THE LAB REPORT

In contrast with previous Micromega CD players, the Premium 18 demonstrates little or no use of Philips-brand technology. Instead, this unit features a Sony transport assembly, some custom servo logic and a very compact output board with extensive use of surface mount ICs. This includes Crystal's 20-bit CS4327 DAC (as distinct from the differential-output, 20-bit CS4329), which provides superb low-level resolution (errors of just +0.0/-0.5dB over a 100dB range) and very low 140pssec jitter.

Distortion is equally low through bass and midrange (typically <0.001 per cent at 0dBfs) but then escalates very rapidly to 0.03 per cent at high frequencies – that's a 30dB



increase. At lower signal levels, high frequency harmonics are masked by the

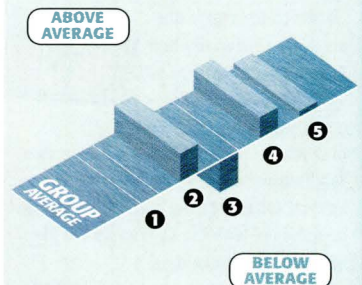
wave of ultrasonic requantisation noise released by the CS4327's noise-shapers, but this in turn must be dealt with by the partnering amplifier. In this respect, the Premium 18 is no better off than either the Audio Analogue or Talk players with their '24-bit' variations on this DAC technology.

The overall S/N ratio is slightly reduced at 100dB but so is any gritty-sounding modulation noise (just +2.5dB). Output is on target at 2.06V and, while the 200 Ohm output impedance is acceptable, I'd prefer to see the low, low figures (<5 Ohm) recorded by its competition in this group.

HOW IT COMPARES

The oversampling technology shared between all players in this group gives an 'average' 0 per cent for their suppression of digital images. The actual figure is well in excess of 105dB! Dynamic range is down by just 1dB or so but still within the 16-bit target.

- | | |
|---------------------------------|------|
| 1 SUPPRESSION OF DIGITAL IMAGES | 0% |
| 2 JITTER | 20% |
| 3 PRACTICAL DYNAMIC RANGE | -20% |
| 4 HARMONIC DISTORTION VS LEVEL | 15% |
| 5 LINEARITY | 5% |



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBfs	Not Specified	0.0009%
■ Maximum output level	2.0V	2.1V
■ A-wtd S/N ratio	>96dB	100.3dB

TALK Thunder 2

There is more to say about the Thunder 2

than how it sounds as delivered for test. The Thunder 2 (which the instructions warn to disconnect from the mains during electrical storms – so much for the bravura in its name!) is the base-level version of a player that can be improved by adding external power supplies, or by upgrading the basic model or both, although the maker recommends adding power supplies in the first instance.

The external Whirlwind power supplies, which are available at two cost/performance levels costing £349 and £899, provide separate regulated feeds for the analogue and the digital circuits, which extends the idea popularised by Naim, whose outboard supplies are limited to the analogue circuits.

Upgrading the Thunder 2 to Thunder 3 or 4 specifications involves a return to the maker for a new motherboard and front panel, and both currently cost £999, although the latter requires an outboard power supply. The people at Talk – yes, we spoke to them – say they will introduce new player chassis as they become available, which means either DVD-A or SACD, depending on which way the market goes.

The Thunder 2 otherwise follows the established pattern for the brand. Basic controls cover



“The Thunder 2 has a heavyweight musical delivery that’s in line with its pricing. The player has a natural integrity and a solid, well extended bass, while the mid and treble sound smooth and well integrated.”

normal play functions and display dim/off are available from the front panel and the remote control, but the latter adds programming, a numeric keypad, repeat, shuffle and intro play facilities and a volume control for any RC5 (Philips-compliant) amp.

Talk Electronics specifies a Sony CDM14 transport mechanism, which has a reputation for reliability, a 24-bit word length DAC and a discrete 2 pole Class A filter section, and, the maker claims, a low output impedance. There is no digital output as

standard. One can be added if required, but the maker points out that there is a sonic penalty to pay, a point addressed by others (such as the Audio Analogue Paganini) at least in part by including an on/off switch in the digital feed.

SOUND QUALITY

Although there was a measure of scatter in the listening comments, the arithmetic average was broadly favourable. Disagreement centred on the player’s perceived weak points, which some heard as its inability to scavenge fine detail and others heard as a lack of excitement and drama.

Certainly there is nothing here to irritate or annoy, and the two criticisms are interchangeable. An underemphatic dynamic quality can often be heard as a loss of fine detail and vice versa, and it is presumably these areas that are addressed by the upgrades.

From the separate hands-on testing, the Thunder 2 has a heavyweight musical delivery that is in line with its pricing. The player has a natural integrity and a solid, well extended bass, while the mid and treble sound smooth and well

integrated with a wide range of material. At the same time, the player is slightly flat-footed, which leads to rock material often sounding a tad heavy-handed and a complaint of a loss of dynamics is in keeping with that.

CONCLUSION

Here is a player that grows with the owner’s ambitions and pocket, and even advances in technology, which means that in contrast to many other high-end players, this one is not a dead-end in the unlikely event that compact disc died a death tomorrow. One for the shortlist.

VERDICT

SOUND ★★★★★

BUILD ★★★★★

VALUE ★★★★★

PRICE £699.95

■ Solid, and sometimes stolid player with tremendous upgrade potential, at a price

■ THREE YEAR GUARANTEE

✉ Talk Electronics Ltd, Unit J, Albany Park, Camberley, Surrey G15 2PL

☎ (01276) 686030

THE LAB REPORT

Both the Thunder 2 and Audio Analogue’s Paganini utilise Crystal’s ‘24-bit’ CS4390 converter that combines the services of oversampling, noise-shaping and DAC in a single package. Consequently, it fairly dominates the performance of players which, on paper, could be blood brothers.

So, once again, the Thunder 2 provides an impressive mix of very low distortion (<0.01 per cent at 0dBFs), good low-level resolution (+0.6dB/-0.4dB over a 100dB range), a wide 104dB S/N ratio and very low 180psec jitter. Channel balance and separation are also first-rate, while the 2.2V output level is only +0.9dB over and above the notional 2V standard.



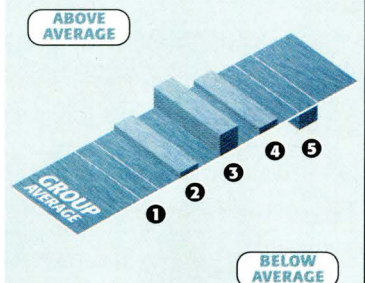
Talk has put its own stamp on the Thunder 2 with a proprietary, all discrete, 2-pole analogue filter that just tips the extreme HF down by about 0.5dB. This circuit includes a Class A output stage yielding a very low (<5 Ohm) output impedance and provides a good 15-20dB of additional suppression of ultrasonic noise (re. 100kHz) over and above the costlier Thunder 3.

Nevertheless, any susceptibility shown by an amplifier to the wash of ultrasonic noise from the Paganini, for example, will also be experienced with the Thunder 2. As this is an issue that regularly crops up in my CD player lab reports, I intend to give it full coverage in a future *Oasis* column.

HOW IT COMPARES

The similarity in technical performance between all three players in this group is reflected in the way the bar values are hovering around the 0 per cent group average. Here, the Thunder 2 just nudges ahead with its superior dynamic range.

1 SUPPRESSION OF DIGITAL IMAGES	0%
2 JITTER	5%
3 PRACTICAL DYNAMIC RANGE	15%
4 HARMONIC DISTORTION VS LEVEL	5%
5 LINEARITY	-10%



SPECIFICATIONS

PARAMETER	MANUFACTURER'S SPEC.	ACTUAL SPEC.
■ Distortion @ 1kHz/0dBFs	<0.001%	0.0008%
■ Maximum output level	2V	2.2V
■ A-wtd S/N ratio	>100dB	103.5dB

CD PLAYERS



CONCLUSIONS

Overall, this month's group turned out some quite encouraging results, not because they all performed universally well – they didn't – but because the best of them did so.

The spread of performance standards was quite remarkable, which should be sobering to those who predicted that compact disc would mean steamrolling recorded audio into a single plane of excellence (perfection according to some).

In fact, compact disc has turned out to mirror remarkably closely what happened in the age of vinyl, which is that designers found their own level, producing a richly layered market with varying performance standards and prices. We have the same riches, which presents the same problems of choice, today – it's just that some of the names have changed and, let's be honest, some of the horrors perpetuated in the days of vinyl are no more.

At the same time, the quality level of digital audio has often had to struggle to rise above the best of vinyl, and even now, almost two decades into the all-digital era, a quality-first case can still be sustained in favour of mechanical music reproduction from vinyl.

Don't let this put you off. There are many CD players around, and some in this month's group that critical listeners wouldn't want to put up with for long. But there are others that can't be dismissed so glibly, and this month's group

includes at least one cracking example of the latter in the shape of the Sony CDP-XE920, £300-worth of mainstream Japanese

silicon and steel which has been breathed upon by one of the gurus of British audiophile design, Sony's very own Eric Kingdom

(who once worked with Marantz's Ken Ishiwata, perhaps the best known guru working for a mainstream producer).

THE BEST IN THE TEST



SONY CDP-XB920 – Best Buy

There was no hesitation in awarding this player Best Buy status. It's a cracker in just about every sense, with a performance standards to rival some very costly players indeed. At a strictly mid-market price of £300, it's about good as they come.



CYRUS dAD1.5 – Recommended

This one caused considerable soul searching, but in the final analysis, the dAD1.5 is a great improvement on the dAD1, and was rated just the right side of acceptable by the panel.



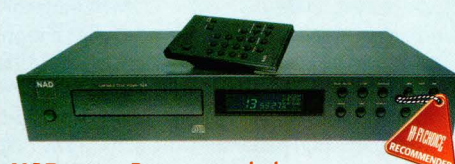
HARMAN/KARDON HD740 – Recommended

A good, solid middle-ranking player, most of the resources are concentrated inside, and the result is a clean, dynamic and well balanced player whose only real shortcoming is an occasionally noticeable loss of grip at either extremity.



DENON DCD-435 – Recommended

At £200 you might reasonably object to the DCD-435's lean and sometimes congested voicing. But at £130 its quick responses make uncommonly good sense.



NAD 524 – Recommended

This player provides sound quality biased towards budget audiophile territory. Not the most hard-hitting player, it offers good detail and a realistic sense of depth imagery.

CD PLAYER COMPARISON TABLE

MAKE MODEL	AUDIO ANALOGUE PAGANINI	CY US dAD1.5	DENON DCD-435	HARMAN/KARDON HD740	KENWOOD DPF-3010	MICROMEGA PREMIUM 18
PRICE	£750.00	£399.00	£129.99	£299.99	£179.95	£650.00
SOUND	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BUILD	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
GUARANTEE	2 years	2 years	2 years	2 years	1 year	2 years
SIZE (WXHXD) IN MM	434x100x275	215x78x360	434x100x275	440x110x323	440x95x370	430x70x265
WEIGHT	3.6kg	3.1kg	3.6kg	4.5kg	4.3kg	4kg
RATED DISTORTION @ 1KHZ/0DBFS	0.005%	0.03%	0.005%	0.005%	<0.006%	Not Specified
ACTUAL DISTORTION @ 1KHZ/0DBFS	0.006%	0.02%	0.006%	0.0028%	0.004%	0.0009%
RATED MAXIMUM OUTPUT LEVEL	2.0V	2.3V	2.0V	2.0V	2.0V	2.0V
ACTUAL MAXIMUM OUTPUT LEVEL	2.2V	2.4V	2.2V	2.1V	2.1V	2.1V
RATED A-WTD S/N RATIO	103dB	>98dB	103dB	106dB	100dB	>96dB
ACTUAL A-WTD S/N RATIO	104.3dB	89.9dB	104.3dB	110.5dB	99dB	100.3dB

The bottom line is that the Sony is that rare animal, a £300 player with the wherewithal to embarrass some quite exotic hardware, which makes it nothing less than stunning value. If it isn't flying off dealers' shelves right now, then we're all in trouble...

A word to the wise. Aware readers will know that recent trading conditions have seen a plethora of products being parallel imported, bypassing the makers' own distribution channels and selling at bargain prices. Such hardware can be very good value, and in most cases the buyers' basic rights are protected by international legislation, although this doesn't necessarily apply to products from outside the EU.

What is often not appreciated, however (and this is alluded to in the Sony review) is that models coming in from other countries are not necessarily the same as those that are designed to sell in the UK.

They may look the same, and even have the same model name, but it's common practice with some brands to customise products internally, and it is often the case that a CD player or amp intended for sale in the German market, for example, sounds quite different to its counterpart

intended for sale here. *Caveat emptor* is the name of the game.

What else should the wise look for? The reality is that CD players really don't wear their hearts on their sleeves, and it isn't possible to say much useful about the sound of a player from the way it looks or feels, or how well it's equipped, although readers would be right to look twice at any player that is very light and flimsy. A solid structure may be expected to reduce

microphony, and low weight implies weedy power supplies.

In the final analysis, however, there is no substitute for a well informed demonstration of your shortlist, perhaps chosen with the help of tests such as this. The key to this is to find a good specialist dealer, which may not be one of the obvious high street names, and BADA (British Audio Dealers Association) can help you find one. Give their helpline a bell on (0171) 226 4044. **AG**

RIVAL BUYS

ARCAM ALPHA 8SE - £600
This player, which can be arrived at by upgrading from lower ranking Arcams, is HDCD compatible, and offers a particularly favourable mix of clarity and euphony.

CAMBRIDGE AUDIO CD6 - £300
Boringly styled, we found this player 'taut and crackling with energy', but careful system matching is advised to avoid a sterile sound balance.



KENWOOD DP-7090 - £400
This is a high-tech player, with plenty of bells and whistles, and a solid, engaging and wide ranging character that doesn't diminish the music.

MARANTZ CD-63 MkII KI Signature
Ken Ishiwata's player is a bit of a lush, and a definitive answer for those who believe all CD sounds hard-nosed.

TEAC CD-3450SE - £200
'Honest and decent, like a maiden aunt on a bender' opined one of the panel of this sometimes thinly balanced but fundamentally articulate player.

ROTEL RCD-971 - £350
Exceptional resolution and an HDCD filter are the highlights of a straightforwardly presented and well built machine, making it exceptional value.

PIONEER PD-S505 Precision - £460
Breathed-on mid-market Pioneer is a much better showcase for the Legato Link filter and offers a finely blended sound quality. It's based on a standard commercial model, so all the widgets have been retained.

BEST BUYS & RECOMMENDATIONS

BEST BUYS: Our famous Best Buy swing-tag is awarded to hi-fi equipment which offers an excellent standard of performance at an attractive price. Best Buy winners are superb all-round components.

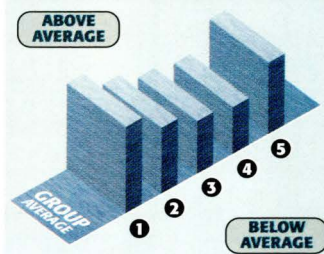
RECOMMENDED: Recommended products are first-class audiophile propositions, losing out to Best Buy status only because of a higher price or less competitive overall sound quality.

UNDERSTANDING OUR BAR-GRAPH MEASUREMENTS

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

- 1 SUPPRESSION OF DIGITAL IMAGES:** This indicates the effectiveness of the player's digital filter in removing 'aliasing' or 'stopband' distortions immediately outside of the audio band.
- 2 JITTER:** Any uncertainty in the timing of the digital code produces digital jitter which manifests as an insidious form of distortion during digital-to-analogue conversion. The lower the figure the better.
- 3 PRACTICAL DYNAMIC RANGE:** This is determined by the player's Signal-to-Noise ratio and to what degree it is compromised by any Noise Modulation occurring under real signal conditions.
- 4 HARMONIC DISTORTION VS. LEVEL:** This bar chart value is derived from the variation in distortion both with frequency and signal level. The consistency and nature of the distortion also forms part of the equation.
- 5 LINEARITY:** Linearity is a measure of the player's low-level resolution. If a signal coded at -80dB emerges from the player at -80.5dB then this represents a deviation in its linearity of 0.5dB.

THE BAR-GRAPHS



TEST INNOVATOR OF THE YEAR

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



C D P L A Y E R C O M P A R I S O N T A B L E

MAKE	NAD	PIONEER	ROTEL	SONY	TALK	YAMAHA
MODEL	524	PD-S507	RCD-951	CDP-X920	THUNDER 2	CDX-493
PRICE	£250.00	£190.00	£599.00	£299.99	£699.95	£179.99
SOUND	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BUILD	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
GUARANTEE	1 year	1 year	1 year	1 year	3 years	2 years
SIZE (WXHXD) IN MM	435x80x285	420x112x283	440x72x316	430x115x290	440x95x340	435x96x272
WEIGHT	4kg	3.8kg	5.4kg	3.5kg	5kg	3.6kg
RATED DISTORTION @ 1KHZ/0DBFS	0.007%	0.002%	0.0045%	<0.0025%	<0.001	<0.003%
ACTUAL DISTORTION @ 1KHZ/0DBFS	0.0008%	0.001%	0.0028%	0.0009%	0.0008%	0.002%
RATED MAXIMUM OUTPUT LEVEL	2.2V	2.0V	2.0V	2.0V	2.0V	1.5V-2.5V
ACTUAL MAXIMUM OUTPUT LEVEL	2.3V	2.2V	2.2V	2.5V	2.2V	0.04V-2.03V
RATED A-WTD S/N RATIO	>100dB	110dB (EIAJ)	>105dB	>113dB	>100dB	>105dB
ACTUAL A-WTD S/N RATIO	104.2dB	105.5dB	96dB	103.2dB	103.5dB	101.9dB


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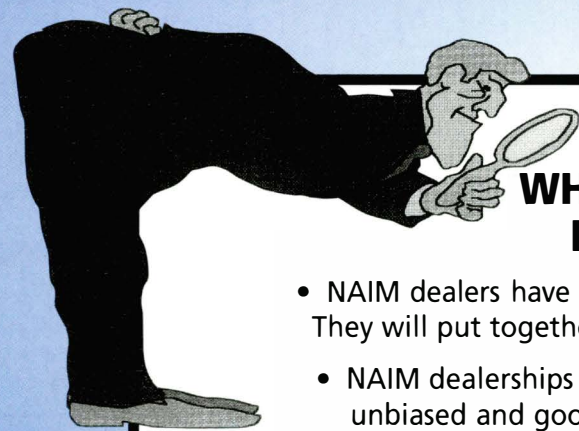


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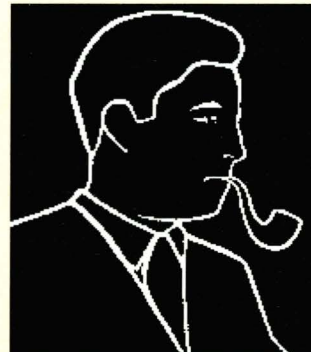


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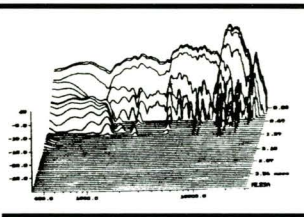
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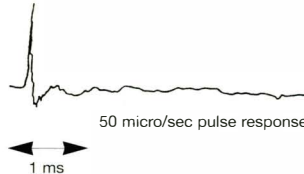
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Krell Kav 3001	£2495	PO.A
Krell Kav 250A	£3149	£2149
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Macintosh 2100 (looks like 275)		£450
Micromega T Drive & T DAC & XLO cable	£2150	£999
Nakamichi 1.5 cass.		£200
Nakamichi LX5 cass.		£350
Quad 77 int. Carbon		£700
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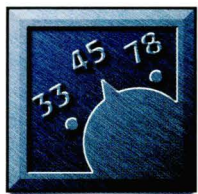
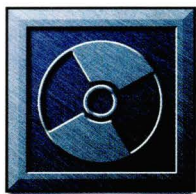
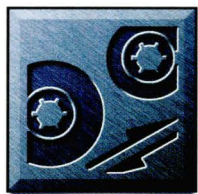
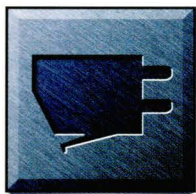
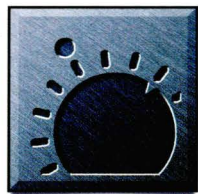
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● ATC 50 ASL, rosewood, £3,600. Chord CPA 3200 preamp, silver, £2,100. Both items 4 months old, as new. Call (01355) 264586.

● Audiolab 8000P power amp, hardly used, as new (£750). Sell £425. Surrey (0181) 715 4225.

● Audiolab 8000Q preamp. Boxed/manuals £475. Linn Keilidh speakers incl. Linn stands, £400. Call (01759) 373133.

● Audio Note OTO SE, high-end integrated amp, superb condition and sound, just fully revalved and with spare valves, (£1,400) £695. Naim 323K MC boards £30, NAPS PSU £25. Pink Triangle Anniversary, black ash, PSU2, SME V, Ortofon MC25FL, 1 year old, superb; £2,250. Call (01793) 495140.

● AVI S2000MP Line level preamp with remote. Boxed, late spec model, cost £950 new, £450. Lancs (01524) 381389.

● Creek 42 pre, power, moth phono, £200 each. Michell ISO phono, plugs replaced, £150. (4.30pm) Ches (01606) 784767.

● Dynaudio, 1.8 Contour loudspeakers, cherry finish, boxed, excellent condition, £1,050 ono. REL, Stadium II subwoofer, light oak, excellent condition, £550 ono. (0171) 439 1365.

● Electrocompaniet ECI-2 integrated amp. Clear, dynamic and expansive. £550 (£1,000), any trial. Call (01308) 868044.

● Epos ES11 loudspeakers (black) with dedicated Epos stands. Superb condition and boxed, £225. Call (01508) 499586.

● Epos ES12 DC and slate audio stands, £675. All brand new in factory sealed boxes. Trichord Genesis, mint condition, £300. Tel/fax France (00+33) 475 450 399.

● JBL 4312 MkII 3-way speakers, as seen HFC 187 (p109), 7 months old, boxed and unused for 5 months, as new. Cost £1,000, sell £785. Brighton (01273) 749304.

● John Shearne Phase 2 integrated amp, including MM phono stage. John Shearne Phase 3 power amp. Excellent condition £750 ono. Call (01203) 373378.

● KEF Reference Model 3 speakers, black ash finish, 18 months old. Sound and look superb. £1,350. Kent (01622) 763741.

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combination, worth over £900, bargain at £350 ono. VGC. Also Cambridge Audio Dacmagic 2 MkII, as new, still under warranty, £100 ono. Call Leonel on (0118) 941 0771/ (07957) 344541.

● Lexicon CP3 + THX processor and preamp. Boxed with instructions etc still in wrapper. Cost £3,325, bargain £899. No offers. Call (01704) 833601.

● Linn Keilidhs with granite stands, £500. Electrofluidics 20/20 speaker cables, £180. Kimber 4TC speaker cables, £90. (01977) 620558.

● Linn LP12 black Valhalla, Akito K9 £550. Arcam Delta 770 CD £250. Quad 606 & 44 pre/power amps, £500. Carlisle (016973) 49717.

● Mana Acoustics 6-shelf amp stand boxed £500. Lancs (01524) 381389.

● Marantz AV600 THX a/v preamp IRE700, Marantz DSP870 AC3 decoder IRE500, Exposure IV amp IRE350, Polk LSF/X IRE350. Call Ireland (+35 3) 463 2021.

● Marantz CD17 KI Signature, CD player, £800. Marantz PM17 amplifier, £650. Both Gold versions. 10 months old. Mint condition and boxed. (01656) 773802, eves.

● Marantz PM17 KI amp, black, remote, 7 months old, £949. Heybrook Quartets with stands, both walnut, 18 months old, £449. Nottingham (0115) 952 1820.

● Meridian 200 + DPA PDM1/II (£500), Concordant Quad II (£450), Audio Innovations S500 (£450), Leak TL12+ (£100), Lowther Acoustas (£300). Private sale (01773) 609104.

● Meridian 201 preamp, late model, boxed as new, £230. Van Den Hul The Second interconnect 0.6m, with original packaging, £85. Birmingham (0121) 501 2474.

● Michell Argo/Hera preamp, £350 and Alecto power amp, £450. Or both at £700. Gyrodec with RB300, Gyrapower QC, Ortofon MC – £700. Or all for £1,250 ono.

Call Epsom (0802) 461546.

● Micromega Data/Dialog (CD & DAC), 30 hours use, perfect condition. Re-advertised due to timewasters. £2,500 ono (new £3,750). Call (01244) 831348 after 7pm.

● Mission 752 Freedoms, excellent condition, Prima Vera oak finish, with boxes and booklet. Cost £650, sell for £380 ono. Lancs (01706) 873957, after 5.30pm.

● Musical Fidelity A2 CD player, as new, boxed, £280. Nakamichi DR3 cassette deck, boxed, £200. Sony MDR CD1700 phones (HFC BB), £80. Brighton (01273) 305176.

● Naim NaCDS CD player (cost £3,940) £2,650 ono, 18 months, boxed. Linn LP12, Cherry/Valhalla/Aro (£2,435) £1,750 ono, 1 year old, boxed. Naim SBL loudspeakers (£2,395) £1,095 ono. Naim NAPI35 monos (£3,510) £1,895 ono. Call (0118) 946 1132 eves/ (0118) 958 5463 days.

● Nakamichi cassette deck I. Mint condition, boxed with instructions. Serviced by Nakamichi (B+W). £425 ono. Call (01202) 481386.

● Ortofon MC25FL MC Cartridge £95 Clearaudio Alpha MM Cartridge £85. Both moderate use, both boxed. Call (0181) 443 2891.

● Primare D30.2 CD player. Superb reviews. Brand new in sealed container, £1,000 ono (RRP £1,500). Call (0171) 724 9945.

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● Quad 44/405 pre/power amps. All boxed, excellent condition, cables, manuals. £375. Mid-Herts (01438) 714678.

● Quad 77 amplifier, £285. Creek OBH-12 passive preamp, 3 months, £155. Romsey, Hants (01794) 514916.

● Quad 77 pre/power amplifiers,

carbon finish, with 2-way remote control. Boxed with manuals and Quad Link cables, 18 months old. £675. Oxford (01865) 407965.

● Rega EKA MkIIs, black, boxed, mint condition, £250 ono. Call Joe on (01594) 844763/(0402) 037708.

● Royd Abbott speakers, £250. Audio Alchemy V1.0 DAC + PS2 PSU + DST active digital interconnect, £250. House move forces sale. Call (01279) 659948.

● Royd Minstrel speakers, black ash, mint. £180. Call (01225) 762143.

● Shahinian Obelisk speakers, £1,550. Shahinian Super Elf speakers, £400. Shahinian Hawk Mono subwoofers, £1,380. All mint condition and boxed all in walnut. (01626) 352682, eves.

● Sound Style 5-tier tripod hi-fi stand. Sonata blue, excellent condition £100 (£245 new). Call (01786 449027).

● Teac P700-D700 Transport DAC, 2 years old, cost £1,500, accept £650. Denon TU425RDS tuner, 6 months old, remote, cost £230, accept £130. Call (01904) 708382/(0403) 656458.

WANTED

● *Hi-Fi Choice* November 1998 (issue 183) £5 plus postage. Call (01328) 738097.

● Nakamichi unidirectional cassette deck model RX-505, RX-303 or RX-505 in good condition. Will collect. Stuart (0181) 545 0061.

● Turntable SME Model 30 A, 20/2A or 20A. Holland (+31) 505014055.



BUYING TIPS

Buying secondhand can be a great way to pick up a

bargain. A formerly-expensive second-hand component might well prove a better long-term bet than a brand-new product engineered down to a price. Do some research on which brands and products have a good service back-up, so if something does go wrong, you can get it fixed. Unless you purchase from a secondhand hi-fi dealer, you're unlikely to get any warranty. So it's up to you to ensure the fitness of any gear that you buy. Products such as speakers should be less prone to breakdown than amplifiers, and amps should be more reliable than CD players. But any abused component could be troublesome – have a proper dem, and judge the seller as well as the goods!

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HOW TO USE THE BUYERS' GUIDE

Best Buys, Recommendations & Editor's Choices

B BEST BUYS: Awarded to group-tested products which display an unbeatable blend of performance and value for money.

R RECOMMENDED: Top performers in group tests: perhaps not the cheapest but possibly more sophisticated than Best Buys.

E EDITOR'S CHOICE: More expensive components which exhibit outstanding engineering, industrial design and sound quality.

Our Three Step Guide to Buying Hi-Fi

The *Hi-Fi Choice Price Guide and Directory* are extremely simple to use, but contain all the information you need to select and buy the perfect hi-fi system. Here's how it works.

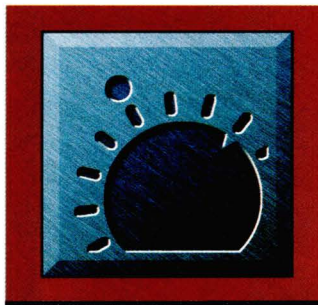
STEP 1 DISCOVER which products fall within your budget by using our Price Guide, which starts on this page. The product listing is updated using manufacturers' data every other month, and aims to include every hi-fi component currently available in the UK. (But please fax us on 0171-917 5512 with any omissions!) It is an alphabetical listing divided into different types of hi-fi component, and also into price bands.

STEP 2 PRODUCTS whose names are printed in **RED** are those we have reviewed, which you can read about in the Directory (starts after the Price Guide). Here you will learn which items have been singled out for our famous Best Buy, Recommended or Editor's Choice awards, denoting products of exceptional quality and value. The Directory is sorted by product type and listed alphabetically, and the beginning of each section provides essential information about each kind of hi-fi component.

STEP 3 FIND your nearest hi-fi store in our Dealer Directory (at the end of the Directory) to book a demonstration of the hi-fi equipment you want to hear. Remember to take your own LPs or CDs!

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AMPLIFIERS INTEGRATED

KEY

Ⓢ - Number of line-level inputs.
 20W - Rated RMS output power per channel into nominal load of 8 Ohms.

UP TO £250

Akai AM1100	Ⓢ	50W	230
AMC 3020	Ⓢ	20W	100
AMC 3025A	Ⓢ	30W	140
AMC 3050A	Ⓢ	45W	170
Arcam Alpha One	Ⓢ	35W	230
Ariston AX910	Ⓢ	30W	80
Cambridge A1 Mk III	Ⓢ	30W	100
Cambridge A1 Mk3 SE	Ⓢ	30W	120
Cambridge A3i	Ⓢ	60W	200
Cambridge AS00RC	Ⓢ	50W	200
Denon PMA-250SE	Ⓢ	30W	140
Denon PMA-350SE	Ⓢ	50W	180
Denon PMA-535R	Ⓢ	50W	230
Denon PMA-100M	Ⓢ	80W	240
Goodmans Delta 900A	Ⓢ	100W	130
H/K HK630	Ⓢ	40W	230
H/K HK3270	Ⓢ	65W	250
JVC AX-A372BK	Ⓢ	40W	200
JVC AX-R5BK	Ⓢ	45W	200
Kenwood KA-1080	Ⓢ	60W	140
Kenwood KA-3080R	Ⓢ	70W	170
Kenwood KAF-3010R	Ⓢ	70W	180
Marantz PM-48	Ⓢ	50W	150
Marantz PM-57	Ⓢ	50W	200
Marantz SR-47	Ⓢ	40W	200
Marantz PM-66SE	Ⓢ	50W	230
Musical Fidelity E1	Ⓢ	30W	199
NAD 310	Ⓢ	20W	100
NAD C320	Ⓢ	40W	200
NAD 312	Ⓢ	25W	200
Pioneer A-105	Ⓢ	30W	130
Pioneer A-204R	Ⓢ	25W	160
Pioneer A-300R	Ⓢ	50W	200
Pioneer A-305R	Ⓢ	50W	200
Pioneer A-407R	Ⓢ	45W	230
Pioneer A-405R	Ⓢ	45W	250
Rega Brio	Ⓢ	30W	229
Rotel RA921	Ⓢ	20W	100
Rotel RA931	Ⓢ	35W	150
Rotel RA971	Ⓢ	70W	200
Sansui AUX-410R	Ⓢ	50W	150
Sansui ALX-510R	Ⓢ	70W	230
Sherwood AX 4050R	Ⓢ	50W	150
Sherwood AX-7030R	Ⓢ	95W	230
Sony TA-FE210	Ⓢ	40W	130
Sony TA-FE320R	Ⓢ	60W	150
Sony TA-F248E	Ⓢ	50W	200
Teac AE-2000	Ⓢ	50W	180
Teac AR-600	Ⓢ	90W	200
Technics SU-V300	Ⓢ	25W	150
Technics SU-V500	Ⓢ	30W	180
Technics SU-A600 Mk3	Ⓢ	37W	200
Technics SU-V620	Ⓢ	70W	230
Technics SU-A700 Mk3	Ⓢ	45W	250
Yamaha AX-392	Ⓢ	60W	170
Yamaha AX-9	Ⓢ	50W	200
Yamaha AX-492	Ⓢ	85W	220

£251 TO £500

Arcam Alpha 7R	Ⓢ	40W	280
Arcam Alpha 8R	Ⓢ	50W	300
Arcam Alpha 9	Ⓢ	70W	500
Audio Analogue Puccini	Ⓢ	40W	475
Audiogram MB1	Ⓢ	40W	493
Aura VA-100 II	Ⓢ	70W	350
Creek 4330	Ⓢ	35W	279
Creek 4340	Ⓢ	35W	279
Creek 4330R	Ⓢ	35W	355
Creek 5250	Ⓢ	50W	450
Cymbal CA1	Ⓢ	40W	499
Cyrus SL	Ⓢ	50W	398
Denon PMA-735R	Ⓢ	65W	300
Denon PMA-1500R	Ⓢ	70W	500
EMF Audio Sequel	Ⓢ	50W	450
H/K HK650	Ⓢ	60W	330
Kenwood KA-5090R	Ⓢ	65W	300
Magnum IA120	Ⓢ	65W	265
Magnum IA170	Ⓢ	96W	330
Magnum IA170SE	Ⓢ	90W	430

Marantz PM-68	Ⓢ	90W	300
Marantz PM-66 KI Sig.	Ⓢ	50W	400
Micromega Minium Series 2	Ⓢ	40W	400
Monno Asty	Ⓢ	55W	400
Musical Fidelity E11	Ⓢ	60W	300
Musical Fidelity X-A1	Ⓢ	50W	480
Musical Fidelity A2	Ⓢ	25W	500
Myryad T-40	Ⓢ	50W	400
NAD 314	Ⓢ	35W	260
NAD 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
Rega Luna	Ⓢ	40W	375
Rega Mira	Ⓢ	60W	450
Shearpe 2.5	Ⓢ	35W	499
Sony TA-FB920R	Ⓢ	65W	300
Sony TA-FA300ES	Ⓢ	80W	400
Sony TA-FA300ES	Ⓢ	40W	500
Talk Electronics Storm 1	Ⓢ	50W	500
Teac AH-500	Ⓢ	50W	280
Technics SU-A800D Mk2	Ⓢ	55W	300
Technics SU-A900D Mk2	Ⓢ	70W	400
Thule Audio Spirit IA60	Ⓢ	60W	449
Token K50	Ⓢ	55W	350
Yamaha AX-592	Ⓢ	100W	280

£501 TO £700

Alchemist Kraken APD6A	Ⓢ	55W	600
Alchemist Nemesis	Ⓢ	80W	700
Audio Analogue Puccini SE	Ⓢ	40W	635
Audio Note Kanji Line SE	Ⓢ	9W	699
Audio Note First integrated	Ⓢ	40W	699
Audiogram MB2	Ⓢ	60W	599
CR Dev CR324se	Ⓢ	150W	569
CR Dev Kalyppo	Ⓢ	15W	599
CR Dev CR325	Ⓢ	175W	699
Creek 5250R	Ⓢ	50W	575
Creek 5250SER	Ⓢ	60W	665
Cyrus IIIi	Ⓢ	50W	598
Densen Beat B-100 MkII	Ⓢ	60W	650
Exposure XX Super	Ⓢ	55W	700
Gamma Gemini	Ⓢ	12W	699
H/K HK690	Ⓢ	100W	530
Hi Q Sound MCI	Ⓢ	30W	565
JoLida 202	Ⓢ	40W	695
LFD Integrated 0	Ⓢ	50W	549
Linn Majik (Line)	Ⓢ	33W	650
Lynwood Opal	Ⓢ	80W	685
Magnum IA200	Ⓢ	100W	599
Magnum Class A	Ⓢ	85W	690
Micromega Tempo 1	Ⓢ	50W	700
Musical Fidelity A220	Ⓢ	50W	700
Myryad MI 120	Ⓢ	60W	600
Naim Nait 3	Ⓢ	30W	590
Orelle SA-100RX	Ⓢ	75W	649
Primare A20 Mk II	Ⓢ	70W	600
Quad 77 Integrated	Ⓢ	85W	700
Rose Scion	Ⓢ	65W	615
Shearpe Phase 2	Ⓢ	50W	689
Sugden Audition T	Ⓢ	65W	549
Talk Electronics Storm 2	Ⓢ	50W	650
Teac AB-X7R	Ⓢ	50W	700
Thule Audio Spirit IA100	Ⓢ	100W	599
Thule Audio Spirit IA60B	Ⓢ	60W	699

£701 TO £1000

Alchemist Nexus	Ⓢ		799
Alchemist Forseti Integrated	Ⓢ	100W	1,000
Arcam Alpha 10	Ⓢ	100W	800
Audio Note Oto Line PP	Ⓢ	12W	950
AVI S2000M	Ⓢ	100W	999
Copland CSA8	Ⓢ	60W	899
Credo IMP702	Ⓢ	70W	850
Credo IMP703	Ⓢ	70W	1,000
Electrocompaniet ECI-2	Ⓢ	50W	995
Exposure XV Super	Ⓢ	55W	800
Holli Audis Signature	Ⓢ	65W	750
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 2	Ⓢ	70W	900
Naim Nait 3 R	Ⓢ	30W	780
Opera Aida	Ⓢ	60W	795
Pioneer A-07	Ⓢ	80W	999
Rega Elicit	Ⓢ	70W	730
Roksan Caspian	Ⓢ	70W	795
Shearpe Phase 2 Reference	Ⓢ	50W	799
Sonneteer Alabaster	Ⓢ	50W	900
Sugden A21a Int	Ⓢ	25W	799
Sugden Audition C	Ⓢ	60W	799
TAG McLaren 60i	Ⓢ	60W	799
TAG McLaren 60iRV	Ⓢ	60W	999
Thule Audio Spirit IA150B	Ⓢ	150W	999

£1001 TO £2000

Art Audio Integra	Ⓢ	30W	1,499
ATC SIA2-150	Ⓢ	150W	1,984

Audio Note Soro Line PP			
Audio Note Oto Line SE	ⓐ	12W	1,200
Audio Note Soro Line SE	ⓐ	12W	1,500
BB Audio BB 30-60	ⓐ	30W	1,495
Beam-Echo SA-40	ⓐ	50W	1,950
Bow Technologies Wazoo	ⓐ	50W	1,795
Bryston B-60	ⓐ	60W	1,249
Copland CSA14	ⓐ	60W	1,199
Copland CSA28	ⓐ	60W	1,249
Copland CTA402	ⓐ	35W	1,698
CR Dev Romulus V3	ⓐ	35W	1,198
CR Dev Athena	ⓐ	38W	1,499
CR Dev Remus V3	ⓐ	60W	1,989
Credo LIM 702	ⓐ		1,191
Credo LIM 703	ⓐ		1,249
EAR 859	ⓐ	13W	1,999
EAR 834	ⓐ	40W	1,999
Golden Tube Audio SI-50 MkII	ⓐ	50W	1,100
Graaf Venticinque	ⓐ	20W	1,790
Jadis Orchestra	ⓐ		1,345
LFD Integrated 1	ⓐ	65W	1,099
Meracur Intrare	ⓐ	60W	1,095
Primare A301	ⓐ	100W	1,500
Rogers E-20a	ⓐ	20W	1,229
Rogers E-40a	ⓐ	40W	1,900
Sonic Frontiers Anthem Integrated	ⓐ	25W	1,299
T+A R1200R	ⓐ	90W	1,750
Thule Audio Space IA250B	ⓐ	250W	1,799
Unison Simply Two	ⓐ	12W	1,095
Unison Simply Four P	ⓐ	24W	1,595
Unison Simply Four T	ⓐ	11W	1,650
Woodside ISA230 Line	ⓐ	30W	1,099
Woodside ISA230 Disc	ⓐ	30W	1,249
YBA Integre DT	ⓐ		1,650

OVER £2000

Adyton Opera	ⓐ	50W	2,595
AMP Flux System 2	ⓐ	50W	3,000
Audio Note Meishu Line	ⓐ	9W	2,750
Audio Note Ongaku	ⓐ	26W	56,000
Audio Research CA50	ⓐ		3,399
Belcanto SET40	ⓐ	40W	4,450
Belcanto Orfeo 30S1	ⓐ	35W	5,450
Cary CAD-300SEI	ⓐ	11W	3,995
Conrad-Johnson CAV-50	ⓐ	50W	2,495
EAR V20	ⓐ	24W	2,495
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	2,690
Jadis DA60	ⓐ	60W	4,483
Krell KAV300i	ⓐ	150W	2,590
Krell KAV300r	ⓐ		3,333
McIntosh MA6400E	ⓐ	100W	3,999
McIntosh MA6800E	ⓐ	150W	5,999
Meracur Onesta	ⓐ	75W	2,595
Musical Fidelity A1001	ⓐ	200W	2,500
Pioneer A-09	ⓐ	45W	4,000
Rowland Concentra	ⓐ	100W	5,500
Sonus Faber Musica	ⓐ		2,295
T+A R1500R	ⓐ	135W	2,015
Tube Tech Synergy PPS	ⓐ	30W	2,300
Unison Simply 845	ⓐ	150W	6,900
	ⓐ	24W	3,195

PREAMPS

KEY

ⓐ (etc) - Number of line-level inputs.

Ph - Phono input fitted as standard

(may be an option on some other models).

UP TO £500

Arcam Alpha 9C	ⓐ		400
Art Audio Minuet	ⓐ		499
Audio Analogue Bellini	ⓐ	Ph	495
Audio Note The M	ⓐ		350
Beam-Echo PP-21	ⓐ	Ph	499
Bryston BP1	ⓐ	Ph	438
CR Dev Themis	ⓐ	Ph	349
Creek P43/R	ⓐ	Ph	350
Creek P52	ⓐ		499
Crimson CS610C	ⓐ	Ph	450
Cyrus aEQ7	ⓐ	Ph	498
DPA Enl'ment phono	ⓐ	Ph	275
EAR 834P	ⓐ	Ph	349
EAR 834L	ⓐ		449
EAR 834P/MC	ⓐ	Ph	499
Electrocompaniet ECP-1	ⓐ	Ph	495
Henley HMC50	ⓐ		150
Henley HMC100	ⓐ		350
Hi Q Sound LCP2	ⓐ		149
LFD Mistral Limestone	ⓐ		449
LFD LSO Limestone	ⓐ		499
Lumley PP70	ⓐ		345
Lumley PP1	ⓐ		345
Magnum MP120	ⓐ		330
Magnum MP660	ⓐ		500
Magnum MP350	ⓐ		500
Monrio ADN-N	ⓐ	Ph	295
Monrio Asty L	ⓐ		500
Moth 30 Passve	ⓐ		149

Moth 30 Phono	ⓐ	Ph	249
Moth 30 Line-stage	ⓐ		349
Musical Fidelity X10-D	ⓐ		120
Musical Fidelity X-LP	ⓐ	Ph	130
Musical Fidelity X-PRÉ	ⓐ		200
Musical Fidelity E20	ⓐ	Ph	400
NAD 114	ⓐ	Ph	270
NAD 116	ⓐ	Ph	430
Naim Prefix	ⓐ		360
Naim NAC92	ⓐ		485
NVA P50	ⓐ		350
Parasound P/HP-100	ⓐ	Ph	130
Parasound P/HP-850	ⓐ	Ph	400
Rega EOS	ⓐ	Ph	398
Rega Cursa	ⓐ	Ph	450
Roksan Artaxerxes 10	ⓐ	Ph	395
Rose RV-23	ⓐ	Ph	450
Rotel RQ970BX	ⓐ	Ph	130
Rotel RC971	ⓐ		150
Rotel RC972	ⓐ		225
Sunfire Phono	ⓐ	Ph	430
Talk Electronics Hurricane 1	ⓐ		500
Technics SU-C1000 Mk2	ⓐ	Ph	300
Thule Audio Spirit PR100	ⓐ		400
Trilogy 905	ⓐ		375
Trilogy 904	ⓐ		375
Trilogy 900	ⓐ	Ph	499
Unison Simply Phono	ⓐ	Ph	500

£501 TO £2000

Adyton Chorus	ⓐ		1,995
Alchemist Kraken Pre	ⓐ		549
Alchemist Forseti Pre	ⓐ		999
Alchemist Signature Pre	ⓐ		1,499
Art Audio Headline	ⓐ		700
Art Audio VPL	ⓐ		741
Art Audio Conductor Phono	ⓐ		750
Art Audio VP1	ⓐ		952
Art Audio Conductor	ⓐ		1,250
Art Audio Conductor Export	ⓐ		2,000
Audio Note M1 Line	ⓐ	Ph	550
Audio Note M1 RIAA	ⓐ		550
Audio Note M2 Line	ⓐ		999
Audio Note Discovery	ⓐ		999
Audio Note M2RIAA	ⓐ	Ph	1,099
Audio Prism Mantissa	ⓐ		1,995
Audio Research LS8	ⓐ		1,449
Audio Research PH3	ⓐ	Ph	1,490
Audio Research LS9	ⓐ		1,949
Audio Synthesis Pro Passion	ⓐ		595
Audio Synthesis Passion	ⓐ		695
Audio Synthesis Passion 8S	ⓐ		1,295
Audio Synthesis Passion 8M	ⓐ		1,695
Aura CA-200	ⓐ	Ph	700
AVI S2000MP	ⓐ		949
AVI S2000MP+P	ⓐ	Ph	1,199
Beam-Echo SP-21	ⓐ	Ph	1,116
Bryston 4	ⓐ		642
Bryston BP5	ⓐ	Ph	889
Bryston BP20	ⓐ		1,126
Bryston BP-25	ⓐ		1,326
Canary Audio CA-606	ⓐ		1,295
Canary Audio CA-601	ⓐ		1,595
Cary SLP-50	ⓐ		995
Cary SLP-74	ⓐ		1,795
Cary PH-301	ⓐ	Ph	1,795
Chord Phono	ⓐ		1,898
Chord CPA 1800	ⓐ		1,905
Concordant Exhilarant	ⓐ		900
Concordant Exquisite	ⓐ		1,950
Conrad-Johnson PV-10AL	ⓐ		995
Conrad-Johnson PV-10A	ⓐ	Ph	1,295
Conrad-Johnson PV-12AL	ⓐ		1,990
Conrad-Johnson EF-1	ⓐ	Ph	1,990
Conrad-Johnson PF-2	ⓐ	Ph	1,990
Copland CSA303	ⓐ	Ph	1,099
Copland CTA301 MkII	ⓐ	Ph	1,249
CR Dev Carmenta	ⓐ		659
CR Dev Argento	ⓐ	Ph	699
Credo CMP004	ⓐ		1,246
Credo CMP005	ⓐ		1,876
Cyrus aCA7	ⓐ		798
Densen DM-20	ⓐ		1,200
DNM 3 Start	ⓐ	Ph	1,000
DNM 3A Start	ⓐ	Ph	1,650
DPA Enlightenment pre	ⓐ		795
Dynavector L200	ⓐ		995
Dynavector P100	ⓐ	Ph	1,495
Dynavector L100	ⓐ		1,995
Earmax Pre	ⓐ		1,895
ECA Vista S	ⓐ		760
ECA Vista HD	ⓐ		880
ECA Prisma	ⓐ	Ph	880
Electrocompaniet EC-4.5	ⓐ		1,195
Electrocompaniet EC-4.6	ⓐ		1,750
Exposure XIX	ⓐ		800
Exposure XVII	ⓐ	Ph	850
Golden Tube Audio SEP-2	ⓐ		990
Golden Tube Audio SEP-3	ⓐ		990
Graaf WFB Two	ⓐ	Ph	1,350
Graaf WFB One	ⓐ	Ph	1,750
Henley HMC200	ⓐ		600
Hi Q Sound MCB2	ⓐ	Ph	545
Hi Q Sound MCL2	ⓐ		645
Jadis DPL2	ⓐ		1,590
Krell KAV250p	ⓐ		1,999

LFD MCI Phonostage	ⓐ	Ph	949
LFD L51 Limestone	ⓐ		999
LFD MC2 Phonostage	ⓐ	Ph	1,499
LFD LS2 Limestone	ⓐ		1,599
LFD LS2 Phonostage	ⓐ		1,999
Linn Wakonda	ⓐ		750
Linn Linto	ⓐ		850
Linn Kairn	ⓐ		1,400
Lumley LV1.5	ⓐ		895
Lumley LV1	ⓐ		1,150
Lumley PVI.5	ⓐ	Ph	1,700
Lumley PV1	ⓐ	Ph	1,700
Matisse Atom	ⓐ	Ph	1,000
McIntosh C712	ⓐ	Ph	1,999
Meracur Ingredis	ⓐ		925
Meridian 501	ⓐ		695
Meridian 562	ⓐ		765
Meridian 562V	ⓐ		995
Meridian 502	ⓐ		1,295
Michell Orca	ⓐ		1,650
Michi RHC-10	ⓐ		795
Michi RHO-10	ⓐ	Ph	1,150
Michi RHA-10	ⓐ		1,150
Microgame Tempo P	ⓐ		1,150
Muse Model 3	ⓐ		1,990
Musical Fidelity F25	ⓐ	Ph	1,500
Myriad MP100	ⓐ		600
NAD 118	ⓐ		1,000
Naim NAC92R	ⓐ		650
Naim NAC72	ⓐ		745
Naim NAC102	ⓐ		1,080
Quad 77 Pre	ⓐ	Ph	850
Quad 99 Pre	ⓐ	Ph	1,300
Rega Hal	ⓐ	Ph	998
Roksan ROK-L2.5	ⓐ		1,250
Rose RV-235	ⓐ		525
Rotel RC995	ⓐ		525
Shearpe Phase 6 Pre	ⓐ		999
Shearpe Phase 1 Pre Ref	ⓐ		1,499
Sieml MC20	ⓐ	Ph	650
Sieml MM20	ⓐ	Ph	650
Sieml TU10	ⓐ		1,599
Sieml TR20	ⓐ		1,599
Sonic Frontiers Anthem Pre 1 P	ⓐ	Ph	899
Sonic Frontiers Phono 1	ⓐ	Ph	1,999
Sonographe SC26	ⓐ		995
Sugden Audionet Pre	ⓐ		549
Sugden Masterclass Pre	ⓐ		1,995
Sumo Athena II Line	ⓐ		767
Sumo Athena IIB/II LS	ⓐ		987
Sumo Athena III	ⓐ		987
Sumo Artemis uP	ⓐ		1,595
Sunfire The Classic	ⓐ		1,630
T+A P1200R	ⓐ		965
TAG McLaren PA10	ⓐ	Ph	849
TAG McLaren PP20	ⓐ	Ph	1,499
TAG McLaren PA20R	ⓐ		1,499
Talk Electronics Hurricane 2	ⓐ		650
Talk Electronics Hurricane 3	ⓐ		900
Talk Electronics Hurricane 4	ⓐ		1,550
Talk Electronics Hurricane 5	ⓐ		1,900
Technics SU-C2000	ⓐ	Ph	700
Thorens TTP-2000F	ⓐ	Ph	699
Thule Audio Spirit PR150B	ⓐ		699
Trilogy 901	ⓐ		750
Trilogy 906	ⓐ		995
Trilogy 902	ⓐ	Ph	1,595
Tron Retro	ⓐ		1,000
Tron Nucleus Phono	ⓐ	Ph	2,000
Tron Nucleus	ⓐ	Ph	2,000
Tube Tech Seer Line	ⓐ		935
Tube Tech Mac Phono	ⓐ	Ph	1,150
Tube Tech Prophet	ⓐ		1,970
Unison Feather One	ⓐ		795
Unison Mystery Two	ⓐ		1,750
Unison Mystery One	ⓐ		1,750
van Den Hul Pre-amp	ⓐ		1,700
Wilson Benesch Stage One	ⓐ	Ph	995
Woodside SC27 Line	ⓐ		949
Woodside SC26 Line	ⓐ		1,557
XTC PRE-1	ⓐ		1,250
Yamaha CX-2	ⓐ	Ph	650
YBA 3	ⓐ		1,199
YBA Integre	ⓐ		1,199
YBA 2	ⓐ		1,999

OVER £2000

Adyton Temper	ⓐ		2,495
Adyton Modus	ⓐ		2,695
ATC SCA2	ⓐ		2,599
Audio Note M3Line	ⓐ		2,650
Audio Prism Avanti	ⓐ		7,995
Audio Research LS15	ⓐ		3,399
Audio Research LS25	ⓐ		4,999
Audio Research REF 1	ⓐ		8,495
Boulder L3AE	ⓐ		2,100
Boulder L5AE	ⓐ		3,400
Boulder L5M	ⓐ		3,800
Boulder 2010	ⓐ		22,000
Canary Audio CA-801	ⓐ		3,750
Cary SLP-98L	ⓐ		2,595
Chord CPA 2200	ⓐ		2,530
Chord CPA 3200	ⓐ		3,785
Chord CPA 4000	ⓐ		6,675
Conrad-Johnson PF-R	ⓐ		2,490
Conrad-Johnson PV-12A	ⓐ	Ph	2,590

Conrad-Johnson Premier 15	ⓐ	Ph	3,995
Conrad-Johnson Premier 14	ⓐ		4,495
Conrad-Johnson Premier 16LS	ⓐ		7,995
Conrad-Johnson Art	ⓐ		14,995
CR SL1 Sig. Mk3			

POWER AMPS (CONTINUED)

Audio Note P2SE	18W	1,499	T+A PA1200R	90W	1,445	Jadis SE300B	10W	7,980	Audioquest Ruby x3	●	80.00
Audio Note Conqueror	8W	1,599	T+A A1500	140W	1,555	Jadis JA80	60W	9,580	Audioquest Quartz x3	●	125.00
Audio Prism Antares	35W	1,695	T+A PA1500R	135W	1,665	Jadis JA100	100W	10,298	Audioquest Opal x3	●	200.00
Audio Research D130	130W	1,890	TAG McLaren 60P	160W	849	Jadis JA200	160W	13,980	Audioquest Emerald x3	●	260.00
Audio Research VT60	35W	1,999	TAG McLaren 100P	100W	1,099	Jadis JA500	400W	19,990	Audioquest Lapis x3	●	399.00
Aura PA-100	100W	700	Talk Electronics Tornado 2	65W	600	Krell KAV250a	250W	3,145	Cable Talk Improved 2/CD	⊗	26.00
Aura PA-200	110W	1,200	Talk Electronics Tornado 3	100W	750	Krell KAV500/2	100W	3,195	Cable Talk Advanced 2	⊗	54.95
Aura PA-200 C	100W	1,250	Talk Electronics Tornado 4	110W	1,100	Krell KAV500i	200W	4,499	Cable Talk Improved 2/Tape	⊗	47.00
AVI S2000MM	150W	1,399	Technics SE-A2000	100W	1,100	Krell FPB200	200W	5,998	Cable Talk Monitor 2.1	⊗	50.00
Bryston 2B-LP	75W	750	Thorens TTA-2000	30W	599	Krell FPB250m	250W	8,994	Cable Talk Studio 2	⊗	65.00
Bryston 3B-ST PRO	150W	1,160	Thule Audio Spirit PA100	100W	600	Krell FPB300	300W	9,500	Cable Talk Reference 2	⊗	85.00
Bryston 3B-ST	150W	1,160	Thule Audio Spirit PA150B	150W	699	Krell FPB600	600W	12,900	Cable Talk Broadcast 2	⊗	100.00
Bryston THX3B	150W	1,262	Trilogy 948	50W	1,895	Krell FPB350m	350W	15,994	Cable Talk Reference 2	⊗	150.00
Bryston 7B-ST PRO	500W	1,545	Trilogy 948T	22W	1,895	Krell FPB650m	650W	23,800	Cable Talk Signature 2 Gold	⊗	300.00
Bryston 4B-ST PRO	300W	1,756	Tube Tech Syrinx	45W	1,150	Lexicon 225	250W	2,500	Cambridge Atlantic	⊗	10.00
Bryston 7B-ST	500W	1,815	Tube Tech Unisis Sig. Pwr	30W	1,900	Lexicon 501	500W	5,000	Cambridge Arctic	⊗	20.00
Bryston TH4B	300W	1,850	Unison Power 35	35W	1,199	Linn Klout	80W	2,400	Cambridge Pacific	⊗	30.00
Bryston THX7B	500W	1,886	Woodside SA240	40W	1,500	Lumley M125	120W	3,750	Cambridge Studio Reference	⊗	40.00
Canary Audio CA-706	40W	1,695	Woodside MA100	100W	1,733	Lumley M250	250W	7,500	Cambridge Silver Spirit 40	⊗	70.00
Canary Audio CA-708	50W	1,950	Woodside STAS0	50W	1,880	Magnum Class A mono	180W	2,450	Cambridge Silver Spirit 60	⊗	100.00
Chord SPM 400	100W	1,425	XTC POW-2	150W	1,450	Magnum A200SE	275W	3,750	Cardas Audio 300B-Microtwin	⊗	115.00
Chord SPM 600	130W	1,850	Yamaha MX-2	150W	750	Mark Levinson 334	125W	5,495	Cardas Audio Quadlink-Five	⊗	200.00
Chord SPM 800	150W	1,995	YBA 3 stereo	150W	1,299	Mark Levinson 335	250W	7,495	Cardas Audio Cardas Cross	⊗	350.00
Conrad-Johnson MV-55	50W	1,995	OVER £2000			Mark Levinson 336	350W	8,995	Cardas Audio Hexlink-Five C	⊗	530.00
Copland CSA515	150W	1,299	Adyton Cordis 1.6	120W	3,495	Mark Levinson 33H	150W	19,395	Cardas Audio Hexlink Golden-5 C	⊗	600.00
Copland CTA505	67W	1,899	Adyton Cordis 3B	280W	12,995	Matsse Ref Monoblocks	180W	8,000	Cardas Audio Golden Cross	⊗	700.00
CR Dev Amphion	12W	1,949	Art Audio Tempo	30W	2,499	McIntosh MC150	150W	3,499	ChordCo Chrysalis	⊗	40.00
Credo PMP 804	1876	599	Art Audio Quintet SE	-W	2,500	McIntosh MC500	300W	3,999	ChordCo Cobra 2	⊗	55.00
Creek AS25E	100W	800	Art Audio Maestro	100W	3,524	McIntosh MC500	500W	8,999	ChordCo Siren	⊗	69.00
Crimson CS630C	100W	948	ATC SPA2-200PRO	200W	2,056	McIntosh MC1000	999W	14,999	ChordCo Chorus	⊗	199.00
Cyrus aPA7	150W	800	ATC SPA2-150	200W	2,699	Meracrus Tentare	75W	2,245	Connections UK Ultra	⊗	28.00
Densen B-300	100W	1,200	Audio Note P5	9W	2,159	Meracrus Cantare	-W	8,995	Connections UK Midas	⊗	39.00
Densen DM-30	100W	1,000	Audio Note Quest	9W	2,750	Muse Model 160 Ser. II	160W	2,290	Connections UK HD	⊗	46.00
DNM PA Start	45W	1,650	Audio Note Yubi	18W	3,850	Muse Model 150	125W	2,690	DBF Acoustics Black Velvet	⊗	30.00
DNM PA1 Start	100W	995	Audio Note Conquest	18W	4,450	Muse Model 175 Ser. II	175W	3,490	DBF Acoustics Black Velvet SE	⊗	40.00
DPA Enlightenment pwr	100W	1,995	Audio Note Tomei	30W	8,500	Muse Model 300 Ser. II	300W	3,990	DBF Acoustics Azure SE	⊗	75.00
Dynavector HX75	75W	1,895	Audio Note Ankoru	60W	14,500	Musical Fidelity F16	200W	2,500	DNM-Reson TCC75	⊗	35.00
Earmax Power	25W	880	Audio Note Neiro	7W	11,360	Musical Fidelity F19	300W	4,000	DPA Slink	⊗	41.00
ECA Lectern S	50W	1,480	Audio Note Ankoru	60W	14,500	Papworth M100	100W	2,645	DPA White Slink	⊗	75.00
ECA Lectern HD	50W	1,095	Audio Prism Debut Mk II	35W	2,495	Papworth M200	200W	3,825	DPA Black Slink	⊗	220.00
Electrocompaniet AW60FTT	60W	1,095	Audio Prism Mana	100W	12,995	Roksan ROK-M1.5	160W	2,250	Ecosse Ref CA1	⊗	65.00
Exposure XVIII Super	70W	850	Audio Research VT50	50W	2,950	Rowland Model 2	75W	4,999	Ecosse Ref CS1	⊗	75.00
Golden Tube Audio SE-40	40W	1,100	Audio Research 100.2	100W	3,395	Rowland Model 6	150W	10,999	Ecosse Ref MA2	⊗	155.00
Golden Tube Audio SE-300B MkII	8W	1,790	Audio Research VT100 MkII	100W	4,950	Rowland Model 8T	250W	12,499	Ecosse Ref MS2	⊗	165.00
Graaf Venticinque P	25W	1,425	Audio Research VT200	200W	8,790	Rowland Model 9T	350W	27,999	Ecosse Ref US1	⊗	550.00
Hi Q Sound MCM	70W	715	Audio Research VT200	200W	8,790	Shearne Phase 1 Pwr Ref	100W	2,399	Expressive Tech IC-1	⊗	700.00
Jadis DA5	40W	1,749	Audio Synthesis Desire Decade	200W	2,495	Siemel TA20	50W	2,350	Gamma Wow Balance	⊗	799.00
Krell KAV150a	150W	1,990	Beam-Echo DL7-35	30W	3,525	Sonic Frontiers Power 1	55W	2,499	Goetz M1 Interconnect	⊗	145.00
Lexicon 212	120W	1,850	Belcanto SET40	40W	3,450	Sonic Frontiers Power 2	110W	4,999	GT Audio Intercon	⊗	130.00
LFD PA1 Powerstage	60W	999	Belcanto Orfeo 30S	35W	4,750	Sonic Frontiers Power 3	220W	8,599	Harmonix HS-102	⊗	195.00
LFD PA2 Powerstage	75W	1,599	Belcanto SET80	80W	6,750	Sugden Masterclass Power	75W	2,995	Harmonix HS-101	⊗	265.00
LFD PA2M Powerstage	90W	1,999	Border Patrol 300B SE	9W	3,995	Sumo Model Ten/M	240W	4,200	Henley HSP10	⊗	20.00
Linn LK100	50W	650	Border Patrol 300B SE (WE)	10W	4,495	Sunfire Load Invariant	300W	2,280	Henley HSP50	⊗	35.00
Linn LK240	120W	750	Boulder 102AE	100W	2,800	Sunfire Signature	600W	2,600	Henley HSP100	⊗	65.00
Linn AV5105	100W	1,200	Boulder 102M	100W	3,100	T+A A3000	190W	2,850	Henley HSP200	⊗	95.00
Lynwood Ruby	120W	985	Boulder 500AE	150W	4,995	TAG McLaren 125M	145W	2,399	Henley HSP250	⊗	150.00
Magnum MF330	150W	685	Boulder 500M	150W	5,500	Talk Electronics Tornado 5	200W	2,100	Heybrook Black Flash	⊗	39.00
Magnum MF660	125W	825	Boulder 2060	600W	25,000	Trilogy 958T	45W	3,395	Insert Audio Focus 1.2	⊗	215.00
Magnum A500SE	200W	1,485	Boulder 2050	999W	43,500	Trilogy 958	100W	3,395	Insert Audio IC100 Mk II	⊗	46.95
Magnum A50SE	200W	1,595	Bryston THX8B	150W	2,385	Tube Tech Genesis Sig.	100W	4,700	Insert Audio Image 5.1	⊗	84.95
McIntosh MC7100	100W	1,999	Canary Audio CA-304	40W	2,695	Tube Tech Synergy DMA	150W	6,400	Insert Audio Status 3.4	⊗	160.00
Meracrus Ciere	60W	1,095	Canary Audio CA-301	22W	2,995	Unison Smart 845	24W	3,500	Ixos 104	⊗	20.00
Meridian 555	60W	750	Canary Audio CA-303	24W	5,495	Unison Smart 300B	24W	4,250	Ixos 1003	⊗	30.00
Meridian 556	100W	895	Cary CAD-572SE	20W	2,495	van Den Hul Power amp	65W	2,500	Ixos Gamma 1002	⊗	39.95
Meridian 557	200W	1,400	Cary CAD-300SE	12W	3,995	XTC POW-1	2,250	2,250	Ixos 103	⊗	45.00
Meridian 505	160W	1,590	Cary 300SE Sig	12W	4,795	YBA 2 stereo	2,200	2,200	Ixos 102	⊗	60.00
Michell Alecto Stereo	50W	1,150	Cary CAD-805	50W	8,995	YBA 1 HC stereo	4,999	4,999	Ixos 101	⊗	100.00
Michell Alecto Mono	100W	1,950	Chord SPM 1000B	200W	2,920						
Michi RHB-05	100W	1,100	Chord SPM 1200B	250W	3,790						
Michi RHB-10	200W	2,000	Chord SPM 1200C	350W	4,210						
Micromega Amp	100W	1,150	Chord SPM 1400B mono	350W	8,420						
Monrio Asty P	100W	950	Chord SPM 5000	415W	14,570						
Moth Stereo 60	60W	599	Conrad-Johnson MF2250	250W	2,295						
Moth 30 Mono/100	100W	879	Conrad-Johnson MF-2500	250W	3,495						
Muse Model 100	100W	1,490	Conrad-Johnson Premier 11A	70W	3,500						
Musical Fidelity X-A200	200W	1,000	Conrad-Johnson Premier 12	140W	6,900						
NAD 218THX	200W	850	Conrad-Johnson Premier 8XS	150W	17,000						
Naim NAP140	45W	770	Conrad-Johnson Premier 8A	275W	17,000						
Naim NAP180	60W	1,090	CAT J1.1	100W	18,000						
Naim NAP135	75W	1,705	CR Dev Artemis	35W	4,995						
Naim NAP250	70W	1,705	Credo LPO 804	2,456	2,456						
NVA A60	43W	560	Credo PMP 155	2,676	2,676						
Papworth TVA50	50W	1,425	Credo LPO 455	4,975	4,975						
Parasound HCA-1000A	125W	600	Credo LPO 155	6,983	6,983						
Parasound HCA-1500A	205W	1,000	DNM PA3	50W	2,500						
Quad 77 Power	85W	600	DNM PAS5	23W	3,750						
Quad 909	140W	800	Dynavector HX1.2	130W	3,995						
Quad 707	140W	800	EAR 861	32W	3,599						
Quad 99 Monoblock	150W	1,200	EAR 509 Mk II	100W	3,999						
Rega EKS	70W	598	EAR 519	100W	4,699						
Rega Exon	125W	1,196	EAR 549	200W	6,499						
Roksan Caspian Power	70W	595	Electrocompaniet AW120DMB	120W	2,695						
Roksan ROK-S1.5	100W	1,495	Electrocompaniet AW250R	250W	3,995						
Rose RP-190 (Dual Mode)	75W	550	Electrocompaniet AW180MB	180W	4,595						
Shearne Phase 3	50W	639	Exposure IV	80W	2,199						
Shearne Phase 3 Reference	50W	749	Exposure XVI	125W	4,000						
Shearne Phase 5 Mono	100W	1,598	Gamma Aeon	20W	4,999						
Sonic Frontiers Anthem Amp 1	40W	1,299	Gamma Space Ref	18W	7,999						
Sonographe SA250	125W	1,195	Gamma Aeon Ref	70W	49,999						
Sonographe SA400	220W	1,695	Golden Tube Audio SE-100	100W	2,495						
Sugden Audition Power	25W	549	Graaf 5050	50W	2,100						
Sugden Az21a Power	25W	649	Graaf GM20	60W	2,850						
Sumo Polaris III	164W	950	Graaf GM100	100W	4,250						
Sumo Model Five	1975	1,975	Graaf GM200	200W	7,900						
Sumo Andromeda III	240W	1,975	Jadis DA8	200W	2,500						
T+A A1210	90W	875	Jadis DA7	100W	4,790						
			Jadis JA30	30W	5,180						
Jadis JA80	60W	9,580	Jadis JA100	100W	10,298						
Jadis JA200	160W	13,980	Jadis JA500	400W	19,990						
Jadis JA500	400W	19,990	Krell KAV250a	250W	3,145						
Krell KAV500/2	100W	3,195	Krell KAV500i	200W	4,499						
Krell FPB200	200W	5,998	Krell FPB250m	250W	8,994						
Krell FPB300	300W	9,500	Krell FPB600	600W	12,900						
Krell FPB650m	650W	23,800	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 Class A mono	180W	2,450	Magnum A200SE	275W	3,750						
Mark Levinson 334	125W	5,495	Mark Levinson 335	250W	7,495						
Mark Levinson 336	350W	8,995	Mark Levinson 33H	150W	19,395						
Matsse Ref Monoblocks	180W	8,000	McIntosh MC150	150W	3,499						
McIntosh MC500	300W	3,999	McIntosh MC500	500W	8,999						
McIntosh MC1000	999W	14,999	Meracrus Tentare	75W	2,245						
Musical Fidelity F16	200W	2,500	Musical Fidelity F19	300W	4,000						
Musical Fidelity F19	300W	4,000	Papworth M100	100W	2,645						
Papworth M200	200W	3,825	Roksan ROK-M1.5	160W	2,250						
Rowland Model 2	75W	4,999	Rowland Model 6	150W	10,999						
Rowland Model 6	150W	10,999	Rowland Model 8T	250W	12,499						
Rowland Model 8T	250W	12,499	Rowland Model 9T	350W	27,999						
Rowland Model 9T											

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 Qnext 2	30.00
QED Qnext 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
SonicLink Red	25.00
SonicLink Silver pink	35.00
SonicLink Black	50.00
SonicLink Brown	70.00
SonicLink Violet	85.00
SonicLink Maroon	125.00
SonicLink Blue Nickel	150.00
SonicLink Vermilion	195.00
SonicLink Red earth	300.00
SonicLink Black earth	450.00
SonicLink Blue earth	695.00
SonicLink Black Rhodium	995.00
Straightwire Chorus	40.00
Supra DAC-X	60.00
Supra EFF-ISL	80.00
Supra EFF-XLR	90.00
Tara Prism 3	1795
Tara Prism 5	21.95
Tara Prism 8	25.95
Tara Prism 11	37.50
Tara Prism 22	63.50
Tara Prism CD	76.25
Tara Prism 33-I	88.25
Tara Prism 55	115.00
Tara RSC-CD	138.00
Tara RSC-Prime	170.00
Tara RSC-Ref Gen. 2	229.00
Tara RSC-Master Gen. 2	464.00
Tara RSC-Decade	935.00
Tara The 2	1,170.00
Tara The One	2,230.00
Transparent Cable Musichord	48.00
Transparent Cable The Link	92.00
Transparent Cable Music Link	119.00
Trichord Pulsewire 75	169.00
Vampire Wire CC	24.00
Vampire Wire CCC/II	58.00
Vampire Wire SC/II	98.00
Vampire Wire SC/IV	144.00
Vampire Wire 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

Apertura Model A	255.00
Art Yam Church 5000	275.00
Audioquest Digital/video 1	30.00
Audioquest Digital/video 2	60.00
Audioquest Optlink X	90.00
Audioquest Digital PRO	100.00
Audioquest Optlink Pro	150.00
Audioquest Optlink Z	180.00
Cable Talk Digital 2	78.00
Cardas Audio Lightning	190.00
ChordCo Codac	38.00
ChordCo Optichord	40.00
ChordCo Prodac	50.00
DNM-Reson DIG100	26.00
DPA Opti-link	20.00
DPA Digi-link	27.50
Ecosse Ref MD2	71.50
Harmonix HS-101DIG	240.00
Insert Audio Dataline 500	24.95
Silver Sound Optic 2.1	29.95
Insert Audio Dataline 700	39.95
Insert Audio Image 5.1	44.95
ixos 105	25.00
ixos 106	30.00
Kimber Opti-link	50.00
Kimber Illuminati DV-30	70.00
Kimber Illuminati D-60	325.00
Kimber Illuminati DX-50	350.00
Kimber Illuminati Orchid	750.00
LAT International DI-20-D	79.00
Monster Datalink 100	47.00
Monster Lightspeed 100	47.00
Moth Leyline Datalink	140.00
Nordost Moonglo	155.00
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
SonicLink Green	60.00
Supra ZAC	44.95
Supra EFF-ID	45.00
Supra DAC-XLR	45.00
Theta Digital AT&T	550.00
Transparent Cable PDL	199.00
Trichord Pulsewire 75D	75.00
Vampire Wire D/I	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, unterminated.

Acoustic Energy AESC-C3	11.95
ALR/Jordan QMM	5.00
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
Cable Talk Theatre 2	1.50
Cable Talk The Flat One	2.00
Cable Talk Talk 3.1	2.25
Cable Talk Talk 4.1	4.25
Cable Talk Talk 3.1 Biwire	4.50
Cable Talk Concert 2.1	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 Carnival	3.00
ChordCo Myth	6.00
ChordCo Legend	15.00
ChordCo Odyssey	17.00
DNM-Reson LSC	6.95
DNM-Reson LSCB	13.95
Ecosse Ref FS2.16	1.75
Ecosse Ref CS2.2	2.50
Ecosse Ref CS2.3	3.75
Ecosse Ref CS2.15	5.75
Ecosse Ref MS2.2	15.00
Ecosse Ref MS2.3	20.00
Ecosse Ref MS2.15	30.00
Ecosse Ref US2	450.00
Gale XL105	1.00
Gale XL189	1.00
Gale XL315	2.00
Gale XL160-2	2.50
Gale XL315-2	3.99
Gamma Wonder Line	99.00
Goertz M1	16.00
Goertz M2	32.00
Goertz Big Boy	64.00
GT Audio Speaker	50.00
Harmonix Harmonic-Strings	30.00
Harmonix HS-101T-1	56.00
Harmonix HS-101SC	88.00
Ixos 607	2.00
Ixos 6004	3.00
Ixos 6003	3.00
Ixos 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	16.00
LAT International BIWIRE	23.00
LAT International SS 1000	36.00
Lieder Pad	133.00
Lieder Bel Canto	188.00
Lieder Spoor	253.00
Lieder Straat	463.00
Lieder Weg	663.00
Linn K20	4.00
Linn K400	10.00
Linn K600	15.00
Lumley Silver 12/2	35.00
Lumley Silver 14/4	40.00
Mission Duet	1.90
Mission Quartet bi-wire	3.90
Monster XP Clear	2.20
Monster XP Navajo	2.40
Monster Superflat Mini	2.75
Monster XP HP	3.70
Monster Original	4.40
Monster New Monster	5.50
Naim NACAS	5.70
Nordost Octava	3.00
Nordost 4-Flat	12.00
Nordost Solar Wind Bi-wire	27.95
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 MkI	240.00
Siltech LS4-120	549.00
Silver Sounds 12 Gauge	15.00



HI-FI HELP

Let our experts help with your hi-fi problems. Send your query to 'Help' at the usual address.

Silver Sounds 10 Gauge	35.00
Silver Sounds 8 Gauge	75.00
Silver Tone Silver-Sonic	10.00
Silver Tone Silver-Sonic HC	15.00
Silver Tone Silver-Voice	55.00
Silver Tone Silver-Voice Ultra	85.00
SonicLink AST50	1.95
SonicLink AST60	2.50
SonicLink AST75	2.95
SonicLink AST200	5.95
SonicLink AST200x2	10.00
SonicLink S300	18.00
SonicLink S130x2	20.00
SonicLink S300x2	40.00
SonicLink S900	60.00
SonicLink S600x2	80.00
SonicLink Black Rhodium 4	1,000.00
Straightwire Quartet	8.00
Supra Classic 2.5	2.49
Supra Linc 2.5 Flex	3.49
Supra Classic 4.0	3.95
Supra Ply 2.0	4.95
Supra Linc 4.0 Flex	4.95
Supra Ply 3.4	6.95
Supra Quattro 4x4	8.95
Supra Classic 10	9.95
Tara Prism Extra	1.95
Tara Klara	2.95
Tara Prism Omni	3.95
Tara Prism 2+2	8.20
Tech + Link SPC 79	1.20
Transparent Cable Musichord	11.00
Transparent Cable The Wave	23.00
Transparent Cable Music Wave	25.00
Vampire Wire SC-384	11.00
Vampire Wire SC-554	15.00
Vampire Wire ST-I	30.00
Vampire Wire SC-1108	30.00
Vampire Wire ST-II	48.00
Vampire Wire ST-III	73.00
van Den Hul Skyline HB	3.50
van Den Hul Snowline	5.00
van Den Hul Skytrack HB	5.50
van Den Hul Gold Water	7.00
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 DS52 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	16.00



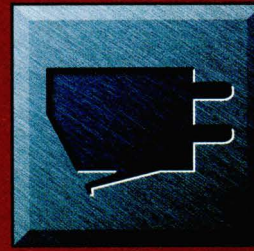
CABLES Digital Interconnects

KEY

- – Stranded construction.
- – Solid-core construction.

Prices of interconnects are for a one-metre terminated pair.

Apertura Model B	139.00
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CARTRIDGES

KEY

- MM – Moving-magnet type.
- MC – Moving-coil type.

UP TO £100

Audio Note IO1	99
Audio Technica AT-91	15
Audio Technica AT-95E	20
Audio Technica AT-110E	28
Audio Technica AT450E	70
Audio Technica AT440ML	90
Benz-Micro MC20EII	70

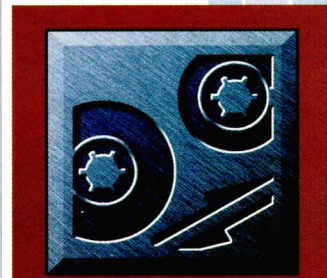
CARTRIDGES (CONTINUED)

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 ZF3E+1	MM	48
Grado Prestige Black	MM	49
Grado Prestige Green	MM	59
Grado Prestige Blue	MM	69
Grado ZF1+	MM	83
Grado Prestige Red	MM	99
N'ham Tracer I	MM	98
Ortofon OM 5E	MM	16
Ortofon OM 5E	MM	20
Ortofon OM 10	MM	30
Ortofon 510	MM	40
Ortofon OM DJ	MM	50
Ortofon OM 20	MM	70
Ortofon 520	MM	70
Ortofon MC1 Turbo	MC	75
Ortofon Qanorde DJ	MM	80
Ortofon OM 30	MM	90
Ortofon 530	MM	100
Pickering TE-15	MM	25
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	55
Pickering TL-2-S	MM	60
Pickering XV15-757S	MM	60
Pickering XV15-625DJ	MM	70
Pickering XV15-1800S	MM	70
Pickering TL3S	MM	80
Pickering XEV-3001E	MM	95
Pickering XLZ-3500	MM	100
Pickering TL-4-S	MM	100
Rega Bias	MM	39
Rega RB78	MM	39
Rega Super Bias	MM	59
Rega Elys	MM	85
Shure M70BX	MM	21
Shure M92E	MM	22
Shure SC35C	MM	29
Shure M447X	MM	35
Shure M44GX	MM	35
Stanton 500AL II	MM	44
Stanton 500EL	MM	49
Stanton 680AL/X	MM	54
Stanton 680EL/X	MM	74
Sumiko Oyster	MM	70
Sumiko Black Pearl	MM	50
Sumiko Pearl	MM	70
Sumiko Blue Point	MC	100

OVER £100

Audio Note IO2	MM	139
Audio Note Soara	MC	795
Audio Note IO1V	MC	1,095
Audio Note IO1LTD	MC	4,500
Audio Technica AT-OC9	MC	330
Benz-Micro The Glider	MC	600
Benz-Micro Reference	MC	1,100
Benz-Micro Reference Ruby	MC	1,500
Benz-Micro Ruby Open Air	MC	1,600
Denon DL504	MC	200
Dynavector 10X4II	MC	189
Dynavector DV20XH	MC	299
Dynavector DV20XL	MC	299
Dynavector 17D2	MC	450
Dynavector XX-1L	MC	998
Dynavector XX-1	MC	998
Dynavector Te-Kaitora	MC	1,698
Goldring Eroica LX	MC	110
Goldring Eroica	MC	110
Goldring 1042	MM	120
Goldring Elite	MC	220
Goldring Excel VX	MC	525
Grado Prestige Silver	MM	119
Grado Prestige Gold	MM	149
Grado Signature Junior	MM	150
Grado Signature 8MZ	MM	250
Grado Signature MCZ	MM	375
Grado Signature TLZ	MM	650
Grado Signature XTZ	MM	975
Grado Reference	MM	995
Koetsu Red T	MC	1,359
Koetsu Red K Sig	MC	1,899
Koetsu Urushi	MC	1,999
Koetsu Signature	MC	2,999
Koetsu Gold PR	MC	5,498
Linn K9	MM	125
Linn Klyde	MC	500
Linn Arkiv	MC	1,000
London Decca Maroon	MM	299
London Decca Gold	MM	319
London Decca Maroon Dp	MM	379

London Decca Gold Dp	MM	399
London Decca S Gold	MM	439
London Decca S Gold Dp	MM	519
London Decca Jubilee	MM	999
Lyra Lydian Beta	MC	599
Lyra Clavis Da Capo	MC	995
Lyra Parnassus DCT	MC	1,895
N'ham Tracer II	MM	310
N'ham Tracer III	MM	410
N'ham Tracer IV	MM	660
Ortofon MC15 Super II	MC	140
Ortofon 540	MM	140
Ortofon MC3 Turbo	MC	150
Ortofon MC25E	MC	200
Ortofon MC25FL	MC	250
Ortofon MC10 Supreme	MC	300
Ortofon MC20 Supreme	MC	450
Ortofon MC30 Supreme	MC	550
Ortofon MC2000I	MC	800
Ortofon MC Rohmann	MC	1,000
Ortofon MC3000 II	MC	1,200
Ortofon MC Jubilee	MC	1,250
Ortofon MC7500	MC	2,000
Pickering TL-3003	MM	145
Pickering XLZ-4500	MM	150
Pickering TL-4004	MM	175
Pickering XSV-5000U	MM	200
Pickering XLZ-7500	MM	200
Pickering TLZ-7500-S	MM	200
Reson Mica	MM	185
Reson Recca	MM	250
Reson Aciore	MC	299
Reson Etile	MC	455
Reson Lexe	MC	1,300
Roksan Corus Black	MM	150
Roksan Shiraz	MC	990
Shure V15XMR	MM	295
Stanton 890ALX	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 IIIISLA	MC	2,000
van Den Hul Grasshopper IIIIGLN	MC	2,800
van Den Hul Grasshopper IIIIGLA	MC	2,800
van Den Hul Grasshopper IIIICMN	MC	2,800
van Den Hul Grasshopper IIIICHN	MC	2,900
van Den Hul Grasshopper IVGLA	MC	3,000
Wilson Benesch Matrx	MC	786
Wilson Benesch Analog	MC	1,572
Wilson Benesch Carbon	MC	1,573



CASSETTE DECKS

KEY
 ⇐ - Autoreverse - no need to remove and turn around the tape.
 3-H - 3 heads, i.e. separate record and replay heads.

UP TO £200

Akai DXW1 100	⇐	200
Akai DX1200	⇐	200
Ariston WX-510	⇐	60
Denon DRM-550	⇐	160
Denon DRW-585	⇐	130
Goodmans Delta 801	⇐	200
H/K DC520	⇐	200
JVC TD-X372BK	⇐	170
JVC TD-R472BK	⇐	200
Kenwood KX-W4080	⇐	160
Kenwood KX-3080	⇐	160
Kenwood KX-W6080	⇐	200
Kenwood KX-5080S	⇐	200
Marantz SD-455	⇐	170
Marantz SD-57	⇐	199
Onkyo K 185	⇐	200
Pioneer CT-S250	⇐	150
Pioneer CT-W205R	⇐	160
Pioneer CT-W505R	⇐	180
Pioneer CT-S450S	⇐	200

Pioneer CT-W606DR	⇐	200
Sony TC-KE200	⇐	120
Sony TC-WE525	⇐	160
Sony TC-KB20S	⇐	180
Sony TC-WE725	⇐	180
Teac W-416	⇐	100
Teac V-615	⇐	130
Teac RH-300	⇐	160
Teac W-790R	⇐	170
Teac V-1050	⇐	180
Teac RH-500	⇐	200
Technics RS-BX501	⇐	170
Technics RS-TR375	⇐	180
Technics RS-TR474	⇐	200
Technics RS-A26	⇐	130
Yamaha KX-393	⇐	200
Yamaha KX-W321	⇐	170
Yamaha KX-493	⇐	180

OVER £200

Denon DRM-650S	⇐	230
Denon DRM-740	⇐	270
Denon DRS-810	⇐	310
H/K TD420	⇐	250
JVC TD-V662BK	⇐	270
JVC TD-W718BK	⇐	300
NAD 613	⇐	230
NAD 614	⇐	270
NAD 616	⇐	300
Onkyo TA 6210	⇐	230
Onkyo TARW 211	⇐	270
Onkyo TARW 311	⇐	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-WE25S	⇐	230
Sony TC-KAGES	⇐	550
T+A CC1200R	⇐	1,180
Teac W-860R	⇐	230
Teac W-6000R	⇐	450
Teac V-6030S	⇐	550
Teac V-8030S	⇐	650
Technics RS-A27	⇐	270
Technics RS-TR575	⇐	280
Yamaha KX-580SE	⇐	250



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

Akai CD1100	⇐10	200
Akai CDM1200	⇐	230
AMC CD9	⇐	130
AMC CD8A	⇐	150
Ariston CDX700	⇐	70
Ariston CDC610	⇐	90
Ariston CDX710	⇐	100
Cambridge CD4	⇐10	150
Cambridge CD4SE	⇐10	200
Cambridge CD6	⇐10	250
Denon DCD-435	⇐	130
Denon DCD-635	⇐	180
Denon DCD-735	⇐	230
H/K HD720	⇐10	200
H/K FL8350	⇐10	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
















































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Kenwood DP-R3090	⇐	140
Kenwood DP-R4090	⇐	160
Kenwood DP-3080	⇐	170
Kenwood DP-R6090	⇐	200
Kenwood DP-4090	⇐10	250
Marantz CD-38	⇐	130
Marantz CC-38	⇐	200
Marantz CD-48	⇐10	200
Marantz CD-57	⇐10	230
Marantz CD-67II	⇐10	250
NAD 522	⇐	170
NAD 510	⇐	200
NAD 523	⇐	250
NAD 512	⇐10	250
Philips CD711	⇐	120
Philips CD721	⇐	130
Philips CD751	⇐10	150
Philips CD751	⇐	180
Pioneer PD-106	⇐	130
Pioneer PD-206	⇐	150
Pioneer PD-F606	⇐	200
Pioneer PD-M603	⇐	200
Pioneer PD-S505	⇐10	250
Pioneer PD-F706	⇐	250
Rotel RCD-930AX	⇐	180
Sansui CD220	⇐	120
Sherwood CD-4030R	⇐	180
Sherwood CDC680	⇐10	180
Sherwood CDC6050R	⇐10	180
Sony CDP-XE220	⇐	110
Sony CDP-M205	⇐	110
Sony CDP-M305	⇐	130
Sony CDP-XE310	⇐	140
Sony CDP-XE520	⇐	150
Sony CDP-CE105	⇐	150
Sony CDP-XB720E	⇐10	200
Sony CDP-CE315	⇐	200
Sony CDP-C325M	⇐	200
Sony CDP-CX57	⇐	250
Synergy CDJ1210	⇐	120
Teac CD-P1120	⇐	100
Teac CD-P1820	⇐	130
Teac CD-P1440	⇐	200
Teac CD-P3450SE	⇐	200
Teac PD-D2400	⇐	200
Teac PD-H500i	⇐10	240
Technics SL-PG390A	⇐	90
Technics SL-PG490A	⇐	100
Technics SL-PG590A	⇐	120
Technics SL-PD688	⇐	140
Technics SL-PD888	⇐	160
Technics SL-P5670D	⇐	200
Technics SL-MC410	⇐	250
Technics SL-PS770D	⇐10	250
Yamaha CDX-393	⇐	130
Yamaha CDX-493	⇐	180
Yamaha CDX-9	⇐	200
Yamaha CDC-665	⇐10	220
Yamaha CDX-593	⇐10	230

£251 TO £500











































Arcam Alpha 7	⇐10	330
Arcam Alpha MCD	⇐	450
Aura CD100	⇐10	400
Cyrus dAD1	⇐10	398
Denon DCD-835	⇐10	280
Denon DCM-260	⇐	300
Denon DCD-1550AR	⇐10	350
H/K HD740	⇐10	300
H/K FL8550	⇐	300
H/K HD760	⇐10	500
JVC XL-Z674BK	⇐10	300
Kenwood DP-R7080	⇐	300
Kenwood DP-9090	⇐10	300
Kenwood DP-5090	⇐10	300
Kenwood DP-7090	⇐10	400
Marantz CD-67SE MkII	⇐10	300
Marantz CC-870	⇐	400
Marantz CD-63IIK1	⇐10	400
Musical Fidelity E60	⇐10	300
Musical Fidelity A2 CD	⇐10	500
Mryad T-10	⇐	400
NAD 513	⇐	290
NAD 515	⇐	350
NAD 514	⇐10	370
NAD 517	⇐	400
Onkyo DX 7210	⇐10	260
Onkyo C721	⇐	290
Onkyo DXC 320	⇐	380
Onkyo DX 7510	⇐	400
Onkyo CM 716	⇐	450
Parasound C/DP-1000	⇐	499
Pioneer PD-S707	⇐10	300
Pioneer PD-F805	⇐	300
Pioneer PD-S705	⇐10	300
Pioneer PD-F906	⇐	350
Pioneer PD-S904	⇐	400
Pioneer PD-S505 Precision	⇐10	450
Rotel RCD951	⇐10	300
Rotel RCD-971	⇐10	350
Sony CDP-XB920E	⇐10	300
Sony CDP-XA20ES	⇐10	450
Sony CDP-X3000ES	⇐10	500
Sony CDP-CX260	⇐	500
Synergy CDJ2010	⇐	300

Yamaha CDX-993  400

£501 TO £1000

Acurus ACD11		899
Alchemist Nexus		600
Arcam Alpha 8		520
Arcam Alpha 8SE		600
Arcam Alpha 9		800
Audio Analogue Paganini		750
Audiomeca Obsession		999
AVI S2000MC 24 Ref		999
Creek CD42		599
Cyrus dAD3		598
Cyrus dAD3Q		898
DPA Renaissance int CD		950
Helios Model 3		650
Helios Model 2		950
Linn Mimik		875
Magnum CD2020		595
Marantz CD-17		800
Micromega Premium 10		650
Micromega Premium 20		850
Monrio Asty PL		675
Monno Privilege		995
Musical Fidelity X-RAY		799
Myryad T-20		600
Myryad MC100		700
Orelle CD100eA		649
Orelle CD-100eSA		999
Pioneer PDS-06		550
Primare D20		700
Quad 77 Bus		700
Quad 77 Mains		900
Roksan Caspian		895
Rotel RCD991		750
Sony CDP-XA50ES		1,000
Sugden Audition		649
Talk Electronics Thunder 3		1,000
Teac VRDS-8		600
Teac VRDS-9		700
Teac VRDS-25X		1,000
Technics SL-P2000		1,000
Thule Audio Spirit CD100		599
Thule Audio Spirit CD150B		699
Trichord Genesis		569
Trichord Digital Jukebox 25		619
Trichord Digital Jukebox 50		669
Trichord Digital J'box 100		719
Trichord Revelation		819
YBA Special		625


OVER £1000








































Acoustic Precision Eikos		1,850
Alchemist Kraken CD		1,249
Alchemist Forseti Int.		1,249
Alchemist Forseti		1,995
Audio Research CD2		3,399
Audiomeca Keops		1,500
Audiomeca Talisman		2,150
Audiomeca Talisman SE		2,300
Cary CD-301		2,495
Classe CDP-3		1,395
Conrad-Johnson DF-2		1,695
Conrad-Johnson DV-2b		2,495
Copland CDA-266		1,199
Copland CDA277		1,649
Copland CDA288		1,999
Cymbal CDP12		1,299
Helios Model 1		1,250
Helios Stargate		2,250
Jadis Orchestra		1,345
Krell KAV250cd		2,490
Krell KAV300cd		3,599
Krell KPS25s		19,995
Marantz CD-17KIS		1,100
Mark Levinson 39		4,995
Mclntosh MCD7009		3,699
Meracus Tanto		1,395
Meracus Imago Player		4,495
Meridian 506		1,100
Meridian 508		1,995
Micromega Solo		2,500
Myryad MCD500		1,300
Naim CD3-5		1,050
Naim CDX		2,200
Oracle CD Player		9,499
Pink Triangle Numeral		1,049
Pink Triangle Litaural		2,200
Primare D302		1,500
Proceed CDP		3,395
Quad 99		1,300
Resolution CD50		2,995
Roksan Attezza-DP3P		1,495
Shearne Phase 7		1,499
Sherwood CD1		1,100
Sonic Frontiers Anthem CD1		1,699
Sonic Frontiers SFCD-1		3,799
T+A CD1210R		1,185
T+A CD1220R		1,540
TAG McLaren CD20R		1,249
Theta Digital Miles SE		2,390
XTC CDP-1		1,250
YBA Integre		1,250
YBA CD3		2,250
YBA CD2		3,350

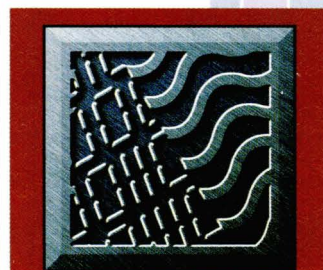
YBA CD1  4,500



CD TRANSPORTS



















KEY
 – Electrical (coaxial) digital output.
Many players also include an optical (Toslink) output.




















































Alchemist Forseti Drive		1,100
Altis CDT III		4,995
Arcam Delta 250		800
Audio Synthesis Transcend Decade		3,295
Audiomeca Damnation		999
Audiomeca Damnation SE		1,100
Audiomeca Talisman		1,850
Audiomeca Talisman SE		1,999
Audiomeca Talisman DOB		2,250
Conrad-Johnson DR-1		1,795
DPA Enlightenment Drv		775
Jadis JD3		1,999
Jadis ID1		9,190
Linn Kank		1,850
Mark Levinson 37		3,995
Mark Levinson 31.5		9,295
Meracus Imago		3,995
Micromega Drive 3		1,000
Micromega Data		2,000
Monrio Bitmatch		1,800
Muse Model 5		950
Muse Model 8		3,500
Oracle CD Drive		7,399
Pink Triangle Cardinal II		909
Resolution V1960		3,500
Rogers SC-8t		2,699
Roksan Attezza-DP3		1,295
Sonic Frontiers Transport 3		5,999
T+A CM1200R		875
TAG McLaren CDT20R		1,499
Teac VRDS-T1		550
Teac P-30		2,500
Theta Digital Pearl		1,349
Theta Digital Jade		2,650
Thorens TCD-2000		999
Trichord Digital Turntable		719
Tube Tech Fulcrum		1,000
Wadia 8		3,195
Wadia 20		4,370



DIGITAL TO ANALOGUE CONVERTERS (DACs)

KEY
 – Number of digital inputs

Alchemist TS-D-1		300
Alchemist Forseti DAC		1,100
Altis Reference		4,995
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		2,335
Audio Research DAC3 MkII		3,999
Audio Synthesis DAX Decade		2,795
Audiomeca Elixir		799
Audiomeca Ambrosia		1,850
Boulder 2020		21,000
Chord DSC900		1,850
Chord DSC1100		2,765
Chord DSC1500		4,800
Conrad-Johnson D/A-3		1,195
Conrad-Johnson D/A-2b		1,990

dCS Elgar		8,500
DPA Little Bit 3		325
DPA Renaissance DAC		595
DPA Enlightenment DAC		850
DPA SX128		2,000
DPA SX256		4,000
DPA SX512		8,000
Harmonix Reimyo DAP-77		2,790
Jadis JS2		2,499
Jadis JS1		6,990
LFD DAC2		1,950
LFD DAC3		3,000
Linn Numenik		1,500
Mark Levinson 360		4,395
Mark Levinson 360S		6,895
Mark Levinson 30.5		15,950
Meracus Auriga		1,295
Meracus Flagrare		2,495
Meridian 566		1,095
Micromega DAC 2		750
Micromega Dialog		1,750
Monrio 18B2		795
Muse Model 2		2,190
Muse Model 2 Plus		2,500
Muse Model 2/96		3,000
Musical Fidelity X-ACT		200
Musical Fidelity X-24K		300
Musical Fidelity X-DAC		300
Onkyo DX 7310		330
Resolution D92		1,500
Rogers SC-8m		1,899
Roksan Attezza-DA2		595
Sonic Frontiers Processor 3		5,999
Sumo Theorem II		945
Sumo Theorem IIB		1,155
TAG McLaren DAC20		1,249
Teac D-T1		500
Theta Digital Chroma 396 Std		799
Theta Digital Pro Geny		1,099
Theta Digital Pro Prime IIa		1,699
Theta Digital Pro Basic IIIa		2,990
Theta Digital Casablanca LS		6,158
Thorens TDA-2000		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
Woodsie DVAC-1		

HEADPHONES (CONTINUED)

Grado SR40	D	45
Grado SR60	D	79
Grado SR80	D	100
Grado SR125	D	150
Grado SR225	D	200
Grado SR325	D	300
Grado RS2	D	495
Grado RS1	D	695
Hama SL276	D	50
Hama IR Cordless	D	60
Jecklin Float Model 1	D	79
Jecklin Float Model 2	D	99
Jecklin Float ELS	E	399
JVC HA-D727	D	45
JVC HA-W60	D	49
JVC HA-D910	D	65
JVC HA-W200RF	D	75
JVC HA-D1000	D	250
JVC HA-F25	D	699
Koss R/100	D	100
Philips SBC 3396	D	70
Philips SBC HP9000	D	90
Pioneer SE-M550	D	50
Pioneer SE-M750	D	60
Precide Ergo Model 1	D	120
Precide Ergo Model 2	D	140
Sennheiser HD490	D	50
Sennheiser IS 380	D	55
Sennheiser HD495	D	60
Sennheiser HD500	D	70
Sennheiser RS400	D	80
Sennheiser HD570	D	80
Sennheiser HD25 SP	D	90
Sennheiser HD545 Ref	D	100
Sennheiser IS450	D	110
Sennheiser HD265 Linear	D	125
Sennheiser HDC 451-1	D	130
Sennheiser HD250II	D	150
Sennheiser HD565 Ovatn	D	150
Sennheiser HD25-13	D	160
Sennheiser Lucas	D	160
Sennheiser HD25	D	160
Sennheiser HD 580 P'cision	D	200
Sennheiser HD600	D	250
Sennheiser Lucas/HD580	D	260
Sennheiser IS850	D	859
Sennheiser HE60/HEV70	E	998
Sennheiser Orpheus	E	9,652
Sony MDR-605LP	D	50
Sony MDR-ED268LP	D	50
Sony MDR-E888LP	D	55
Sony MDR-IF130K	D	60
Sony MDR-V600	D	70
Sony MDR-F1	D	100
Sony MDR-NC5	D	100
Sony MDR-IF420RK	D	100
Sony MDR-D77	D	130
Sony MDR-IF520RK	D	150
Sony MDR-CD1700	D	200
Stanton DJ Pro 101/HB	D	65
Stanton DJ Pro 1000	D	95
Stanton DJ Pro 1001	D	150
Stax SR-0001	E	280
Stax SR-Lambda Nova C	E	370
Stax SR-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 SR650	D	45
Vivanco FMH 3000	D	50
Vivanco SR750	D	50
Vivanco SR850	D	50
Vivanco FM7980	D	60
Vivanco SR909	D	60
Vivanco SR1000IFL	D	90
Vivanco FM8180	D	99
Vivanco SR2000IFL	D	100



EQUIPMENT SUPPORTS Hi-Fi Tables

KEY
4 - Number of shelves

Alphason SM17	1	49
Alphason VSM17	1	85
Alphason GCM17	1	85
Alphason GMV1P	1	110
Alphason R17/17	3	120

Alphason GMH1P	1	150
Alphason VR17/17	3	190
Alphason GR17/17-AS	4	275
Audiophile Base 01	1	79
Audiophile S4T120	4	280
Audiophile S4T120P	4	560
BCD Model 1006/8	1	795
BCD Model 1000	3	1,250
Custom Design Aspect 650	4	240
Custom Design e'lite E4	4	250
Custom Design Aspect 500AV	3	270
Custom Design Aspect 850	5	270
Custom Design e'lite AV	6	350
Deadrock 701	1	60
Deadrock 802	2	90
Deadrock 703	3	130
Deadrock 705	5	230
Deadrock 704	4	250
Elemental Isotube X1	1	169
Elemental Isotube BS	1	199
Elemental Isotube TS	1	209
Elemental Isotube IS	1	209
Elemental Reference B1	1	329
Elemental Isotube X2	2	379
Elemental Isotube X3	3	489
Elemental Reference BS	1	499
Elemental Reference X1	1	499
Elemental Reference TS	1	549
Elemental Reference IS	1	549
Elemental Isotube X4	4	599
Elemental Reference X2	2	799
Elemental Isotube X4/Ref	4	1,199
Elemental Reference X3	3	1,199
Elemental Isotube X4Rse	4	1,349
Elemental Reference X4	4	1,599
Fi-Rax R4	6	399
Finite Elemente A03 pagode	4	479
Finite Elemente E03 pagode	4	649
Finite Elemente HD03	4	1,995
Frameworks H175	1	139
Frameworks FS1	1	150
Frameworks H500	3	265
Frameworks FT2	2	285
Frameworks FT3	3	350
Frameworks H700	3	355
Frameworks H900	3	389
Impulse Iso-plate	1	190
JPW 3 Tier	3	80
JPW 5 Tier	5	100
Kudos Audio Connthian	5	600
Linn K3000	5	85
Mana Sound Frame	4	125
Mana Mini Table	1	150
Mana Power supply table	1	150
Mana Reference flat top	1	175
Mana Sound Shelf	2	200
Mana Sound Stage	2	235
Mana Sound Table	2	325
Mana Ref Shelf	3	325
Mana Reference Table	3	350
Mana 2 Tier Stand	3	375
Mana 3 Tier Stand	4	450
Mana 4 Tier Stand	5	500
Mana 5 Tier Stand	6	600
Mana 6 Tier Stand	7	700
Mana 7 Tier Stand	8	800
Mana 8 Tier Stand	9	900
Mission Hark	5	298
Optimum G2	2	69
Optimum G2/Pedestal	2	99
Optimum G4/Pedestal	5	130
Optimum OPT 3406	3	149
Optimum G5/Pedestal	3	150
Optimum OPT 4906	4	199
Optimum OPT 6606	5	249
Optimum OPT 340	3	249
Optimum OPT 490	4	299
Optimum OPT 440	4	299
Optimum OPT 10206	6	299
Optimum AV 300	3	329
Optimum OPT 700	5	349
Optimum OPT 610	5	349
Optimum OPT 660	4	349
Optimum OPT 1020	6	399
Optimum OPT 1190	7	450
Projekt A3	3	145
Projekt A4	4	190
Projekt A5	5	235
Projekt B3	6	255
Projekt A6	6	280
Projekt B3i	6	300
Projekt B4	8	340
Projekt B Multi	8	345
Projekt B3ii	7	345
Projekt C3	9	375
Projekt D3	12	420
Projekt C3i	8	420
Projekt B5	10	425
Projekt C3iii	11	465
Projekt C3ii	10	465
Projekt D3i	12	500
Projekt C4	12	500
Projekt C3iv	10	510
Projekt D3ii	14	545
Projekt C Multi	9	555
Projekt D4	16	560
Quadraspire Q4S mini shelf	1	65

Quadraspire Q4S shelf	1	65
Quadraspire QKS Cabinet shelf	1	80
Quadraspire QAV shelf	1	130
Quadraspire Q4M mini table	4	250
Quadraspire Q4 table	4	250
Quadraspire Q4SP Table	4	320
Quadraspire QAV table	3	350
Quadraspire QAVSP Table	3	400
Quadraspire QK Cabinet	4	450
Reson 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	150
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	230
Soundstyle X6110	4	230
Soundstyle X058	5	240
Soundstyle X310	3	250
Soundstyle X105	5	250
Soundstyle X6053	4	255
Soundstyle X6100	4	265
Soundstyle X6310	3	275
Soundstyle 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	1	110
Townshend Seismic Sink 1-3D	1	400
Townshend S/Sink Stand 1-4	1	999
Townshend Seismic Sink Stand	4	1,245
Vibraplane Passive	1	1,895
Vibraplane Active	1	3,600
Wilson Benesch Standard Shelf	1	130
Wilson Benesch Mono Block	1	260
Wilson Benesch Kevlar Shelf	1	275
Wilson Benesch Asside Basic	4	590
Wilson Benesch Asside	4	720
Wilson Benesch Triptych	1	990

Atacama SE1000S	1	80
AVF Tower P6144BP	60	55
BCD Model 1010	60	595
Credo STD 001	60	284
Custom Design Tri 100	50	50
Custom Design R/S300	60	70
Custom Design M3	55	75
Custom Design M2	55	75
Custom Design M1	55	75
Custom Design Tri 300	55	85
Custom Design SC5 24	60	85
Custom Design X24	61	109
Deadrock 903	60	60
Deadrock 902	47	60
Deadrock 901	39	60
Elemental Reference SB1	8	399
Elemental Isotube SZ	49	499
Elemental Isotube SZse	49	599
Elemental Isotube SCZ	49	699
Elemental Isotube SCZse	49	799
Elemental Reference SZ	52	999
Elemental Reference SCZ	52	1,499
Harbeth HL-Stands	21	249
Heybrook Stand-ULT	3	55
Heybrook Stand-S6	63	69
Heybrook Stand-S4	48	69
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
Mana Sound Base	175	
Opera WS1/E	60	235
Opera S1	60	295
Opera S2	60	345
Pioneer CP-7	50	50
Pioneer CP-8	80	80
Projekt Signature	55	80
Revolver RS1	50	70
Royd Royd	55	99
SD Acoustics SD Alexandra	50	369
Silverado Silverado 1 Stand	60	350
Sonus Faber Ironwood	475	
Sonus Faber Stonewood	497	
Sound Org Z037	55	55
Sound Org Z027	55	55
Sound Org Z026	55	55
Sound Org Z518	45	65
Soundstyle X6118	42	100
Stands Unique Speaker support	59	159
Stands Unique Tuned Spkr Support	59	220
Stands Unique Tuned Carbon Fibre	59	299
Stands Unique Vivas CF Spkr Supp	60	349
Target TR60	60	68
Target R1	53	280



EQUIPMENT SUPPORTS Speaker Stands

KEY
60 - Height of stand in cm

Alphason NCI	60	47
Alphason Akros 1	60	49
Alphason RS1	120	49
Alphason NCI	60	84
Alphason HDS-40/M	60	85
Alphason Titan S	60	125
Apollo A26	66	80
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	70
Atacama SL300	73	70
Atacama TP600	73	70
Atacama TP500	75	70
Atacama SE615	75	70
Atacama SE515	75	70
Atacama SE415	75	70
Atacama SL400	76	70



LOUDSPEAKERS

KEY
 ↓ - Floorstander; larger models requiring no separate stand.
 ▭ - Stand mount; smaller models designed to be raised above the floor.
 ≡ - Wall mount; designed to be sited on or near the wall.
 ▣ - Box type, including infinite baffle, reflex and transmission line types.
 ▷ - Horn type; mostly large and very efficient.
 □ - Panel type, including electrostatic and planar magnetic types.

UP TO £130			
Allison Micro Monitors	▣	▣	95
Allison Mini References	▣	▣	120
Ariston MSX 03	▣	▣	30
Ariston MSX 05	▣	▣	50
Celestion 12i	▣	▣	119
Denon SC-M2	▣	▣	80
Denon SC-ES13SE	▣	▣	130
Gale Mini Monitors	▣	▣	70
Gale Gold Monitors	▣	▣	90
Gale 2i	▣	▣	130

Genexa GX300	80
Genexa GX330	80
GLL Arena	90
GLL Imagio IC208	100
Goodmans Active 75	65
Heybrook Prima 2	129
Interaudio XL1000	130
Jamo Studio-80	70
Jamo D-110	100
Jamo SAT-170	110
Jamo Studio-110	110
Jamo Artina	120
Jamo D-115	120
Jamo 28	125
Jamo Cornet 145	130
JBL CM40	90
JBL MX300	90
JBL Control 1X	100
JBL CM42	130
JPW Mini Monitor	60
JPW ML110	70
JPW Gold Monitor	80
JPW ML210	80
JPW ML310	90
JPW ML410	100
JPW ML510	130
JVC SX-SC1VBK	60
JVC SP-V50	80
JVC SP-X220TBK	100
JVC SP-X550BK	130
KEF Coda 7	129
Kenwood LS-90UK	130
Mission 700	130
Mordaunt-Short MS812	100
NAD 801	100
Paradigm Atom v2	100
Paradigm Micro v2	120
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
Tannoy Mercury M1	120
TDL Nucleus 1	75
TDL Nucleus 2	130
Teac LS-X8 Mk II	80
Technics SB-CS55	80
Technics SB-CS65	100
Technics SB-CS75	100
Wdale Valduus 100	80
Wdale Diamond 7.1	100
Wdale Valduus 200	110
Wdale Modus Micro	110

E131 TO E200

Acoustic Energy Aegis One	150
Acoustic Energy AE100i	200
Allison Model 4A	170
B&W DM302	150
B&W CWM5	170
B&W DM601	199
Bose 201 IV	200
Boston CR6	149
Boston 325	149
Boston Micro 80 Sat	169
Boston Runabout	169
Boston 335	179
Boston 351	189
Boston CR7	199
Boston Runabout II	200
Celestion 15i	199
Cerwin-Vega CT-165	200
Eltax Liberty 3+	149
Genexa GX650	140
Genexa Pro	160
GLL Imagio IC218	140
GLL Imagio IC318	200
Heybrook Heylette B	199
Heybrook HB1	199



Townshend Seismic Sink stand.

Interaudio XL2000	200
Jamo Cornet 165	150
Jamo 38	150
Jamo 525	150
Jamo 560	150
Jamo 660	170
Jamo Studio 180	180
Jamo D165	200
Jamo 68	200
Jamo 892	200
JBL CM52	150
JBL MX1000	170
JBL LX20	200
JBL MX1500	200
JPW ML610	170
JPW S5551	200
KEF Coda 8	189
KEF Model 60S	199
KEF Q15	200
Kenwood LS-200G	200
KLH Model 21	155
KLH Model 11	155
KLH Model 31	185
Magnat Vector 22	179
Mission 701	160
Mission 771	170
Mission 702	200
M-A Monitor 1	200
Mordaunt-Short MS814	150
Paradigm Mini Monitor	200
Pioneer CS-5030	170
Polk M2	180
Polk RT3	200
Polk AB10	200
Rega Kyte	198
Revolver Colt	139
Revolver The 250	169
Revolver Purdey MkII	199
R Allen Minette 3	159
R Allen Dim'n 5/1 Compact	179
R Allen RA6	199
Rogers GS1	179
Royd A7X	155
Sequence 200	199
Solid Monitor	200
Sony SS-126EB	150
Sony SS-176E	200
Tangent Monitor 9	150
Tangent Monitor 11	180
Tannoy Mercury M2	140
Tannoy Revolution R1	200
TDL Nucleus 3	200
Technics SB-CS95	150
Technics SB-M20	200
TLC Maestro 70S	159
Wdale Valduus 300	150
Wdale Diamond 7.3	150
Wdale Modus Music Two	200
Wdale Diamond 7.2 Ann'y	200
Wdale Valduus 400	200

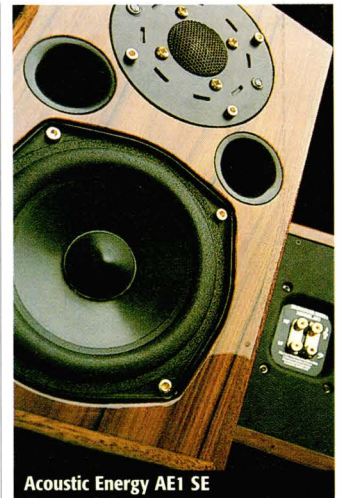
E201 TO E300

Acoustic Energy AE200	250
Arcaydis Baby 1	299
Audio Gem Opal	230
B&W CWM6i	280
B&W DM602	300
Bose 151	220
Bose 301 IV	300
Boston 361	219
Boston CR8	239
Boston 381	259
Boston CR9	279
Boston Voyager	299
Castle Isis	250
Celestion C1	299
Celestion 23i	299
Cerwin-Vega VS-8	250
Cerwin-Vega CT-330	300
Chario Syntar 100	249
Chario Ref 100	299
Chario Hiper 1000	300
Dali 102B	260
Dali 150	300
Eltax Linear Response	249
GLL Imagio IC238TL	250
Heybrook Optima	259
Heybrook Heylios	269
Interaudio XL3000	230
Interaudio XL4000	260
Jamo Cornet 175	230
Jamo Classic 4	250
Jamo Art	300
Jamo D265	300
JBL CM62	250
JM Lab Tantal 507	295
JPW ML710	230
JPW ML810	260
JVC SX-SW10	300
KEF Coda 9	299
KEF Model 70S	299
KLH 83A	205
KLH 183A	265
KLH Soundbites System	276
KLH Model 81	280
KLH Model 41	290

Linn Kan	295
Mission 772	230
Mission 750	248
Mission 703	300
M-A Monitor 2	250
M-A Silver 3	300
Mordaunt-Short MS815	250
Mordaunt-Short MS816	300
Mus Tec Kestrel SE	300
NAD 802	280
Paradigm Monitor 5	250
Paradigm Monitor 7	300
Pioneer CS-7030	230
Pioneer CS-9030	280
Pioneer S-LC1	300
Polk AB505	220
Polk M3 II	220
Polk RT5	250
Polk RT7	300
Polk M5	300
Promenade SP1	299
Rega EL8	298
Revolver The 250	250
R Allen Dimension Five 1	239
R Allen RA8	249
R Allen RA8M	249
R Allen Dimension Five 2	269
Rogers db101	250
Rogers GS3	279
Royd The Envoy	249
Royd Minstrel	275
Ruark Epilogue	239
Sequence 300	249
Solid HCM1	250
Sony SS-176EB	250
Tannoy Mercury M3	230
Tannoy Precision P10	300
TDL Nucleus 4	300
TLC Maestro 130S	289
TLC Voyager 350	289
Wdale Modus Music Four	230
Wdale Valduus 500	300
Yamaha NS10M	300
ZYP A1	219
ZYP A2S	295

E301 TO E500

Acoustic Energy AE105SE	320
Acoustic Energy AE109	350
Acoustic Energy AE209	450
Acoustic Energy AE120	500
Allison Model 2A	420
Arcaydis Baby 2	399
Arcaydis ASC	399
Arcaydis AK1	449
Audiovector C1	399
AVI Neutron	499
B&O Beovox CX50	325
B&O Beovox CX100	425
B&W CWM8i	350
B&W DM305	350
B&W CDM2SE	400
B&W DM603	500
B&W Signature 7	500
Bandor Pictures	352
Blue Room Mini Pod	400
Boston Micro 90 Sat	369
Boston Micro 80 Sys	369
Boston VR20	380
Castle Kendal	400
Castle Eden	500
Celestion 25i	399
Celestion 30i	449
Celestion 35i	499
Cerwin-Vega VS-10	350
Chario Syntar 100T	399
Chario Ref 1000	499
Clements 300Si	395
Dali 104B	370
Dali 606	400
Dali Royal	500
Def Tech Celsius	395
Dynaudio Audience 40	399
Epos ES12	499
GLL Imagio IC248TL	350
GLL Imagio IC258TL	450
GLL Imagio IC348TL	500
Heybrook Heylo	359
Heybrook Ultima	399
Jamo Classic 6	330
Jamo Cornet 195	350
Jamo BX-100A	350
Jamo 98	350
Jamo D365	400
Jamo Classic 8	400
Jamo Graphic	400
Jamo 128	450
Jamo BX-150A	450
Jamo Atmosphere	500
JBL LX60	350
JBL Ti 200	400
JM Lab Micron	395
JM Lab Tantal 515	495
JM Lab Megane	495
Jordan Watts JHFLG	380
Jordan Watts JH200	420



Acoustic Energy AE1 SE

JPW ML910	330
JPW S5553	400
JPW ML1010	400
JPW Ruby 1	400
JPW Ruby 2	500
KEF Q35	349
KEF Q55	499
KEF RDM One	499
Keswick Ania II	379
KLH 283A	310
KLH 383A	335
KLH Model 51	375
KLH Model 71	420
KLH Model 62T	486
Linn Sekrit	395
Magnat Vector 55	349
Magnat Vector 77	449
Mission 751f	348
Mission 773	350
Mission 704	450
Mission 774	500
M-A Monitor 3	350
M-A Silver 5	400
M-A Studio 2SE	500
M-A Monitor 4	500
M-A 700 PMC	500
Mordaunt-Short MS817	500
Mus Tec Harner	400
Mus Tec PM15	475
NAD 804	400
Neat Critique	445
Opera Duetto	395
Opera Prima	495
Origin Live OL-IAS	399
Origin Live Monarch	399
Paradigm Studio/20	350
Paradigm Monitor 9	400
Patchcord A	469
Pioneer S-LC2	450
Polk AB705	330
Polk RT8	400
Polk RT10	500
Polk AB805	500
Prof Monitor Co TB15M	403
Prof Monitor Co TB1	410
Prof Monitor Co TB1S	430
Prof Monitor Co TB1M	447
Prof Monitor Co XB1	499
Promenade SP2	399
Promenade SP3	499
Rega Jura	450
Rega ELA MkII	498
Revolver The 260	350
R Allen Dimension Five 3	349
R Allen Dimension Five 4	429
Rogers GS5	379
Rogers GS6	429
Rogers GS8	479
Rogers C6/20	499
Royd The Squire	350
Royd Minstrel SE	399
Royd Doublet	485
Ruark Icon	399
Sequence 400	329
Solid Verticale	400
S Coast Odette	325
Spendor S3/5	499
System 1130	500
Tannoy Precision P20	400
TDL G20	380
TDL Chiltern CF100	450
TDL G30	500
Technics SB-M300	350
Technics SB-M500	450
TLC Altus 300	366
Triangle Titus TZe	379
Triangle Lunn	500
Wdale Modus Music Six	330
Wdale Modus Music Eight	430
Wdale Modus Music 1/6	500

LOUDSPEAKERS (CONTINUED)

£501 TO £800

Acoustic Energy AE505	700
Acoustic Precision Eikos FR1	800
Allison Model 3A	525
Arcaydis AK5	599
Arcaydis AS2	699
Arcaydis AK4	699
Audio Gem Emerald	540
Audio Note AN-K/D	620
Audio Note AN-J/B	799
Audiovector M1	759
Audiovector C2	799
AVI Biggatron	599
B&O Beolab 2500	750
B&W CDM1 SE	600
B&W P4	675
Bose 501	600
Bose A'mass AM3	650
Boston VR30	600
Castle Severn 2	600
Celestion 451	599
Celestion C2	699
Cerwin-Vega VS-12	550
Cerwin-Vega VS-15	700
Chario Ref 100T	599
Chario Hiper 1000T	699
Clements 600Si	595
Cura CA-10	699
Dali 107	600
Dali 350	600
Dali 450	700
Dali 109	800
Def Tech BP6B	750
Diapason Micra II	750
Dynaudio Audience 50	577
Dynaudio Audience 60	729
Epos ES14	675
Harbeth BBC LS3/5A	699
Harbeth HL-P3ES	799
Heybrook Duot	799
Infinity Kappa 60	595
Infinity Kappa 70	795
Jamo BX-200A	530
Jamo Classic 10	600
JBL LX80	550
JBL Ti 400	550
JBL SVA1500	650
JBL Ti 600	650

JM Lab Cobalt 807	595
JM Lab Cobalt 810	775
Jordan Watts JH400	515
JPW Ruby 3	800
KEF LS3/5a	649
KEF RDM Two	699
KEF Q65	799
Kelly KT2	700
Keswick Volante	729
KLH Model 82Ta	690
Linn Tukan Passive	550
Linn Keilidh Passive	750
Magnat Vintage 710	799
Meridian A500	750
M&K S-85	700
Mission 752f	578
Mission 705	600
Mission 753f	798
M-A Silver 7	600
M-A 702PMC	600
M-A 703PMC	800
Mus Tec Falcon	575
Naim Intro	680
Neat Mystique 2	575
Neat Petite II	745
Opera Seconda	595
Opera Platea	795
Origin Live Resolution	732
Paradigm Studio/60	650
Paradigm Studio/80	750
Pentachord B	519
Pentachord Pentode	729
Polk RT12	600
Polk RT16	799
Polk LS50	800
ProAc Tablette 50	599
ProAc Studio 100	699
Promenade SP4	650
Quad 10L	600
Rogers G59	579
Rogers LS3/5A	699
Rogers C6/25	799
Roksan ROKone 1	595
Roksan Ojan 3	795
Royd The Sorcerer	595
Royd Abbot	695
Ruark Templar II	559
Ruark Sceptre	599
Ruark Talisman II	799
Ruark Prologue One	799
SD Acoustics SDSR	649

Shinpy Polarys	595
Silverado Raider	695
Sonus Faber Concertino	599
S Coast Hades	695
Spendor S1	549
T+A TB 100	700
Tannoy Precision P30	600
Tannoy Definition D100	689
Tannoy Precision P40	800
TDL Cotswold CF200	650
Titan Logic T/26	646
Titan Logic T/2	704
TLC Classic 2	535
TLC Classic 1	800
Totem Mite	599
Totem Rokk	765
Triangle Comete TZe	525
Triangle Zephyr	799

£801 TO £1500

Acoustic Energy AE509	850
Acoustic Energy AE520	1,000
Acoustic Energy AE2-II	1,095
Acoustic Solutions Eight	1,200
Apertura Prima	1,095
Apertura Nova	1,395
Arcaydis AC1	1,099
Arcaydis AK5	1,399
ATC SCM10	1,000
Audio Note AN-J/D	930
Audio Note AN-K/SPx	1,060
Audio Note AN-E/B	1,299
Audio Note AN-J/SPx	1,415
Audio Physic Step	1,299
Audiovector M1 Super	999
Audiovector M2	1,399
Audiovector M1 Sig	1,449
AVI Positron	899
B&O Beolab 4000	1,100
B&W P5	875
B&W CDM7	1,000
B&W DM604	1,000
B&W P6	1,095
B&W Matrix 805 V	1,095
Bandor Trident	846
BKS Audio Hybrid 107	1,500
Bose A'mass AM5	900
Bose 701	1,000
Boston VR40	1,000
Castle Harlech	900
Celestion A1	899
Celestion C3	999
Celestion A2	1,499
Cerwin-Vega AL-1000	1,100
Cerwin-Vega 1515	1,300
Chario Ref 1000T	999
Chario Academy 1	1,299
Clements Reference 1	995
Cura CA-21	1,199
Dali 850	1,100
Def Tech BP8B	1,000
Def Tech BP10B	1,500
Diapason Prelude II	875
Diapason Karis	1,275
Dynaudio Contour 1.1	879
Dynaudio Audience 70	1,100
Dynaudio Contour 1.3	1,198
Dynaudio Audience 80	1,460
Electrocompaniet EC-M1	995
Electrocompaniet EC-Qube	1,195
Electrocompaniet EC-Qube SE	1,495
Epos ES15	890
Epos ES22	1,185
Harbeth HL-K6	1,049
Harbeth HL-Compact 7	1,499
Harbeth BBC LS5/12A	1,499
Heybrook Quintet	1,199
Impulse Kora	1,250
Infinity Overture 1	900
Infinity Kappa 80	995
Infinity Kappa 90	1,295
Infinity Overture 2	1,500
Jadis Orchestra	999
Jamo Concert 8	1,365
JBL SVA 1600	850
JBL 4312 MkII-WX	1,000
JBL SVA 1800	1,000
JBL SVA 2100	1,250
JM Lab Cobalt 815	900
JM Lab Electra 905	1,095
JM Lab Cobalt 820	1,175
Jordan Watts JH1+1	1,150
JPW Ruby 4	1,000
KEF Q75	999
KEF Ref. Model One	1,199
Kelly KT3	1,200
Keswick Torino	999
Keswick Figaro Evolution	1,099
Keswick Milano	1,199
Keswick Legato	1,199
Keswick Amber	1,499
Linn Tukan Aktiv	1,050
Linn Keilidh Aktiv	1,250
L Voice Auditorium	1,500
Lowther Accolade 2	1,199
Lumley LM3.5	1,050

Magnat Vintage 720	1,199
Magneplanar SMG-C SE	990
Magneplanar MG-0,6 SE	1,370
Mendian Argent 1	995
M&K S-125	1,150
Mission 705a	900
Mission 754f	1,298
M-A Studio 6	900
M-A Silver 9	1,000
M-A 705PMC	1,150
Mus Tec Condor	1,000
Mus Tec Hawk	1,250
Mus Tec Eagle	1,500
Naim Credo	1,090
Opera Terza	995
Opera Callas Gold	1,095
Opera Divina II	1,495
Origin Live Sovereign	1,130
Paradigm Studio/100	950
Polk LS70	1,200
Polk RT20p	1,500
ProAc Tablette 50 SIG	899
ProAc Response 1 SC	1,199
Prof Monitor Co LB1	935
Prof Monitor Co AB1	1,496
Rega XEL	1,040
RMS Revelation S 1	1,299
Rogers C6/28	1,399
Roksan Ojan 3X	995
Royd The Albion	985
Ruark Broadsword II	899
Ruark Paladin	1,099
Shahinian Super Elf	875
Shahinian Starter	1,195
Shahinian Compass	1,395
Shinpy Micraphonica	1,099
Silverado Ryder	1,395
Sonus Faber Concerto	945
Sonus Faber Concerto GP	999
S Coast Merlin Monitor	849
S Coast Classic	1,495
Spendor SP3/1P	825
Spendor FL6	1,099
Spendor SP2/3	1,187
Spendor FL8	1,355
T+A TAS 1200E	1,050
T+A TB 120	1,060
Tannoy Definition D300	999
TDL Cheviot CF300	850
Technics SB-M1000	1,500
Titan Enigma T/3	822
Titan Sovereign T/4	1,292
Totem The Arro	959
Totem The Staaf	1,249
Totem Model One	1,249
Triangle Antal	1,099
Veritas 7	1,000
Veritas 20	1,400

£1501 TO £3000

Acoustic Energy AE1 Sig	1,995
Acoustic Energy AE2 Sig	2,995
Alon I Mk II	1,795
Alon II Mk II	2,495
Apertura Agora Signature	2,295
Apertura Tanagra	2,395
Apertura Tanagra Sig	2,795
ATC SCM20SL	1,750
ATC SCM20 Tower SL	2,400
Audio Note AN-E/D	1,520
Audio Note AN-E/SPx	2,250
Audio Physic Spark 2	1,749
Audio Physic Tempo	1,999
Audio Wk'p Cyclone 34	2,000
Audiostatic DCI	2,495
Audiovector M3	1,899
Audiovector M3 Sig	2,499
B&O Beolab 6000	1,550
B&O Beolab 8000	2,100
B&O Beolab Penta 3	2,650
B&W Matrix 804	1,695
B&W Matrix 803s2	2,495
B&W Matrix 802s3	2,995
Bandor Bandora/Mora	2,350
Bandor Siren	2,800
BKS Audio Hybrid 128	2,549
Bose 901 VI	1,650
Boston Lynfield 300L	2,000
Bravura Virtuoso Bronze	2,995
Cary SP-301	2,295
Celestion A3	2,399
Celestion Kingston	2,500
Chario Academy 2	1,649
Clements Reference 7	1,995
Credo SPB 003	1,820
Credo SPB 009	2,453
Cura CA-30	1,799
Dali Grand Coupe	2,500
Def Tech BP2002	2,400
Diapason Adamantes III	1,995
Dynaudio Contour 1.8	1,894
Dynaudio Crafft	2,598
Dynaudio Contour 3.0	2,930
ECA Servo A2	2,450
ELS Res'ch Vision	2,800
Epos ES30	2,385



Mission 771

Gamma Epoch Ref Five	£	2,999
Harbeth HL-58	£	1,999
Helius Syrius II	£	2,395
Helius Syrius I	£	2,850
Heybrook Octet	£	1,799
Hi Q Sound SM108	£	2,000
Impulse Lali	£	1,850
Infinity Overture 3	£	1,750
Infinity Kappa 100	£	1,895
Jamo Concert 11	£	2,250
JM Lab Electra 915	£	1,795
JM Lab Electra 920	£	2,350
Jordan Watts JH2K	£	2,400
Jordan Watts JH5K	£	3,000
KEF Ref. Model Two	£	1,599
KEF Ref. Model Three	£	1,999
Linn Kaber Passive	£	2,000
Linn Kaber Aktiv	£	2,640
L Voice Aud'm Avatar	£	2,100
Lowther Fidelio	£	1,999
Lowther Academy	£	2,399
Lowther Bel Canto	£	2,699
Lumley L/M2 Mk3	£	2,995
Magnat Vintage 760	£	1,999
Magneplanar MG-10 SE	£	1,650
Magneplanar MG-1,5 SE	£	1,780
Magneplanar MG-2,7 SE	£	2,650
Martin-Logan Aeries I	£	2,199
Meridian M60	£	2,150
M-A Studio 20SE	£	2,500
Naim SBL Active	£	1,885
Naim SBL Passive	£	2,030
Neolith NEO 1	£	2,999
Opera Caruso II	£	2,495
Origin Live Conqueror	£	1,750
Pentachord P'column	£	1,649
Polk LS90	£	1,700
Posselt Albatross	£	2,500
ProAc Response 2S	£	2,000
ProAc Response 2.5	£	2,700
Prof Monitor Co IB1S	£	2,099
Rehdeko RK115	£	1,700
Rogers LS5/9	£	1,549
Ruark Crusader II	£	1,649
Ruark Equinox	£	2,000
Ruark Accolade	£	2,699
SD Acoustics SD5	£	1,549
Shahinian Arc	£	1,875
Shahinian Obelisk	£	2,695
Shinpy Euritnica	£	1,995
Shinpy Altair	£	2,895
Silverado Silverado 1	£	1,995
Sonus Faber Electa Amator 2	£	2,849
Sound-Lab Quantum	£	2,150
S Coast Excalibur	£	2,750
Spendor SP1/2	£	1,674
Spendor SP100	£	2,234
T+A TB 140	£	1,760
Tannoy Definition D500	£	1,999
Tannoy Stirling TW	£	2,200
Tannoy Definition D700	£	2,500
TDL Studio Monitor-m	£	2,750
Totem Tabu	£	2,299
Totem The Forest	£	2,675
Triangle Zays	£	1,750
Triangle Altinis	£	2,250
Triangle Extan	£	2,950
Veritas 40	£	1,900
Veritas H1	£	2,995
Wilson Benesch Orator	£	2,900

OVER £3000

Acoustic Energy AE5	£	7,995
Alon Lotus SE	£	3,500
Alon V Mk III	£	5,495
Alon Adriana	£	8,500
Alon Circe	£	12,000
Alon Phalanx	£	19,000
Apertura Athena	£	6,995
Apertura Allante	£	8,995
ATC SCM20A PRO	£	3,049
ATC SCM20TASL	£	3,995
ATC SCM50PSL	£	4,250
ATC SCM100PSL	£	4,950
ATC SCM50ASL	£	5,775
ATC SCM100ASL	£	6,475
ATC SCM200ASL	£	15,595
ATC SCM500ASL	£	17,731
Audio Note AN-JSE Silver	£	7,900
Audio Note AN-ESE Silver	£	9,600
Audio Physic Virgo 2	£	3,399
Audio Physic Avanti 2	£	6,699
Audio Physic Caldera	£	10,599
Audio Physic Medea	£	24,999
Audiostatic DCI Plus	£	3,750
Audiovector 5X	£	3,999
Audiovector 6X	£	5,699
Avalon Avatar	£	5,995
Avalon Arcus	£	6,995
Avalon Eclipse Classic	£	8,995
Avalon Radian HC	£	13,995
Avalon Eidolon	£	20,495
Avalon Sentinel	£	79,995
AVI Gravitrone	£	4,250
B&W Matrix 801s3	£	3,995
B&W Silver Signature	£	5,500

B&W Nautilus 801	£	8,500
B&W Nautilus	£	35,000
Bandor Bandoline	£	3,290
BKS Audio Hybrid 175	£	3,995
Boston Lynfield 500L	£	4,449
Bravura Virtuoso Gold	£	3,395
Bravura Virtuoso Reference	£	3,995
Bravura Accelerando	£	6,600
Chario Academy 3j	£	5,999
Creo SPB 012	£	3,147
Creo SDL 001	£	5,677
Dali Grand	£	4,000
Def Tech BP2000	£	3,600
Diapason Adamantes Ltd	£	3,995
Dynaudio Contour 3.3	£	4,815
Dynaudio Confidence 3	£	4,846
Dynaudio Confidence 5	£	5,924
Dynaudio Consequence	£	14,566
Dynaudio Evidence	£	50,909
Electroludics Sonolith 2.2xi	£	5,999
ELS Res'ch Vista	£	3,900
ELS Res'ch Illusion MkII	£	9,000
Impulse Ta'us	£	3,100
Inner Sound Eros	£	3,995
Jadis 2	£	5,900
Jadis 1	£	18,900
Jamo Oriel	£	9,000
JM Lab Mini Utopia	£	4,500
JM Lab Mezzo Utopia	£	7,250
JM Lab Utopia	£	18,300
JM Lab Grande Utopia	£	35,000
Jordan Watts JH10K	£	7,570
KEF Ref. Model Four	£	3,299
Keswick Zero 2	£	7,000
Linn Keltik Aktiv	£	6,000
L Voice Air Scout	£	19,500
L Voice Air Partner S	£	37,200
Lowther Delphic	£	3,099
Lowther Opus One	£	4,999
Lumley L/M 2 Sig. Mk3	£	4,500
Magnat Vintage 770	£	3,500
Magneplanar MG-3.5SE	£	3,800
Magneplanar MG-20 SE A	£	10,300
Magneplanar MG-20 SE P	£	11,000
Martin-Logan SL3	£	3,399
Martin-Logan CLS IIz	£	4,555
Martin-Logan Re-Quest Z	£	5,875
Meridian DSP5000	£	3,295
Meridian DSP5500	£	5,950
Meridian DSP6000	£	9,400
M-A Studio 50	£	3,300
M-A Studio 60	£	5,000
Naim DBL Active	£	8,050
Neolith NEO 2	£	3,499
Neolith NEO 3	£	4,999
ProAc Response 3.8	£	3,990
ProAc Response 5	£	9,000
ProAc Response 4	£	12,000
Prof Monitor Co MB1P	£	4,370
Prof Monitor Co 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
Ruark Solstice	£	4,000
Ruark Excalibur	£	7,000
SD Acoustics SD1E	£	3,495
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	£	6,000
Sonus Faber Guarneri Homage	£	5,795
Sonus Faber Amati Homage	£	11,450
Sound-Lab Dynastat	£	3,790
Sound-Lab Aura	£	6,490
Sound-Lab Pristine III+	£	7,990
Sound-Lab A-3	£	11,990
Sound-Lab Ultimate II	£	13,950
Sound-Lab A-1	£	13,990
Sound-Lab Ultimate III	£	18,950
Sound-Lab Ultimate I	£	23,950
S Coast King Arthur	£	3,095
Spendor FL10	£	3,475
T+A A4D	£	3,850
T+A A3D	£	4,500
T+A A2D	£	8,450
Tannoy Edinburgh TW	£	3,250
Tannoy Definition D900	£	3,999
Tannoy GRF Memory TW	£	4,000
Tannoy Westminster TW	£	6,600
Tannoy Canterbury 15 TW	£	7,720
Tannoy Westminster Royal	£	14,920
TDL Ref Standard-m	£	6,000
Titan Goliath T/4	£	4,112
Totem Mani-2	£	3,100
Totem Shaman	£	9,999
Triangle Nemo Altair	£	4,250
Veritas H2	£	4,495
Veritas H3	£	5,995
Wilson Audio Cub	£	5,495
Wilson Audio WATT 5	£	8,390
Wilson Audio WITT II	£	10,995



B&W ASW 1000 subwoofer

Wilson Audio Maxx	£	34,995
Wilson Benesch Actor	£	3,900
Wilson Benesch ACT1 spkr	£	6,900
Wilson Benesch Act 2	£	8,900
Wilson Benesch The Bishop	£	20,000

SUBWOOFERS

KEY

Ⓐ - 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
ATC SCM 0.1/15	Ⓐ	3,810
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	THX	1,500
Boston CR400	Ⓐ	300
Boston VR500	Ⓐ	450
Boston VR2000	THX	800
Celestion CS135	Ⓐ	139
Celestion CSW MkII	Ⓐ	329
Celestion S1i	Ⓐ	349
Celestion A6s	Ⓐ	800
Cerwin-Vega HT-10D	Ⓐ	200
Cerwin-Vega HT-12D	Ⓐ	250
Chario Syntar Bass	Ⓐ	299
Chario Hiper Bass	Ⓐ	499
Creo SDC 001	Ⓐ	3,054
GLL Le Bass	Ⓐ	350
Jamo SW303E	Ⓐ	200
Jamo SW400E	Ⓐ	250
Jamo SW410e	Ⓐ	300
Jamo SW505E	Ⓐ	300
Jamo Sub One	Ⓐ	400
JBL Control Sub 6	Ⓐ	200
JBL Control Sub 10	Ⓐ	300
JM Lab Tantal SW20	Ⓐ	349
JM Lab Cobalt SW27A	Ⓐ	595
JM Lab Electra SW33A	Ⓐ	895
JM Lab Sub Utopia	Ⓐ	2,200
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
Kenwood SW501	Ⓐ	349
Keswick Alto	Ⓐ	1,299
KLH ASW10-100	Ⓐ	350
KLH ASW12-120	Ⓐ	380
Linn AV5150	Ⓐ	2,850
L Voice RW24	Ⓐ	11,500
Magnat Vector Sub 30P	Ⓐ	149
Magnat Vector Sub 30A	Ⓐ	299
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)	THX	800
M&K MX-70	Ⓐ	900
M&K MX-150 (THX)	THX	1,500
M&K MX-700	Ⓐ	1,595
M&K MX-200	Ⓐ	1,800
M&K MX-350THX	THX	1,995
M&K MX-5000 (THX)	THX	2,900
Mission 70as	Ⓐ	300
Mission 75as	Ⓐ	548
M-A ASW110	Ⓐ	500
M-A ASW210	Ⓐ	700
Mus Tec Sub	Ⓐ	650
Muse Model 22	Ⓐ	1,890
Muse Model 18	Ⓐ	3,790
Neat Gravitas	Ⓐ	1,095
Paradigm PDR10	Ⓐ	250
Paradigm Servo 15A	Ⓐ	800
Polk PSW50	Ⓐ	350
Polk PSW150	Ⓐ	500
Polk PSW300	Ⓐ	750
REL Q50	Ⓐ	375
REL Q-100E	Ⓐ	495
REL Strata II	Ⓐ	575
REL Strata III	Ⓐ	600
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-W305	Ⓐ	130
Sunfire Sub Junior	Ⓐ	1,099
Sunfire True Sub	Ⓐ	1,499
Sunfire Trus Sub Sig.	Ⓐ	1,699
TDL Nucleus SBR	Ⓐ	200
TDL CF75	Ⓐ	700
Triangle Sat III	Ⓐ	650
Tsunami TS300	Ⓐ	300
Tsunami TS200	Ⓐ	300
Tsunami TS210	Ⓐ	399
W'dale Modus Sub Bass	Ⓐ	180
Wilson Audio Puppy 5.1	Ⓐ	8,450
Wilson Audio Whow III	Ⓐ	10,999
Wilson Audio XS	Ⓐ	17,000
Yamaha YST-SW40	Ⓐ	140
Yamaha YST-SW80	Ⓐ	180

Factsback

For access to past reviews see page 129.



Pro-Ject 0.5/OM10	⊙	⬇	170
Pro-Ject 1/510	⊙	⬇	200
Pro-Ject 2/510	⊙	⬇	250
Pro-Ject Classic/510	⊙	⬇	360
Pro-Ject 6/510	⊙	⬇	400
Pro-Ject 6.9	⊙	⬇	500
Rega Planar 78	⊙	⬇	214
Rega Planar 2	⊙	⬇	214
Rega Planar 3	⊙	⬇	274
Roksan Radius	⊙	⬇	470
Sherwood PM8550	⊙	⬇	160
Sony PS-LX150H	⊙	⬇	90
Sony PS-LX300H	⊙	⬇	150
Technics SL-1110D	⊙	⬇	120
Technics SL-BD20	⊙	⬇	160
Technics SL-BD22	⊙	⬇	180
Technics SL-1210MkII	⊙	⬇	400
Technics SL-1200MkII	⊙	⬇	400
Thorens TD-180 AT91	⊙	⬇	190
Thorens TD-280 IV/UK	⊙	⬇	210
Thorens TD-166 VI/UK/RB	⊙	⬇	400
Thorens TD-318 III TP50	⊙	⬇	500

OVER £500

Audi Note AN-TT 2			995
Audi Note AN-TT 3			1,995
Audiomeca Romance	⊙		1,895
Audiomeca J1			3,500
Basis 2000			1,995
Basis 2001			2,995
Basis Ovation II			5,400
Basis 2500			5,495
Basis 2800			7,495
Basis Debut Gold Std III	⊙	⬇	8,200
Basis Debut Gold Vacuum			10,500
Chantry QT Level 2	⊙		705
DNM-Reson Rota 1	⊙	⬇	3,900
DNM-Reson Rota 2	⊙	⬇	5,600
Impulse Moskito	⊙		695
Kuzma Stabi S			695
Kuzma Stabi			1,950
Kuzma Stabi Reference			3,750
Linn LP12 Basik			1,100
Linn LP12 Lingo			1,750
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 Delphi			3,370
Oracle Delphi 15th Anniv			3,800
Pink Triangle Tarantella			680
Pro-Ject Perspective			750
Rega Planar 9	⊙	⬇	1,598
Reson RS1M	⊙	⬇	695
Reson Rota 1	⊙	⬇	3,900
Rockport Capella II			7,000
Rockport Sirius III			50,000
Roksan Xerxes 10			1,295
Roksan TMS			2,750
SME Model 20/2			3,403
SME Model 20/2A	⊙		4,863
SME Model 30/2			10,675
SME Model 30/2A	⊙		12,135
Stratosphere ST1			6,500
Technics SL-1200LTD	⊙		700
Thorens TD-146 VI TP50	⊙		550
Thorens TD-2001 TP90	⊙		700
Thorens TD-520 SME			1,050
Well Tempered Record Player	⊙		1,850
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

LOUDSPEAKERS (CONTINUED)

Yamaha YST-SW150	⊙	280
Yamaha YST-SW300	⊙	350



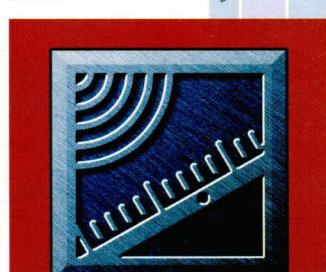
TONEARMS

KEY

⊙ – Pivoted.
– Parallel tracking.

Air Tangent IC	#	4,600
Air Tangent 10B	#	8,600
Air Tangent Reference	#	14,000
Audio Note AN-ARM 1	⊙	169
Audio Note AN-0s	⊙	795
Audio Note AN-1s	⊙	995
Audiomeca SL5	#	2,500
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 S	⊙	399
Kuzma Stogi	⊙	750
Kuzma Stogi Ref	⊙	1,250
Linn Akito	⊙	500
Linn Ekos	⊙	1,500
Moth Mk I	⊙	109
Moth MkIII Stainless	⊙	146
Moth Mk III Tungsten	⊙	174
Moth Moth 900	⊙	598
Naim ARO	⊙	1,070
N'ham Space	⊙	450
N'ham Paragon 3	#	550
N'ham Paragon 2	#	800
N'ham Mentor	⊙	800
N'ham Foot	⊙	1,100
N'ham Paragon 1	#	1,600
Pro-Ject 9	⊙	350
Rega RB250	⊙	109
Rega RB300	⊙	174
Rega RB900	⊙	598
Rockport Series 7000	#	6,000
Roksan Tabriz	⊙	350
Roksan Tabriz Zi	⊙	450
Roksan Artemis	⊙	895
SME 3009 Ser II Imp	⊙	309
SME 3009 S2 Ser II Imp	⊙	338
SME Series II 3009-R	⊙	514
SME Series II 3010-R	⊙	526
SME Series II 3012-R	⊙	565
SME 309	⊙	689
SME 310	⊙	705
SME 312	⊙	802
SME Series IV	⊙	983
SME Series V	⊙	1,461
Triplanar V1A	⊙	3,500

Triplanar V1B	⊙	3,750
Wilson Benesch Act 0.5	⊙	795
Wilson Benesch ACT2	⊙	1,350
Zeta AS	⊙	469
Zeta VDH	⊙	549



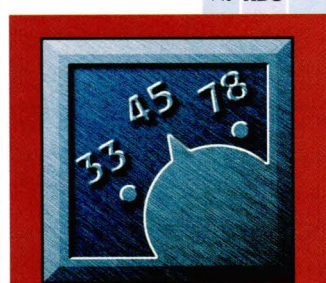
TUNERS

KEY

'P20' (etc.) – Number of presets.
RDS – Radio Data System;
receives text information on station,
programme type etc.

Akai AT1200	P30	170
AMC T7	P30	130
Arcam Alpha 7	P24	230
Arcam Alpha 8	P24	280
Arcam Delta 280	P20	300
Ariston TX-510	P20	60
Aura TU80	P30	350
AVI S2000MT	P16	599
AVI S2000MT2	P99	899
Creek T43	P68	399
Cyrus FM7	P29	398
Davidson-Roth FM Ref Classic		5,590
Denon TU-260L MkII	P40	RDS 130
Denon TU-215RD	P40	RDS 150
Denon TU-425RD	P40	RDS 200
Denon TU-1500RD	P40	RDS 250
Fanfare FT1	P08	1,395
H/K TU930	P30	150
H/K TU950	P30	RDS 200
Kenwood KT-2080	P20	RDS 130
Kenwood KT-3080	P30	RDS 180
Linn Kudos	P50	775
Linn Kremlin	P80	2,600
Magnum Dynalab FT11		499
Magnum Dynalab FT-101A		795
Magnum Dynalab Etude		1,250
Magnum Dynalab MD108		4,990
Marantz ST-48	P60	RDS 120
Marantz ST-17	P60	RDS 600
McIntosh MR7084	P50	2,499
McIntosh MX118	P50	4,999
McIntosh MX130	P50	6,999
Meridian 504	P30	695
Michi RHT-10	P16	895
Micromega Minium FM Mk2	P39	330
Micromega Tuner	P39	700
Musical Fidelity E50	P20	300
Myryad T-30	P39	400
Myryad MT100	P39	530
NAD 412	P24	190
NAD 414RDS	P30	250
NAD 710	P24	270
NAD 712	P24	330
Triplanar V1A	P24	615

Naim NAT02		1,130
Naim NAT01		1,780
Onkyo T 421ORDS	P30	RDS 180
Onkyo T 409	P30	230
Onkyo T 411RDS	P30	260
Pioneer F-204RDS	P30	RDS 140
Pioneer F-504RDS	P40	RDS 250
Pioneer F-504RDS Precision	P40	RDS 300
Quad 99	P25	700
Quad 77FM	P25	RDS 700
Rega Radio	P24	298
Roksan Caspian	P50	695
Rotel RT-935AX	P20	160
Rotel RT940AX	P20	200
Sony ST-SE200	P30	100
Sony ST-SE300	P30	120
Sony ST-SE500	P30	RDS 140
Sony ST-SB920	P30	RDS 180
Sony ST-SA3ES	P30	RDS 250
T+A T1200R	P60	RDS 790
TAG McLaren T20	P39	1,099
Teac T-R400	P40	100
Teac TR-460	P40	120
Teac T-H500	P30	RDS 170
Technics ST-GT350L	P30	RDS 130
Technics ST-GT550L	P39	RDS 180
Technics ST-GT650L	P39	RDS 230
Thorens TRT-2000	P59	RDS 499
Thule Audio Spirit TU100	P40	RDS 499
Yamaha TX-480L	P40	100
Yamaha TX-10 II	P40	RDS 130
Yamaha TX-492RDS	P40	RDS 130
Yamaha TX-59 2RDS	P40	RDS 180
Yamaha RX-396RDS	P40	RDS 250



TURNTABLES

KEY

⊙ – Arm included.
⬇ – Cartridge included.

Audi Note AN-TT 1			349
Dual CS435-1	⊙	⬇	150
Dual CS455	⊙	⬇	190
Dual 505-4 UK	⊙	⬇	250
Eclipse TT430	⊙	⬇	70
Genexa Lab-710	⊙	⬇	60
Genexa Lab-810	⊙	⬇	70
Kenwood KD-492F	⊙	⬇	100
Michell Mycro			455
Moth Alamo	⊙		199
Moth Kanoot Mk1 Arm	⊙		279
Moth Kanoot Mk3 Arm	⊙		329
NAD 533	⊙	⬇	220
N'ham Interspace	⊙	⬇	500
Pioneer PL-J2500-C	⊙		80
Pioneer PL-990	⊙	⬇	130



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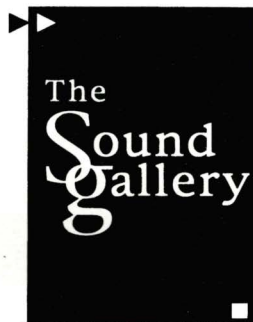
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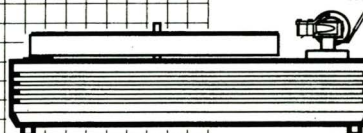
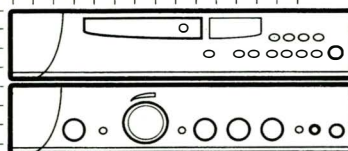
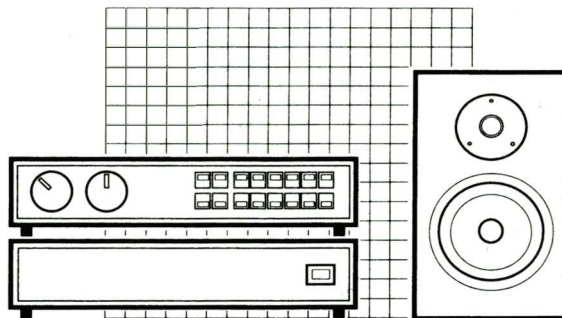
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The facts about those
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at The Sound Gallery

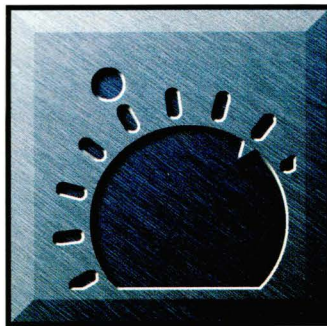
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Amplifiers

The amplifier is at the heart of any hi-fi system, accepting the outputs from various music sources, increasing the amplitude of their signal and then driving the loudspeakers to produce sound. One-box 'integrated' amps rule the roost at low-to-middle price points, but if you pay more, the low-level and high-level signal processes are separated into preamp and power amp boxes, and even separate 'outboard' power supplies come into play. Another luxury is a separate amp for each stereo channel: such devices are known as monoblocks. Finally, output power and sound quality are not necessarily related. Some of the finest amplifiers outputs only 12 Watts, but will yield loudness aplenty when partnered with high-efficiency loudspeakers.

KEY TO SPECIFICATIONS

LINE INPUTS: Number of input sockets for line-level (non-vinyl) sources such as CD players, tuners and cassette decks.
MM PHONO INPUT: An input specially designed for moving magnet (high output) phono pickup cartridges.
MC PHONO INPUT: An input for moving coil (low output) phono pickup cartridges.
REMOTE CONTROL: An infra-red handset to adjust volume etc.
HEADPHONE SOCKET: An integral output for headphones.
POWER OUTPUT (Watts): Our measurement of an amp's RMS power output into 8 Ohms.
RECEIVER: An amplifier with built-in radio receiver (tuner).
FACTSBACK REFERENCE: The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback advert on the penultimate page of the mag.
ISSUE NUMBER: The issue of *HI-FI CHOICE* in which an original review appeared.
High End Review

B BEST BUY **R RECOMMENDED** **E EDITOR'S CHOICE**

Amplifiers

SPECIFICATIONS

MM PHONO INPUTS
 MC PHONO INPUTS
 REMOTE CONTROL
 HEADPHONE SOCKET
 POWER OUTPUT (W)
 RECEIVER
 FACTSBACK NO.
 ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	LINE INPUTS	MM PHONO INPUTS	MC PHONO INPUTS	REMOTE CONTROL	HEADPHONE SOCKET	POWER OUTPUT (W)	RECEIVER	FACTSBACK NO.	ISSUE NUMBER
Alchemist Maxim	319	Vivid and colourful-sounding amp, but just too bold and brassy	5	●				30		1737	154
Alchemist Kraken APD6A	579	Compact, with Darth Vader styling, yet sound quality is meek and mild, despite strong midband dynamics	5	●				55		2150	175
Alchemist Nemesis	700	Good if ultimately undistinguished amplifier whose strengths include warmth, authority and distinctive aesthetics	6					80		2006	168
AMC 3025a	140	Surprisingly potent and easy on the ear, if not especially analytical – classic bargain-basement material, in fact	4	●	●	●	●	30		2045	171
AMC 3050a	170	Tremendous value for money, and a full, big, if rather uninformative sound	4	●	●	●	●	45		1970	167
AMC 3100a	200	A head banger's delight, but sound quality can be muggy and brash on occasions	6				●	100			186
AMC CVT3030a	400	Beer-budget valve amp, with valve-like virtues (euphony with dynamics) and vices (system dependency, noise)	6	●				30		2001	168
Arcam Alpha One	230	Rather like an Alpha 7 but without the remote control and an what appears to be better sound quality still	6					35	●		186
Arcam Alpha 9	500	Not quite a match for the Alpha 9/9P combo, the solo integrated is nevertheless colourful and explicitly detailed	7				●	70	●	2007	168
Arcam Alpha 10	800	Although not the best sounding in its class, the Alpha 10's modular nature demands it be taken seriously	5				●	100			181
Aria S2	1000	Glamorously packaged valve amp produces a real eyes closed, feet up kind of sound	4					12			190
Audio Analogue Puccini	450	Superbly finished, the entry-level Audio Analogue performs way out of its class	5	●	●			40		2147	175
Audio Analogue Puccini SE	595	Upgraded, more powerful Puccini is disappointingly sluggish and curiously lacking in musical vitality	5	●	●			40			181
Audiogram MB1	493	The only flaws are the amateurish build, a number of technical problems and inconsistent sound quality	4	●			●	40		2235	178
Audio Note Oto SE	1,200	Transparent, dynamic, clear and subtle, but offers limited power output	4					24			126
AVI S2000MI	999	Fine, detailed amplifier with excellent timing and strong control of a wide range of loudspeaker loads	5				●	100		2155	175
Bryston B60R	1,249	Great build, but the lazy bass and opaque treble bracket an articulate midband. Comes with 20 year guarantee	5				●	60	●	2156	175
Cambridge Audio A500RC	200	Load tolerance may be a problem for some, but this is an otherwise impressive, if tonally muted amp	6				●	50			186
Copland CSA8	945	Sophisticated yet transparent, this is one of those amplifiers that sounds good even when the gloss has worn off	5					60		2010	168
Copland CSA 28	1,249	Elegant Scandinavian cool, abundantly detailed if somewhat system dependent	5	●			●	60			189
CR Developments CR324	569	Solid and capable on paper, this is a bit of a blunt instrument when let loose on the music	5					150			181
Cymbal CA1	499	Lacklustre amplifier tends to underperform with complex material. Best with straightforward compact loudspeakers	6					40		2236	178
Creek 4330	279	Compact, even pretty, but sounds dark and uninviting, with coarse treble and 'woomy' bass	5					40		2052	171
Cyrus III	598	Beautifully presented, but mid-dominated balance was not liked. Upgradeable using PSX PSU unit				●		50	●	1854	162
Cyrus SL	398	Articulate amplifier with build quality to die for, superb, outgoing midband and lean, though well-extended bass	6					50			168
Denon PMA-250SE	140	This amp can sound rough when extended, but within its limits it is open, detailed and likeable	5				●	30		2046	171
Denon PMA-350SE	180	Reinvented in the minimalist tradition, this SE model is a control freak, but can sound wonderful	5				●	50		1856	162
Denon PMA-425R	230	Well-equipped and generally enjoyable but slightly ragged performer	3	●			●	45		1973	167
Denon PMA-725R	350	Warm, bold, up-front presentation, but musically unexciting	5	●	●	●	●	97		1802	157
Denon PMA-1500R	500	Recommended for its outrageous power, especially with problem speakers.	5	●	●	●	●	70			181
Densen Beat B-100 MkII	650	High 'air guitar' factor, and can punch above its weight, but check it will complement your system	5					60		1855	175
Densen DM-10	1,375	Big, bold and expressive amplifier, but sometimes rough around the edges, and not as powerful as it appears	6					75			189
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
Exposure RCXXV	1,000	Unaccountably rather underwhelming top of the line integrated sounds a little soft and detached	6				●	60			189
Electrocompaniet EC1-2	995	A 50 watt amplifier which sounds more powerful, and makes 'real sounding' music.	4					50		2158	175
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 one of the nicest at this price. Optional add-in MM/MC board available	6				●	40	●	1858	162
Holfi Audis Signature	750	A 'no-feedback' circuit giving outstanding resolution, but significant load dependency	4	●				65			181
Jolida 202	695	Well-built and technically accomplished, affordable valve integrated with subtle refined, if not quite gripping sound	4					40		2011	168
JVC AX-V4	200	Respectable performance for a Pro-Logic AV amplifier. Lacks resolution and sparkle, though	5	●	●	●	●	63		1805	157
JVC AX-R5	200	Versatile, and lots of even-handed, articulate detail; but let down by superficiality	5	●			●	45		1466	149
Kenwood KA-5090R	300	Large, well equipped and high tech integrated, but TRAITR output still gives a harsh, unsubtle performance	5	●	●	●	●	65		2053	171
Kenwood KAF-3010R	180	Plenty of twiddly bits yet weak on inputs, and basically good, but somewhat uneven sound quality	4	●			●	70			186
Lavardin Model IT	3,200	Banishment of 'memory distortion' delivers an amp with the best of valve and transistor sound characteristics	4					40			184
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 bold, colourful delivery, but needs careful system matching to avoid loss of clarity	6				●	65		2054	171
Magnum IA170	330	Gives a realistic sense of instruments playing within a very believable acoustic; preserves colour and dynamics	6				●	96		1260	142
Magnum IA200	599	Sweet, valve-flavoured solid state amplifier which 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		2159	175
Marantz PM-48	150	Fine entry level amplifier has excellent midband resolution and top, with a slightly coarse textured bass	5	●			●	50			186
Marantz PM-57	200	Well equipped but ultimately anodyne amplifier which lacks for nothing but star quality	5	●			●	50		2049	171
Marantz PM-66SE	230	A bit lush, and power output is limited, but it gives airy, large-scale music. An excellent budget buy	5	●			●	50		1969	167
Marantz PM66 KI-Signature	400	It knows how to rock and roll with holographic detail and stereo, but prefers small/medium scale acoustic material	5	●	●	●	●	50		2003	168
Marantz PM-17	900	Probably worth it for the WBT terminals and other build features alone, but this model doesn't sing as it should	6	●	●	●	●	60			181
Marantz CD-17KI Signature	1,300	Full feature audiophile amp where the end results doesn't quite justify the fantastic ingredients	6	●	●	●	●	60			189
Micromega Tempo 2	900	Idiosyncratic but flexible amplifier with an attractively forward and expressive sound quality	7				●	70			181
Monrio ASTY	400	Engaging, but ill-disciplined, even OTT amplifier with unpredictable system compatibility	5					55		2237	178
Musical Fidelity E1	199	Richly flavoured tone and realistically-scaled imagery distinguish this entry-level Richer Sounds special	6					30		2050	171
Musical Fidelity E11	299	Well built minimalist amp with a 5 year guarantee, but can sound congested when extended	6					60		2232	178

CONTINUED

Amplifiers

SPECIFICATIONS

ISSUE NUMBER
FACTSBACK NO.
RECEIVER
POWER OUTPUT (W)
HEADPHONE SOCKET
REMOTE CONTROL
MM PHONO INPUTS
MC PHONO INPUTS
LINE INPUTS

STATUS

PRODUCT	(£)	COMMENTS	6	5	4	3	2	1	0	50	181
Musical Fidelity X-A1	479	Idiosyncratic visuals just another plus for an amp that is powerful, well built, and serves the music superbly	6							50	181
Musical Fidelity A2	500	Lucid, transparent midband and a full upper bass are provided by this highly proficient A1 replacement	5	●						25	1862 162
Musical Fidelity A220	700	Powerful, authoritative and well turned-out amplifier that is easy to match with comparably priced speakers	5	●						50	2012 168
Musical Fidelity X-A100R	999	Sings like a thoroughbred, but better with Mozart than Motorhead	6					●		75	189
Myryad M1120	600	Well styled, well built: a good, even tempered amplifier, though it can sound rather brittle	6					●	●	60	2153 175
NAD 310	100	Fleet and sure of foot, it seems likely to set all appendages tapping with its blend of enthusiasm and artfulness	5							20	1468 149
NAD C320	200	Excellent budget amp from the makers of the seminal 3020 offers better clarity and neutrality and good build	6					●	●	40	186
NAD 314	260	Lively if coloured presentation that is musically engaging and easy on the ear	6	●					●	53	1807 157
NAD S300	1,900	Substantial integrated with loads of power and no shortage of finesse, slightly bass strong	5					●		100	189 H
Naim Nait 3	575	Distinctive and highly musical sounding integrated amp. Perhaps too distinctive for some tastes	5							30	1748 154
Naim Nait 3R	780	Remote control variant of the basic Nait has a similarly dynamic credible sound but ultimately lacks power.	5					●		30	189
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	In its latest guise, this is a fluid, articulate and transparent design – and excellent value	7						Opt	75	181
Pioneer A-300R	200	Its bright and breezy sound is a natural tonic to those of us worn down by the ongoing stress of life	5	●					●	50	1469 149
Pioneer A-407R	230	Clean, consistent, finely detailed sound, good finish and (mainly) good build	5	●					●	45	186
Pioneer A-400X	300	On second audition, this amp was tonally unchanged but less compelling than on its first outing	6	●	●				●	50	1545 138
Pioneer A-300R Precision	400	Sophisticated variant of the A-300R. Not an obvious winner, but will slowly ply you with its subtle charms	5	●					●	35	1863 162
Pioneer A-07	999	Curious blend of high-end attributes and inconsistent, though undeniably detailed sound	5	●				●		80	2160 175
Præcisa Acustica Sonoro	1,800	It is not often that transistor amplifiers are made to sound so palpably valve-like	5						●	100	189
Priam A-20 Mk II	799	Everything except packaging has changed in mkII version: but ballsier median has lost none of its refinement	5						●	70	181
Primare A30.1	1,499	Superb build and aesthetics, and undemonstrably musical down to its smallest screw	6						●	100	189
Project Model 7	300	A minimalist amplifier brimming with good intent, but too quirky for its own good. Either MM or MC phono	5	●						40	1264 142
Quad 77 Integrated	700	Compact and sophisticated amp. Has limited inputs when used with 'foreign' components. (Optional system remote)	3							84	2013 168
Rega Elex	398	Minimalist amplifier, derived from Elicit, is a little uninspiring, though at least it is well behaved	4	●						50	1865 162
Restek Fantasy II	1499	Muscular, but ultimately rather strident amplifier which needs careful system matching	6						●	100	189
Roksan Caspian	695	Well-built, open and articulate amplifier, which is also consistent from system to system, and well built	6						●	70	2014 168
Rose Scion	615	Unique two-box integrated gives real subtlety and low level resolution, but the sound lacks scale and weight	5	●	●					65	2009 168
Rotel RA-931	150	Rather dry and unforgiving sound from this internally well specified and attractively priced amplifier	4	●					●	35	2048 171
Rotel RA-971	200	Budget buy par excellence, especially for large rooms and insensitive speakers	6							70	186
Sony TA-F448BE	250	Minimalist interface is matched to carefully considered circuit with satisfactory effect – but keep the volume in check	5	●					●	55	2055 171
Sony TA-F3000ES	500	Champagne 'shoebbox amp' may lack power reserves, but is quick and articulate. In every sense a knockout	5	●	●	●	●	●	●	35	2239 178
T+A PA-1220R	1445	Unique presentation and feature set, but sometimes rather relentless sound quality	7						●	100	189
TAG McLaren 60i	800	Clean, slightly antiseptic sound from this beautifully turned out entry level Audiolab 8000LX replacement	6						●	60	189
TAG McLaren 60iRv	999	Looks, feels and sounds better than the Audiolab it supersedes. Smooth, open, refined but lacks body and drive	6						●	60	184 H
Talk Electronics Storm 1	500	Good soundstaging and strong detail are provided by this unassuming and not especially powerful model	6							50	1868 162
Talk Electronics Storm 2	650	Crisp, clean, well defined sound, arguably lacking warmth, but a good midrange purchase overall	6						●	50	2154 175
Teac A-BX7R	700	Characterful balance mars a meticulously designed amplifier. Includes a balanced input, optional MM/MC stage	5						●	50	1869 162
Technics SU-A660 Mk 3	200	Plenty of wellie for the price, but the sound can be a tad coarse and lacking in fine detail	5	●					●	37	186
Technics SU-A700 Mk 3	250	Fully equipped, high-tech amplifier ultimately fails the authenticity test, and can sound messy and inarticulate	5	●					●	45	1870 162
Technics SU-A800D Mk 2	300	Two-box amplifier looks great, has plenty of gadgets, and makes good, if slightly over-exuberant music	5	●	●	●				55	2234 178
Technics SU-A900D Mk 2	400	Looks like a pre/power amplifier, but in effect it's an integrated, with a rather soft-centred sound to match	5	●					●	70	2149 175
Token Audio K50	350	Stainless steel finish, others available. Sound is warm and attractive, though a little undynamic	5							50	186
Woodside ISA230 Disc	1,249	Smooth and inoffensive valve amplifier, though it lacks the sparkle and euphony required for ultimate success	3	●						30	116
Yamaha AX-492	220	Powerful, well equipped amplifier at an attractive price, offers powerful and engaging music-making	5	●					●	85	2231 178
Yamaha AX-592	280	Fine, middle ranking amplifier, with a detailed midband but performance declines at frequency extremes	5	●	●	●	●			100	2056 171
PREAMPLIFIERS											
Amp Flux System 2	3,000	Three-box affair with a clean, spacious sound and plenty of slam. A touch steely, but undeniably potent	5						●	50	187 H
Alchemist Kraken APD7A MkII	549	Unusual looks and unusual sound too, rather rough and lacking detail	6								187
Arcam Alpha 9C	400	Well specified and flexible preamp with sound only just lacking in greatness	6						●		187
Copland CTA-301MkII	1,399	Sweet sounding, but never gets bogged down in audio treacle	4	●							1630 151
Creek P43R	350	Excellent sound, remote control operation and upgrade options from this fine value preamp	6						●		187
Crimson CS610	450	Good, clear sound, including a decent phono stage, but flexibility is limited	3	●	●						187
Cyrus aCA7	798	A decent enough unit at the price but not as good as the Cyrus aPA7 power amp it was tested with	5						●		190 H
Crimson 610C	875	Not entirely satisfactory preamp which has dynamic strengths, but underachieves when the volume is raised	4	●							181
EAR 802MC	2,599	Tested with 509 Mk 2 power amp. (See Power Amplifier section.)	4	●	●						63

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Cables

Cables are an integral part of a hi-fi system, required to connect source components to amplifiers, and the latter to speakers.

- Analogue Interconnects connect source components and amplifiers, and run between pre and power amps. They are priced for one-metre terminated pairs.
- Digital interconnects connect CD transports to DACs or digital recorders. They come in optical and electrical varieties, the former being made of plastic or glass. The prices shown are for a terminated linear metre.
- Speaker cables are used between the amplifier and speaker. Our prices are per unterminated metre. Termination (plugs and soldering) costs vary.

KEY TO SPECIFICATIONS

- **SYMMETRICAL:** A twisted pair of conductors.
- **COAXIAL:** A central 'hot' conductor and a shield that carries the negative signal.
- **STRANDED:** Multiple strands with no intervening insulation.
- **SOLID CORE:** Single or multiple, individually insulated strands.
- **COPPER:** Material used for conductor.
- **SILVER:** Material used for conductor.
- **DIG CABLE TYPE:** O - optical digital; E - electrical digital for CD Players, DACs and digital recorders.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback ad on the penultimate page of the mag.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

B BEST BUY
R RECOMMENDED
E EDITOR'S CHOICE

Cables

STATUS

SPECIFICATIONS

SYMMETRICAL
 COAXIAL
 STRANDED
 SOLID CORE
 COPPER
 SILVER
 DIG CABLE TYPE
 FACTSBACK NO.
 ISSUE NUMBER

PRODUCT (€) COMMENTS

ANALOGUE INTERCONNECTS

PRODUCT	(€)	COMMENTS	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	DIG CABLE TYPE	FACTSBACK NO.	ISSUE NUMBER
Acoustic Precision Eikos	89	Not entirely neutral: probably best suited to upbeat music. Very stiff construction					●	●	●		188
Audio Note AN-A	18	Not especially impressive: warm but well-rounded balance that restricts 'air' but is quite clear			●		●	●			108
Audio Note AN-C	35	Neutral but lacking in subtle texture and unable to distinguish fine detail						●	●	1687	131
A Audio Note AN-S	99	Up-beat and enthusiastic sound with satisfyingly deep and grumbly bass			●		●	●	●	1687	131
Audio Note AN-V	179	15 individually insulated silver strands make up this very clean and dynamically unchallenged cable			●		●	●	●	1687	131
Audioquest Turquoise	40	A 'fit and forget' cable that sounds distinctly lazy					●	●	●		160
Audioquest Topaz X2	60	Well made but let down by a pervading sense of muddle and congestion in the sound			●		●	●	●		188
A CableTalk Advanced 2	35	Slight roughness in loud music barely detracts from a well-balanced performance with good imaging			●		●	●	●	2166	176
A Cable Talk Studio 2	65	A first-class performer from tonal, dynamic and rhythmic standpoints			●		●	●	●		160
Cambridge Pacific	30	Lacks subtlety and bass impact but is otherwise quite serviceable for the price					●	●	●	2167	176
A Cambridge Audio Studio Ref	40	Dynamic cable with strong soundstaging and only a slight lack of detail				●	●	●	●		160
Cambridge Silver Spirit 60	100	Good bass but a lack of detail and differentiation of instruments			●		●	●	●		188
Chord Cobra 2	50	Good, strong sound with full-bodied music, less happy with smaller forces					●	●	●	2167	176
Chord Chameleon 2	90	Deep bass is fine but despite that the sound can be a bit hard and lacking body and resonance			●		●	●	●		188
A Connections Midas HD	39	Canary yellow cable with excellent plugs and an open sound. Slight treble glare			●		●	●	●		160
A DNM TCC75	34	Price for 0.75m... High resolution cable, but best in short runs due to higher than average series impedance					●	●	●	1690	131
DPA Slink	41	Slightly bright and zingy with flat soundstaging and hollow bass, though vocals and strings sound convincing			●	●				1690	131
DPA White Slink	75	Bass recedes as the music gets complex; midrange and treble better with quite good detail and imaging					●	●	●	2168	176
A DPA Black Slink	245	Initially dark and meaty but after running in, it's lucid and transparent. Quad geometry, Gore-Tex dielectric			●		●	●	●	1691	131
Goertz M1 Interconnect	145	Soft sound lacking in bite, with excessive and plummy bass (NB sample used in review was only 0.5m)			●		●	●	●	2168	176
Inser Audio IC100 MKII	47	Mostly good sound is let down by pervasive dryness					●	●	●	2169	176
A Ixos 104	20	Open and detailed presentation, full bass and silky if overly smooth treble					●	●	●	1692	131
Ixos Gamma 1002	39	Lumpy bass, grainy treble, and poor integration. Nice colour, though			●		●	●	●	2169	176
A 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
A Kimber PBJ	68	Assured sound, solid and natural bass and clear treble -- excellent performance all round					●	●	●		188
Kimber Hero	110	Slight roughness detracts from some music; seems well suited to rock and jazz. Lively and detailed			●		●	●	●	2170	176
A Moth Ley Line Black	100	Offers a full sound, neutral yet very solid and confident in delivery. Expansive imaging retains music's energy			●		●	●	●		108
Moth Ley Line Grey	200	Detailed, but there's a sense of distance between music and listener: vocals are coarse rather than liquid			●		●	●	●		108
Nordost Black Knight	60	Flat black cable that is distinctive but slightly coloured - but not in a wholly negative manner			●		●	●	●		160
A Nordost Solar Wind	85	Good tone and dynamics, with just occasionally a touch of bass-lightness in busy music			●		●	●	●		188
A Nordost Blue Heaven	145	Very good bass and only slightly grainy treble add up to a well integrated, natural-sounding cable			●		●	●	●		176
Precious Metals SS35	50	Extended bass, but dry character suits electronic music better than acoustic					●	●	●		188
A Prowire Silver	60	A good cable in every way, with just the occasional hint of coloration and coarseness					●	●	●	2171	176
PAD Elementa	145	A fat, heavy and frankly rather lazy-sounding cable; best with music for small forces			●		●	●	●	2171	176
A QED Qnect 2	30	Very well balanced, refined and detailed, this is everything a good cable should be, and excellent value					●	●	●	2172	176

Russ Andrews

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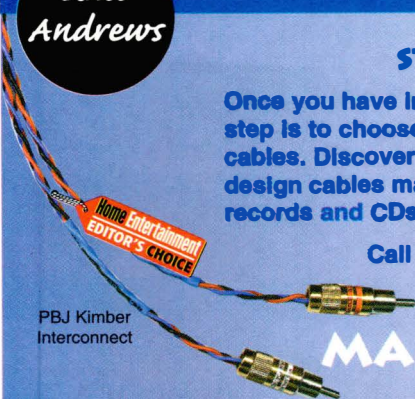
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Home Entertainment EDITOR'S CHOICE

CONTINUED

Cables

STATUS

SPECIFICATIONS

SYMMETRICAL COAXIAL STRANDED SOLID CORE COPPER SILVER DIGI CABLE TYPE ISSUE NUMBER FACTSBACK NO.

PRODUCT	(£)	COMMENTS	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	DIGI CABLE TYPE	ISSUE NUMBER	FACTSBACK NO.
QED Qnect 4S	70	Some coloration and roughness in the midrange and treble, but bass is gratifyingly solid	●				●	●			188
Reference CS1	75	A moderate performer, with a little coloration and a tendency to lose bass at climaxes	●				●	●			188
Silvertone Ex-Static	35	Pleasantly unfatiguing and competitively priced cable that lacks detail and insight	●				●	●			160
SonicLink Silver Pink	35	Dynamically sensitive and muddle-free. We're unsure about the flesh-coloured finish though...	●				●	●	●		160
SonicLink Black	49	Nickel-plated copper with a slight dryness in the bass and a hint of treble roll-off don't compromise integration	●				●	●	●	2172	176
SonicLink Lilac	65	Some dryness can affect transient sounds, though tone is generally good, especially in the bass	●				●	●			188
Straight Wire Chorus	40	A very confident cable with good bass, though perhaps a shade of treble loss	●				●	●	●	2173	176
Straight Wire Sonata	80	Tonal balance favours lower frequencies but despite this it's a very listenable cable	●				●	●	●		188
Supra EFF-ISL	80	Excellent sound in all areas – nothing to criticise	●				●	●	●		188
Tara Labs Prism 22	64	Mild tendency to plumminess offsets some hardness in complex music with mixed results	●				●	●	●		188
van den Hul The Storm	25	Price for 0.8m. Rich and warm but bass is rolled off: however there's plenty of drive and top end is clean	●				●	●	●	1701	131
van den Hul Source HB	50	Price for 0.8m. Hybrid carbon-fibre/copper cable that is a paragon of naturalness	●				●	●	●		160
van den Hul PB5	50	A highly neutral cable with fine dynamic and rhythmic performance too – excellent	●				●	●	●		188
van den Hul D102 MkIII	70	A cable with everything; good bass, treble, imaging and naturalness	●				●	●	●	2173	176
van den Hul The First	210	Using 12,000 carbon fibres, a gentle and subtle sounding cable that conveys oodles of information	●				●	●	●	1702	131
van den Hul The Second	240	Wonderfully open and relaxing but also intimately detailed, slightly softens percussive dynamics	●				●	●	●	1702	131
XLO Type 150	50	A restrained but useful cable for taming lively CD players, dynamics lack freedom, treble lacks clarity	●				●	●	●	1703	131
XLO Type 0.1	180	Unusual but highly expressive and detailed with a hint of graininess on powerful vocals	●				●	●	●	1703	131
DIGITAL INTERCONNECTS											
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 colorations; plenty of weight, smooth					●	●	●	E	1707 131
Kimber Kable Opti-link	50	Appears to be a bog-standard PMNA fibre, yet sounds a little brighter and livelier than most								O	108
Moth Leyline Datalink	140	A thin, coaxial version of Leyline Black with a rather hard and unforgiving character. Too expensive					●	●	●	E	108
QED DigiFlex	20	A top performance, low-loss 75 Ohm coax with a very open, almost liquid quality					●	●	●	E	108
Siltech HF-6	145	Sounds detailed, very clean and extended, but bass is less well resolved – a treat for high-end systems					●	●	●	E	1709 131
SonicLink Green	60	Spacious, positive and engaging if a bit over-crisp at times – very compelling, however					●	●	●	E	1709 131
van den Hul The First	125	Exceptionally natural albeit slightly cautious compared to some. Plenty of subtle information and integration					●	●	●	E	1710 131
LOUDSPEAKER CABLES											
ALR Jordan QMM	5	Generally neutral, if sometimes bass-shy, but not very communicative					●	●	●		183
Audio Note AN-D	4.50	Supplied in linear, non-polarised lengths that are twisted into stereo pairs. Sounds rather grippy and forward						●	●		109
Audio Note AN-B	16.50	Well suited to valve systems, elastic bass, methodical but unintrusive and musical					●	●	●	1711	133
Audio Note AN-L	29.50	Fruity bass and expressive vocal rendition was appreciated by the panel, which was happy to accept its foibles					●	●	●	1712	133
Audio Note AN-SP	150	A calm and civilised presentation, very quiet in the way it reveals subtle low level detail. Great poise and clarity					●	●	●		109
Audioquest F-14	2.2	Ideal for laying under carpets. F-14 encourages a slightly warm and vibrant sound						●	●		109
Audioquest Type 4	5	Four 18-gauge OFHC copper conductors wound in a Litz-type fashion increases capacitance but restrains 'bite'					●	●	●		109
Audioquest Type 6	9	A very inflexible cable in which the sonic ends don't quite justify the means					●	●	●		183
Audioquest Crystal	25	Neutral balance is spoiled by some graininess and smearing					●	●	●		168
Bandridge LC7409	4	Detailed and up-beat cable. A bit too steely for classical strings						●	●	1800	157
Cable Talk Talk 3.1	2.25	Quite well-balanced but tends to lose bass lines in complex music					●	●	●		168
Cable Talk Talk 4.1	4.25	Smooth and cultured sound that lacks fine detail and is a bit too restrained						●	●	1800	157
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 musical details. No dampening of dynamics, simply oodles of taut information					●	●	●	1717	133
Gale XL189	1	Slightly bright and not too subtle, but a perfectly acceptable cable for any starter system					●	●	●		168
Gale XL315	2	A little lacking in detail but plenty of life and excellent value						●	●	1800	157
Gale XL160-2	2.50	Rhythmic and bouncy-sounding bi-wire cable. Can be slightly manipulative						●	●	1800	157
Goertz M2	32	Remarkably detailed, smooth, neutral and with excellent bass; check amplifier compatibility					●	●	●		168
Heybrook Heywire	3.5	This well-meaning facsimile of earlier ribbon cables ends up sounding lumpy and uneven						●	●		109
Hitachi LC-0FC	7	Very crisp, very clear and very confident. In the right system would be very expensive to better					●	●	●		109
Kimber 4TC	19.6	A well-balanced cable with good performance in all areas					●	●	●		168
Kimber 4VS	9	A good mix of virtues including particularly fine bass					●	●	●		183
Linn K20	4	Seems to work best with lively, unsubtle music - can be dry and edgy					●	●	●		183
Naim NACA 5	5.5	A 'dinosaur of a cable', this stiff wire rod doesn't belong outside Naim systems, where it works a treat						●	●		109
Nordost Octava	3	Fair bass but confused treble and some coloration					●	●	●		168
Ortofon SPK100	3	Grey-sounding – strips instruments of their natural richness and resonance. A bit bass-shy, too						●	●		133
Ortofon SPK200	4.99	Good strong bass and fair detail, only slightly marred by a little dryness					●	●	●		183
Ortofon SPK300	8	Tremendously open and atmospheric, with robust, full-blooded bass – if slightly bright at times						●	●		133
Precious Metals SL102	10	Unusual construction gives rather strained sound, only really cheering up with simple musical textures					●	●	●		183
Puresonic 7845	1.95	Big, weighty sound – but too messy and bloated for its own good					●	●	●		183
Puresonic 7891	2.85	Chunky cable design; shame about the sound quality					●	●	●	1800	157
QED Qudos	2.25	Despite high-tech design and excellent Air-Loc plugs, its music-making failed to gel						●	●	1800	157
QED Profile 4x4	9	Good midrange and treble balance, but bass is rather slack and detail not outstanding					●	●	●		168
QED Qudos Silver	5	Basic figure-8 cable adds value with silver plating, to generally smooth and detailed effect					●	●	●		183
Silver Sounds 12 gauge	15	Basic 'homemade' construction gives fairly neutral sound. Price not outstandingly competitive					●	●	●		168
SonicLink S300	18	Happiest with simple music; tends to smudge detail in complex pieces					●	●	●		168
SonicLink AST50	1.95	It may look like bell-wire, but AST50 sounds detailed, ordered and balanced						●	●	1800	157
SonicLink AST150	3.95	Slightly plummy bass and a useful way of holding musical strands together						●	●	1800	157

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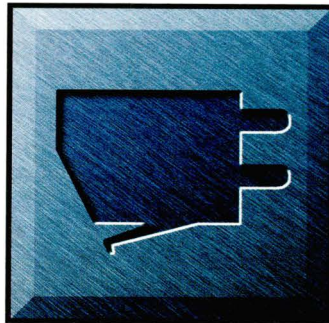
Cables

STATUS

SPECIFICATIONS

SYMMETRICAL COAXIAL STRANDED SOLID CORE COPPER SILVER DIG CABLE TYPE FACTSBACK NO. ISSUE NUMBER

PRODUCT	(£)	COMMENTS	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	DIG CABLE TYPE	FACTSBACK NO.	ISSUE NUMBER
▲ Straight Wire Quartet	8	A good all-rounder with full tone, clear detail and natural ambience	●				●	●			183
▲ Supra Ply 3.4	6.95	Clear sound which stays together well at high levels, with full bass - perhaps a touch of treble restriction	●				●	●			183
▲ Tara Labs Klara	2.95	A good budget cable with an even spread of virtues - and very minor vices - across the board	●				●	●			183
van den Gold Water	7	Bass becomes shy when there's a lot happening, and detail could be clearer	●				●	●			183
van den Hul The Clearwater	7	Despite its evocative title, the Clearwater turns out to be a disappointingly murky-sounding cable					●	●	●		109
van den Hul 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 amps need a transformer to cope with MC cartridges. ■ Even basic high-output MM cartridge designs will benefit from a customised amplifier input load. Consult your dealer for further details on this topic.

KEY TO SPECIFICATIONS

- **MM:** Moving-magnet cartridge with a normal output, suitable for all amplifier phono inputs.
 - **MC:** Moving-coil cartridge with a low output, only suitable for high-sensitivity MC amplifier phono inputs.
 - **REPLACEABLE STYLUS:** Most MM cartridges have a stylus (needle) that can be removed and replaced when worn out.
 - **OUTPUT (mV):** Cartridge output in millivolts.
 - **MASS (g):** The mass of your chosen cartridge.
- affects the choice of partnering tonearm. Consult dealers or manufacturers to establish which arms and pickups work well together.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback ad on the penultimate page of the mag.
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B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE

Cartridges

STATUS

SPECIFICATIONS

MM MC REPLACEABLE STYLUS OUTPUT (mV) MASS (g) FACTSBACK NO. ISSUE NUMBER

PRODUCT	(£)	COMMENTS	MM	MC	REPLACEABLE STYLUS	OUTPUT (mV)	MASS (g)	FACTSBACK NO.	ISSUE NUMBER	
▲ 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	2142	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 at the price		●		●				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	2142	175
▲ 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
▲ Goldring Elan	19	A lightweight and frisky-sounding MM apparently based on Nagaoka MM4 body	●			●	5.0	7		67
▲ Goldring 1012GX	79	Slightly harsh but plenty of life and detail. Some high frequency coloration apparent	●			●	6.5	7		85
▲ Goldring 1022GX	99	As with 1012, a touch harsh; detail and transient purity improved	●			●	6.5	7		85
▲ 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
Goldring 1042	120	Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively, though	●			●	6.5	6		91
Goldring Elite	220	The basics are right, and it will cheerfully tackle any source material, but its sound is not the cleanest		●		●	0.5	8		103
Goldring Excel VX	525	Good bass drive but dull and imprecise higher up. An old-fashioned sound that falls short of the true high end		●		●	0.45	8	2143	175
▲ Grado Prestige Gold	149	Rich sounding with an unusually refined top-end for a moving magnet-type cartridge		●		●	4	6		158
Grado Reference	995	Loads of tracking headroom but treble is limited. A prospect for mid-oriented valve amp users		●		●	1.7	6.5	2143	175
▲ Linn K9	125	Linn improved this model by beefing up the Basik's bodywork and adding a super stylus		●		●	4.5	5		Col
London Decca Maroon	259	Now manufactured under the London brand name, this Decca cartridge is as iconoclastic as ever		●		●	5.0	6		67
London Decca S Gold	399	Immediate and detailed, but coloured and nonlinear, with a questionable effect on records		●		●	5.0	6		84
▲ Lyra Lydian	649	Superbly capable all-round musical performer that improves markedly when its body cover is removed				●	0.3	7		158
▲ Lyra Clavis Da Capo	995	A stable tracker, and one of the finest cartridges we've heard				●	0.1	7		143
Lyra Parnassus D.C.t	1,895	A real little jewel of a cartridge, with many good qualities, but handicapped by a rather too obvious treble peak		●		●	0.22	10.5	2144	175
▲ Ortofon 510/P	38	For the price, a good blend of virtues - weight, clarity and neutrality		●		●	3.0	5		85
▲ Ortofon 520/P	65	Sensitive to load capacitance, but the 520/P has a lively, effervescent sound		●		●	3.0	5		67
▲ Ortofon MC3 Turbo	130	The 3 Turbo is bright, cheerful and bouncy, but unsubtle - take it as it comes!				●	3.3	4		103
▲ Ortofon MC15 Super II	130	A good all-rounder, with outstanding resolution, if slightly bright and close up				●	0.35	7		103
Ortofon MC25E	180	An excellent upgrade for a mid-price turntable		●		●	0.5	11		139
Ortofon MC25FL	250	A bit too stark and honest, but faithful to what's on the LP		●		●	0.5	11		139
Ortofon MC30 Supreme	525	Highly detailed and even-sounding cartridge that has a special affinity with female vocal recordings		●		●	0.5	10.7		158
▲ Ortofon Rohmann	1,000	A class act in nearly every respect, with fine groove security and a very smooth and even-handed sound				●	0.25	8.5	2144	175
▲ Ortofon MC3000II	1,100	A real ear-opener. Nothing to criticise anywhere - one of the very best				●	0.12	10		84
Ortofon MC5000	1,500	Limited tracking ability, bright and forward sound, but good stereo		●		●	0.12	10		91
Rega Bias	39	Difficult to mount in some arms due to its shallow body, but the Bias offers a gentle, refined sound		●		●	5	4		67
▲ Rega Elys	85	Clearly superior to the Bias, the Elys is more detailed, accurate and convincing		●		●	5.0	5		67
▲ Roksan Corus Black	130	Recognisably related to the Corus Blue, but smoother and more civilised		●		●	6.5	5		91
van den Hul MM-1	250	If woody midrange could be tamed, imaging and security would pull it through		●		●	5.5	6		103

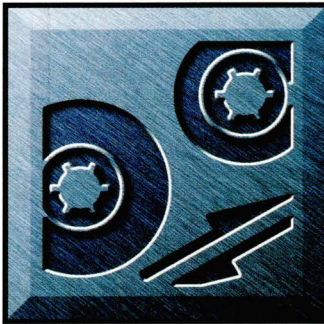
Cartridges

STATUS

SPECIFICATIONS

REPLACEABLE STYLUS
MM MC
OUTPUT (mV)
MASS (g)
FACTSBACK NO.
ISSUE NUMBER

PRODUCT	(£)	COMMENTS	REPLACEABLE STYLUS	OUTPUT (mV)	MASS (g)	FACTSBACK NO.	ISSUE NUMBER
van den Hul DDT-II	600	Outstanding stereo imaging and neutral balance are appealing, but rhythmically the DDT-II is a bit lazy	●	0.35	7.6		158
van den Hul MC-10	750	A neutral, balanced performer, gives fine depth and focus and a firm, extended bass	●	0.4	6		60
van den Hul MC-One	900	This extends all the positive qualities of the 10, but adds greater authority and scale – worth all the extra money	●	0.4	6		60
van den Hul MC-Two	1,200	MC-Two rewards with a highly detailed yet fluid and musically convincing portrayal	●	0.4	6		72
van den Hul Frog	1,500	Seems to control suppress surface noise better than its rivals. This delicate and subtle performer has great charm	●	0.65	7	2145	175
van den Hul G' hopper III GLA	2,800	Undoubtedly one of the finest cartridges available. It has tremendous bandwidth, energy and finesse	●	0.4	6		122
Wilson benesch Matrix	786	Extraordinarily well balanced cartridge: neutral and detailed yet lively and rhythmically assertive	●	0.58	6		158
Wilson benesch Carbon	1,573	Carbon fibre body contributes to a delightfully clean and open midrange, and a quick, lively and coherent sound	●	0.45	7	2145	175



Cassette Decks

The compact cassette is still the world's most versatile and ubiquitous music storage medium. Cassette decks hook up to the 'tape loop' inputs and outputs offered by most modern amplifiers. It's worth taking care to choose the best tapes for a specific machine. For example, expensive metal tapes will be a wasted investment for a cheap deck. Many better-specified decks have manual or automatic bias adjustment to get the best from specific samples of tape. Twin decks offer the possibility of copying from tape to tape, playing two cassettes sequentially or recording onto two tapes at once. Autoreverse is a useful feature, but uni-directional mechanisms promise better sound. Dolby S is the ultimate noise reduction system, and three-head decks permit record monitoring off-tape.

KEY TO SPECIFICATIONS

- **DOLBY B/C:** The first and second Dolby hiss-killers.
- **DOLBY S:** A desirable derivative of Dolby SR professional noise-reduction.
- **DOLBY HX-PRO:** Extends headroom for cassette recording.
- **3-HEAD:** Permits monitoring off-tape while you're recording.
- **TWIN DECK:** Contains two decks for dubbing and continuous play.
- **AUTOREVERSE:** Automatically plays both sides of the cassette.
- **AUTO CALIBRATION:** The deck will automatically set up bias and EQ for any tape.
- **ADJUSTABLE BIAS:** Permits manual optimisation of tape.
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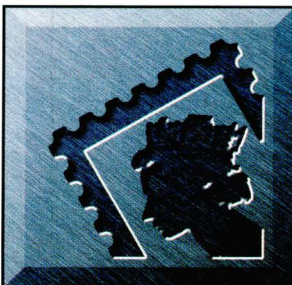
Cassette Decks

STATUS

SPECIFICATIONS

DOLBY C
DOLBY S
DOLBY HX PRO
3-HEAD
TWIN DECK
AUTO REVERSE
AUTO CALIBRATION
ADJUSTABLE BIAS
FACTSBACK NO.
ISSUE NUMBER

PRODUCT	(£)	COMMENTS	DOLBY C	DOLBY S	DOLBY HX PRO	3-HEAD	TWIN DECK	AUTO REVERSE	AUTO CALIBRATION	ADJUSTABLE BIAS	FACTSBACK NO.	ISSUE NUMBER
Aiwa AD-F450	120	Basic but well-designed deck. Astonishing value; only the poor metering gives the game away	●			●					1513	136
Aiwa AD-WX727	170	High-class twin for those who want bells, whistles – and music	●			●					1377	146
Denon DRM-550	160	There are some technical limitations, but this remains a fine-sounding deck, and excellent value	●			●						158
Denon DRW-580	200	Twin deck: OK for casual use, but will quickly pall with more quality critical applications	●			●		●	●			171
Denon DRS-640	200	Draw-loading deck, with simple facilities and smooth, well-adjusted sound	●			●					1591	140
Denon DRM-650S	230	An improvement on predecessors, it offers a wide-ranging, sound. Dolby S is not the best feature	●	●		●				●	1920	164
Denon DRM-740	270	Breathed-on DRM-710, with good external treatment, offers good, if somewhat detached sonics	●			●			●		1514	136
Denon DRS-810	310	Draw-loading deck, carefully designed yet lacking in subtlety on audition	●			●		●				127
Harman/Kardon TD420	250	Minor inconsistencies detract from a well-conceived, minimum features design	●			●			●		1592	140
Harman/Kardon TD450	350	Draw loader with poor tape navigation features; good midband but shallow bass	●			●		●			1920	164
JVC TD-R472	200	Excellent auto-reverse deck which doesn't suffer the usual disadvantages and is very sharply priced	●			●				●		158
JVC TD-V662BK	270	Assured, clean and agile-sounding recorder, if not quite the most refined in its class	●			●				●	1380	146
JVC TD-W718	300	Twin deck. Good for creative live recording, but no timer standby. Respectable performance	●			●		●	●	●	2039	171
Kenwood KX-W6080	200	Modestly decent-sounding twin deck, with some transport instability and ragged bass	●			●			●	●	2040	171
Marantz SD455	170	Works well as a single deck, especially on replay, but dubbing at high/low speed compromises sound	●			●			●	●		184
NAD 613	230	Rough and ready, but enjoyable sound, though marred by mechanical motor noise	●			●						158
NAD 616	300	Twin deck with basic features. No Dolby setting memory, transport is too unstable for audiophile use	●			●			●	●	2041	171
Onk o K-611	460	Cute drawer-loading mini-size component with 3-heads and dual capstan transport	●			●				●	1384	146
Pioneer CT-S550S	250	Great features, good with cheap low bias tapes, but slightly synthetic sound quality	●	●		●		●			1920	164
Pioneer CT-W806DR	300	Had it not been for the iffy transport quality, this sophisticated twin would have been Recommended	●			●			●	●	2042	171
Pioneer CT-S830S	500	High-class mechanism, if lacking in battleship externals, and superb sound	●	●		●					1385	146
Sony TC-KE600S	300	Mild setting-up problems notwithstanding, this UK-tweaked design has a smooth, open sound	●			●		●				158
Teac V01050	180	One of the cheapest 3-head machines around, but it shows in very 'thick' sound	●			●		●				184
Technics RS-AZ6	200	For those who can't afford the RS-AZ7; clarity over the widest bandwidth thanks to AZ thin-film head	●			●		●			1920	164
Technics RS-AZ7	270	Thin-film head gives a solid, almost CD-like bass and midrange. A clear advance in state-of-the-art	●			●						158
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 deck, with a lightweight tonality, but stability and strong detail	●	●		●					2043	171



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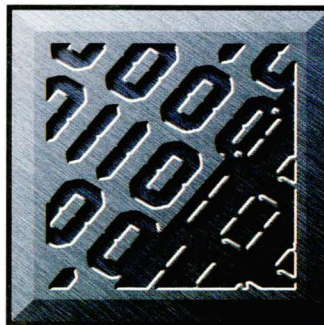
CONTINUED

CD/DVD Players

SPECIFICATIONS
 AES/EBU ELEC DIG OUT
 OPTICAL DIG OUT
 ELEC DIGITAL OUTPUT
 BAL ANALOGUE OUT
 ST OPT DIG OUT
 HEADPHONE SOCKET
 VARIABLE OUTPUT
 MULTI-DISC
 DAC TYPE
 FACTSBACK NO.
 ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	AES/EBU ELEC DIG OUT	OPTICAL DIG OUT	ELEC DIGITAL OUTPUT	BAL ANALOGUE OUT	ST OPT DIG OUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	DAC TYPE	FACTSBACK NO.	ISSUE NUMBER
DACS													
Alchemist TS-D-1	300	24/96-equipped DAC sounds tidy but a little shut-in with both 16-bit CDs and 24-bit, 96kHz DVDs										BS	187
Audio Note 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
Musical Fidelity X-24K	300	24/96 ready with a warm, natural sound and good soundstaging (tested with Pioneer DV-717)										MB	187
PS Audio UltraLink 2 HDCD	2,590	The sound positively sparkles with colour and resonant detail. (Tested with Lambda transport)										MB	1106 133
PS Audio Reference Link	4,550	Consolidates reputation of PS Audio for high performance digital electronics										MB	1069 132
Roksan Attessa ATT-DA2/DS5	1,145	Not the most detailed or refined but capable of good excitement with the right material										1bit	1867 162
Teac D-T1	500	Teamed with VRDS-T1 for test, this superb quality unit is tidy and composed										BS	1325 144
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	1867 162
Trichord Pulsar Series One	1,395	Very detailed, precise, controlled yet involving; a first-rank performer. Switchable phase, dither etc										Hyb	1867 162
DVD PLAYERS													
Denon DVD-5000	1,600	The first DVD-V player that ain't bad as a CD player. A fine musical device										BS	187
Denon DVD-3000	700	Enjoyable rather than analytical, includes 24/96 and AC-3/MPEG-2 Audio										BS	180
Hitachi DV-P2E	400	DVD player, based on last generation Pioneer, is good but uninspiring										24/96	190
JVC XV-S2000	475	DVD player with excellent picture but flat sound in most modes										PEM	190
Kenwood DVF-9010	1000	DVD player with brilliant picture and clean, lively sound										24/96	190
Micromega Premium DVD	1,500	Unique lack of regional coding constrictions but both DVD and CD replay are compromised										BS	183
Panasonic DVD-A150	400	Simple, mid-market DVD player is vice-free but limited for the audiophile.										24/96	190
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-515	400	Unusually well equipped (CD-R compatible etc) DVD with more than fair sound and picture quality										MB	190
Pioneer DV-717	550	Superb DVD player with good picture quality and which really knows how to play 24/96 discs										MB	190
Pioneer DVL-909	900	DVD and LD player: self-recommending to AV nuts; musically detailed but occasionally seems disjointed										BS	180
Samsung DVD-907	500	DVD player with below average picture, and lacklustre sound quality										24/96	190
Sony DVP-S715	600	24/96 converter for DAD compatibility, sharp, forward, but slightly unsubtle sound										BS	180
Thomson DTH2000	380	This DVD player's main attributes are reasonable pricing and fair to good all round performance										24/96	190
Toshiba SD3107B	550	Dynamic sound and good stereo which lacks lowest stratum of detail										BS	180
Yamaha DVD-S700	600	DVD player, similar to Panasonic DVD-A350 but cheaper – an excellent buy										24/96	190



Digital Recorders

Domestic digital recording has been possible since the launch of digital audio tape (DAT) in the '80s. Since then DAT has remained expensive and largely esoteric, favoured only by well-heeled or professional users. Digital Compact Cassette and MiniDisc (MD) were launched in the early '90s but only MD has stayed the course. A little later came domestic CD-Recorders using CD-R discs, while the latest twist is the arrival of re-recordable CDs known as CD-RW discs. The recording quality hierarchy is as follows: DAT, CD-R/CD-RW, MD. MD is probably the most convenient to use, and offers sophisticated editing facilities, while CD-R is ideal for making digital 'dones' of prerecorded CDs. DAT is the medium of choice for high-quality location recording.

KEY TO SPECIFICATIONS

- **FORMAT:** Type of recorder – see left for descriptions.
- **DAC TYPE:** Digital to analogue converter: BS - Philips Bitstream; MB - multibit; Hyb - hybrid of multibit and bitstream; 1bit - single bit types such as MASH, bitstream, PWM etc
- **ADC TYPE:** The analogue to digital converter (ADC) converts sound into digits during live recording. Types of ADC are as per DACs (qv).
- **PORTABLE:** Battery operable, but not necessarily personal-stereo-sized.
- **OPTICAL IN/OUTPUTS:** Digital socketry for optical cable.
- **ELEC IN/OUTPUTS:** Digital socketry for electrical cable.
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STATUS

Digital Recorders

SPECIFICATIONS

FORMAT
 DAC TYPE
 ADC TYPE
 PORTABLE
 OPTICAL IN/OUTPUTS
 ELEC IN/OUTPUTS
 FACTSBACK NO.
 ISSUE NUMBER

PRODUCT	(£)	COMMENTS	FORMAT	DAC TYPE	ADC TYPE	PORTABLE	OPTICAL IN/OUTPUTS	ELEC IN/OUTPUTS	FACTSBACK NO.	ISSUE NUMBER
MINIDISCS										
Denon DMD-1000	300	A good machine, but it still doesn't manage to shake off the MiniDisc plague of losing the listener's interest								184
Denon DMD-1300	500	Sound sometimes lacks integration but tonal balance is good and it handles loud music with panache							2193	177
Kenwood DM-9090	550	Slight sibilance and image vagueness do not detract from excellent balance and solid bass							2194	177
Onkyo MD-121	450	Midi-sized deck that sounds slightly coloured at times, though immediate and lively							2195	177
Sharp MDR3H	300	Nifty machine combining a 3-disc CD changer with a MD recorder. Sound on both is rather below par, though								184
Sharp MD-R2	300	Budget recorder that loses little or nothing in comparisons with much more expensive models – highly capable							2196	177
Sony MDS-JB920	300	One of the better MD decks, its sound is neutral and dynamic. European Audio Recorder of the Year '98-'99								184
CD RECORDERS										
Philips CDR-880	499	Capable of making perfect copies of CD digital, and very acceptable copies of anything analogue too								184
Pioneer PDR-555RW	480	Competitor to Philips' CDR880; it can't make perfect copies but has the edge in replay and analogue record sound								184
Pioneer PDR-04	700	Scaled down version of the PDR-05 with auto level setting but all the socketry and features you need to make CDs								171
Pioneer PDR-05	1,000	The first domestic CD-R deck – excellent sound quality							1652	152



Headphones

There are several different ways of making a headphone. The most expensive models employ electrostatically-driven diaphragms within an open-backed earcup. Most mid-price designs feature dynamic, moving-coil-driven diaphragms in open, semi-open or closed-back designs. An open-backed headphone can sound remarkably transparent, but also permits the ingress of external noise. Closed-back designs keep out unwanted sound, but may be less comfortable to wear and more coloured. The latest development is the cordless headphone using either infrared light or, more recently, radio waves. Quality is improving, but has yet to match the best corded designs.

KEY TO SPECIFICATIONS

- **TYPE:** Operating principle: D - dynamic; E - electrostatic.
- **SUPRA-AURAL:** Where a flat pad presses on the outer ear.
- **CIRCAURAL:** Where the earcup encloses the ear.
- **OPEN BACK:** Offers an open sound but lets in noise.
- **CLOSED BACK:** Keeps out external noise.
- **MASS (g):** Mass in grams
- **IMPEDANCE (Ω):** Load offered to the headphone amplifier. Many headphones offer a significantly higher value than loudspeakers, for example, but this does not mean they will be incompatible with the majority of amplifiers.
- **3.5MM JACK ADAPTOR:** Compatible with mini-jacked components, eg personal stereos.
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Headphones

SPECIFICATIONS

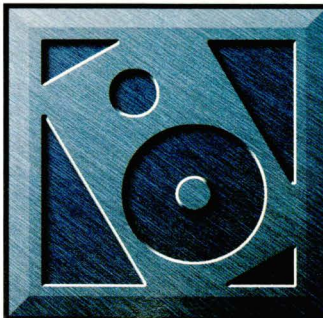
STATUS

PRODUCT	(£)	COMMENTS	TYPE	SUPRA-AURAL	CIRCAURAL	OPEN BACK	CLOSED BACK	MASS (g)	IMPEDANCE (Ω)	3.5mm JACK ADAPTOR	FACTSBACK NO.	ISSUE NUMBER
A AKG K1000	700	One of the best dynamics on the market, hooks directly into speaker outputs	D			●	●	270	120			99
AKG K 240 DF	100	Inoffensive 'phones that are very laid back, if lacking in grunt	D			●	●	240	600	●		186
A Audio Technica ATH910PRO	80	The closed back 910s are an improvement on the 909s, with a nice rhythmic quality rarely found	D	●				280	40			55
A Audio Technica ATH-M40	120	Incredible detail and honesty from these classically designed studio 'phone	D		●			250	60			186
Beyer DT311	50	Uncharacteristically tight, unrefined sound quality from this otherwise well engineered 'phone	D	●		●	●	124	40	●	1098	133
Beyer DT411	63	A reasonable but not very thrilling headphone that doesn't really offer enough at the price	D	●			●	120	250			111
Beyer DT431	81	Nice looking 'phones that may not be the best players on the field, but will always give 100 per cent	D			●	●	210	40	●		186
Beyer DT100	160	Rugged, modular professional design, but bass is woolly and treble lacks detail	D			●	●	350	600			157
A Beyer DT511	106	Superb midband clarity and speed slightly at odds with soft bass. High tingle factor, even so	D		●	●	●	200	250		2063	172
A Beyer DT531	135	A good buy for serious, heavy-duty music making	D		●	●	●	245	250			144
A Beyer DT831	140	These provide silky, smooth textures in abundance and we're not just talking about the velvet ear pads	D		●	●	1/2	295	250	●		186
A Beyer DT911	170	Probably too revealing for many headphone amps: these are very subtle and fine, if expensive cans	D		●	●	●	275	250			111
Denon AH-D550	80	A competent 'phone with integrity, but little panache or charisma. Hard headband causes brain strain	D			●	●	200	35	●	1801	157
Denon AH-D750	130	Loud and gutsy, meaty bass, good with rock and dance. Can sound thick and clumsy	D			●	●	250	30	●	2063	172
Grado SR-40	45	Cheap and nasty appearance largely redeemed by cheerful, up-beat sound. Very comfortable	D	●		●	●	120	32	●	2064	172
Grado SR-80	100	Open and dynamic with pedantically open mid-band. Crude physical design, rough frequency extremes	D	●		●	●	60	8	●	1801	157
A Grado SR125	150	What these 'phones lack in style they make up for ten-fold in musical quality	D	●		●	●	200	32			186
A Grado SR-225	200	Warm, darkly-coloured tonally and ultimately lacking in clarity, but true to the spirit of the music	D	●		●	●	200	32		1883	163
A Jecklin Float Model 1	79	While very unusual in appearance, the Floats give remarkable sound quality and openness	D		●	●	●	400	200			55
A Jecklin Float Model 2	99	Helmet shaped, but open sounding and comfortable in the long term, despite lack of adjustment	D		●	●	●	400	200			63
JVC HA-W60	49	Remarkable lack of interference and hiss ameliorates adequate sound of this cordless design	D	●		●	●	165	1/R	●		172
JVC HA-D910	65	Broadly acceptable if unexciting design with low level losses and some colorations	D	●		●	●	220	32	●		121
A JVC HA-W 00RF	75	Distinct lack of hiss from these FM cordless 'phones ensures that detail and depth are easily heard	D		●	●	●	280	20,000	●		186
Koss R/100	100	Rather cheap looking 'phones that supply good detail but are severely lacking in midrange excitement	D			●	●	215	60	●		186
Precide Ergo Model 2	140	Still has much of the spaciousness of the Float from which it is derived, but coarse mid/top	D			●	●	380	100	●	1892	163
A Philips SBC 3396	70	Remarkably airy for closed-back designs. Fine tonal balance, punchy delivery. Amazing for money	D		●	●	●	255	32	●	2064	172
Philips SBC HP900	90	Sharper, snappier midrange than 3396: initially impressive but blows it on balance and listenability	D			●	●	200	32	●	2065	172
Sennheiser IS 380	55	As close as you'll get to real hi-fi with infra-red phones at this price. Inevitable hiss spoils the illusion	D	●		●	●	192	1/R	●		172
A Sennheiser HD 455	55	Inoffensive, if nondescript sound; modular, but can become dislodged from head	D	●		●	●	185	60	●	1801	157
Sennheiser HD 500	70	A disappointing pair that offer good stereo-imaging, but little else	D			●	●	210	32	●		186
Sennheiser HD 475	80	Elegant, uncluttered sound and very comfortable but lean bass saps satisfaction	D	●		●	●	120	60	●	2065	172
Sennheiser RS 400	80	FM cordless 'phones that are very wearable, but slightly woolly sounding with interference problems	D	●		●	●	160	N/A	●		186
A Sennheiser HD 545	125	Fine all-rounder that takes all styles of music in its stride. Ear-clamping headband	D		●	●	●	255	150	●	2066	172
A Sennheiser HD 565 Ovation	150	Wide bandwidth design which is refined, expressive and extremely comfortable	D		●	●	●	255	150	●	1801	157
Sennheiser HE 60/HEV70/UK	998	Very nearly a superb electrostatic, with a pure midband, but top end is sibilant and edgy	E			●	●	260	N/A	●	1898	163
Sony MDR-605LP	50	Funky looking headphones that have a very bold, but tiring sound, with coloured bass	D			●	●	145	40	●		186
Sony MDR-CD770	100	Neutrality and comfort make the Sony easy to live with. Correct-sounding too, yet musically unrewarding	D			●	●	-	-	●	1801	157
A Sony MDR-CD1700	200	Astonishingly detailed, uncoloured and free of the usual artefacts from a sealed back headphone	D		●	●	●	325	32	●	1901	163
Sony MDR-F1	100	Natural, easy-going sound teamed with great looks and comfort. Shame about the lightweight bass	D			●	●	300	12	●	2066	172
Technics RP-DJ1200	130	Functional design with head-pulping bass and muggy tonal balance. Good job they're sweat-proof	D	●		●	●	230	32	●	2067	172
A Stax Lambda Nova Basic	449	Refined, articulate, yet with real presence - and a notable bargain by electrostatic standards	E		●	●	●	347	N/A	●	1902	163
Vivanco Cyberwave FMH3000	40	The only cordless 'phone to offer genuine walkabout freedom, but sounds like a cheap FM tuner	D	●		●	●	210	FM	●		172
Vivanco IR5800	50	Consistently musical infra-red design. Doesn't reach for sonic heights so hiss can be forgiven	D	●		1/2	●	226	1/R	●		172
A Vivanco SR650	50	Unusually comfortable 'phone with excellent detail resolution but aggressive	D	●		●	●	175	-	●	1801	157
A Vivanco SR750	60	Cossetting physical design, attractive sound, though suffers overhang and lacks ultimate dynamics	D	●		●	●	188	-	●	1801	157
Vivanco FM7980	80	A fair amount of whine and crackle detracts from 'phones which are otherwise very listenable	D	●		●	●	280	9,000	●		186
Vivanco FM8180	99	Well thought out features and a better than average sound are, at times, marred by intrusive hiss	D			●	●	240	9,000	●		186



HI-FI CHOICE HELP

FOR ASSISTANCE IN BUYING THE ULTIMATE SYSTEM, CHECK OUT THE HELP SECTION ON OUR WEB SITE AT www.hifichoice.co.uk



Hi-Fi Loudspeakers

As the last link in the hi-fi chain, loudspeakers are at the mercy of incoming signals. Nevertheless, distortions introduced by loudspeakers (and rooms) tend to be the most obvious. The average loudspeaker comprises an enclosure containing two drive units. Inside the box, a simple electrical circuit (the crossover or dividing network) splits the incoming, full-frequency-range signal into the right portions for specific drive units to handle: highs to the 'tweeter', lows to the 'woofer'. For any given box size, designers must balance the 'sensitivity' of the loudspeaker (how loud it goes for a given electrical input) against bass extension (how low it goes). Subwoofers augment bass and are either passive (unamplified) or, preferably, active (self-amplified).

KEY TO SPECIFICATIONS

- **SIZE WxHxD (cm):** Width by height by depth in centimetres.
- **FLOORSTANDER:** Requires no stand support.
- **SENSITIVITY (dB/W):** How much sound results for a given electrical input – the higher the figure, the louder the speaker.
- **IMPEDANCE (Ω):** Impedance, measured in Ohms, indicates how much resistance the speaker presents to an amplifier. As impedance decreases, demands on an amplifier increase.
- **BASS FROM (Hz):** The lowest frequency that a speaker can reproduce effectively.
- **FREE SPACE:** Speakers which should not sit close to walls.
- **CLOSE TO WALL:** Speakers which should sit between 3 and 12cm from the rear wall.

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● **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our failed review reprint service. For full info, see the Factsback advert on the penultimate page of this issue.

● **ISSUE NUMBER:** The issue of Hi-Fi Choice in which an original review appeared.

H High End Review

Hi-Fi Loudspeakers

SPECIFICATIONS

SIZE WxHxD (CM) SENSITIVITY (dB/W) IMPEDANCE (Ω) BASS FROM (HZ) FREE SPACE CLOSE TO WALL FACTSBACK NO. ISSUE NUMBER

STATUS

PRODUCT	(E)	COMMENTS	PRICE	SIZE WxHxD (CM)	SENSITIVITY (dB/W)	IMPEDANCE (Ω)	BASS FROM (HZ)	FREE SPACE	CLOSE TO WALL	FACTSBACK NO.	ISSUE NUMBER
Acoustic Energy Aegis One	150	At a new low price, this has a very natural and transparent midband, erring a little on the dull side	19,365,24		87	6	40				187
Acoustic Energy AE200	250	Metal-cone miniature has a tendency to shout but is still lots of fun, and well built too	18,530,25		87	6	40			2199	177
Acoustic Energy AE109	350	Lots of mass-loaded twin-driver speaker for the money, especially for loud, driving bass	18,90,25		88	4	25			1904	164
Acoustic Energy AE120	500	Attractive presentation and good sonic headroom, but a heavy, uneven overall balance	18,98,28		89	4	25			1904	170
Acoustic Energy AE520	1,000	Could be more neutral, but high-class build is reflected in a high-class sound. Very elegant too	21,98,30		91	3	25				190
ATC SCM20	1,599	Massively built, invariably informative but the rather forward presentation can be uncomfortable	24,44,31		83	8	28				86
Audio Gem Emerald	540	Pretty compact floorstander with lively if lightweight sound	18,94,21		87	6	40			1905	164
Audio Note AN-J/B	799	Light damping and local unevenness add some coloration, but don't spoil the speaker	38,58,25		93	8	25				110
Audio Note AN-E/B	1,299	Coherent, dynamic and transparent, with extended bass and high sensitivity – but ugly!	36,84,28		94	8	20				106
Audio Physic Tempo	1,999	Tall and unusually-styled floorstander has stunning stereo but suspect bass tuning	22,107,47		88	8	28			1344	143
Audiovector C2	799	Elegant two-and-a-half-way has a big, full bandwidth sound, but midband seemed a little under-developed	19,106,27		90	4	20				190
Audiovector M2	1,399	High-class, smooth and slightly laid-back performer has driving bass. It's upgradeable, too!	20,102,30		89	4	22				180
AVI NuNeutron	500	A smooth and subtle though pricey sub-miniature, albeit with the inevitable limitations of the breed	14,27,23		86	4	50				190
AVI Positron	899	This 'mini-floorstander' is capable of great precision and delicacy, but in a rather small scale way	175,74,24.5		85	6	40			2150	174
B&W CDM2SE	400	Beautifully styled and finished, respectable midband. Lacks definition towards frequency extremes	22,32,25		87	6	40				183
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	20,535,5,23		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			2030	170
B&W CDM1SE	600	A great looking stand-mount with one of the best midbands around, and a subtle blend of other qualities	22,37,29		88	5	40			2209	177
B&W CDM7	1,000	A combination of serious welly and physical elegance; but a basic lack of midband smoothness	22,97,29		90	4	22			2131	174
B&W Nautilus 802	6,000	Outstanding example of the high tech speaker builder's art, needs real power but gives real sound	39,111,55		91	8	34				183
B&W Nautilus 801	8,500	The 801 is a magnificent loudspeaker in nearly every respect, but it is one that likes to play loud	52,111,69		91	8	34				186
Cabasse Farella 400	950	Exciting but very upfront-and-in-ya-face sound. High sensitivity, fine build and good dynamic drive	26,92,32		92	5	28				180
Castle Isis	250	A great miniature at a competitive price. Sound is lightweight but very coherent, with a fine overall balance	17,35,5,21		87	8	45			2019	170
Castle Kendal	500	A beautifully finished compact floorstander with a decidedly forward but communicative sound.	17,76,20		86	6	45			2204	177
Castle Severn 2	539	Carbon fibre cone gives lovely, subtle midband but treble is a bit dull and bass a bit thumpy	21,84,25		87	8	30			2120	174
Castle Avon	730	Lovely box and lovely voices from carbon-fibre composite cone	22,91,28		85	8	22			1909	164
Castle Harlech	880	Handsome big-sounding floorstander, great value and dynamic midrange	20,96,33		88	8	28			1820	160
Castle Howard S2	1,200	Absolutely 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 the relentless enthusiasm and mid-band colorations can become wearing	19,31,21		88	6	45			2254	179
Celestion 23i	300	Cosmetically flawed, but the bottom end has fine get-up-and-go, and works well with dance tracks	24,86,27		89	6	30			2200	177
Celestion 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
Cherwin-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			2020	170
Chario Hiper 1000	300	Classy looking stand mount has a sweet, easygoing sound with fine midband voicing	18,35,28		87	4	45				187
Chario Constellation Lynx	550	Beautiful near-miniature is let down by a midband too laid back for its own good.	20,36,26		87	3	40				190
Chario Academie	1650	Pricey Italian stand mount, has high class sound and appearance. Solid walnut enclosures	25,40,31		84	8	40				180
Chario Academy Millennium 2	2,100	Price includes stands. A showy speaker that lives up to its own hype	22,53,35		90	4	55				190
Dali 606	400	A big bruiser at a tempting price. Sounds refined and polite, but also packs some punch	22,97,32		91	4	25			2121	174
Dali Royal Menuet MkII	400	Classy sub-miniature with a beautiful box and fine ingredients, but a little lacking in subtlety and excitement	16,26,18		87	3	50				190
Dynaudio Audience 5	400	Follows the Dynaudio tradition for fine midband transparency, but the overall timbre is a bit thin	20,31,26		85	4	40			2205	177
Dynaudio Audience 40	400	Classy engineering content creates a winning combination of neutrality, dynamic range and involvement	17,28,25		87	4	40				190
Dynaudio Audience 50	577	This stand-mount doesn't look big, but sound quality can match many models at twice the price	20,33,25		86	4	30			2122	174
Dynaudio Contour 1.8 MkII	1,842	Wonderful voice-band delicacy and loads of deep bass from a very elegant and compact box	21,95,29		85	4	20			1986	167
Eltax Liberty 3+	150	Bright, bassy, laid back and attractively evenhanded, but dynamically challenged. Big box for your dosh	20,538,34		86	4	25				187
Eltax Linear Response	249	A curiously lumpy shape, but smooth, laid-back performer is easy on the ears, with fine tonal accuracy	25,35,32		85	4	40			2201	177
Epos ES12	499	High quality luxury stand-mount has great midband and stereo imaging	20,38,25		85	8	45				1823
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			2021	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			2255	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, speed and timing. Sounds fresh and vital, though sometimes lacks scale and weight	20,29,18		87	6	50				2256
Heybrook Heylette B	200	Attractive traditional-style near-miniature with classy main driver now has fine overall balance to match	19,530,22		88	4	45				187
Heybrook Heylios	389	Great all-round performance in a pretty package at a sharp price	24,36,27		87	6	25			1912	164
Heybrook Heylo	439	Good vocal reproduction, but sounds thin and bass seems an afterthought	23,73,19		88	8	30			1658	152
Heybrook Ultima	649	Has the bass wallop to justify its dual hi-fi/home cinema roles, but doesn't excite	22,97,29		89	6	45			2126	174

CONTINUED

Hi-Fi Loudspeakers

SPECIFICATIONS

SIZE WITHD (CM) FLOORSTANDER SENSITIVITY (db/W) IMPEDANCE (Ω) BASS FROM (Hz) FREE SPACE CLOSE TO WALL FACTSBACK NO. ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	PRICE	TYPE	SENSITIVITY (db/W)	IMPEDANCE (Ω)	BASS FROM (Hz)	FREE SPACE	CLOSE TO WALL	FACTSBACK NO.	ISSUE NUMBER
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 Delta 60	700	Striking and massive floorstander, lots of speaker for the price, but seems a victim of its own complexity	16,29,115,41	●	90	4	25	●	●		183
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 Comet 195	350	Loads of bass, should have plenty of yooof-appeal – it looks the business, and is priced attractively	20,5,91,31	●	90	3	26	●	●		183
Jamo 477A	500	Very prettily styled, but build and sound quality are disappointing at the price	19,77,28	●	88	4	40	●	●	1549	138
Jamo 507A	700	Imaginative styling keeps the front view super slim yet still it packs a punch. Glass top is a nice touch	22,94,37	●	88	3	40	●	●	2126	174
JBL LX2	250	Irvingoring, if a touch crude, this good-hearted speaker reproduces music with considerable enthusiasm	22,40,27	●	87	8	40	●	●	2022	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, with a fun sound, enlivened by a juicy bass thump	17,5,51,31	●	86	8	40	●	●	2127	174
JBL L40	1,000	Classic, large, stand-mount three-way is full of vim and vigour, with a superb sense of balance	30,65,31	●	88	4	23	●	●	1976	167
JBL 4312 II	1,000	Crude but startlingly effective dynamics. The original party animal knows just how to rock 'n' roll.	36,60,30	●	94	4	25	●	●		190
JBL SVA 2100	1,250	Monstrously large and brutish styling, goes very loud as well as deep. Fine focus but some boxiness	37,114,52	●	91	8	<20	●	●		180
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
JBL LX70	550	Bassmeister supreme, shame the rest doesn't match up. Fine sensitivity but an itchy scratchy treble	26,5,94,30	●	91	4	33	●	●		183
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
JM Lab Tantal 515	495	Lively and open if bright. Sound is entertaining and informative, but presentation is nondescript	20,94,26	●	92	5	32	●	●	183	183
JM Lab Mezzo Utopia	7,250	Looks good and sounds even better. A genuinely big speaker with fantastic coherence	35,115,47	●	92	4	30	●	●		186
Jordan Watts JH400	565	Piano-finish hexagon has controversial sound, with uneven balance but delightful mid	28,38,21	●	86	8	50	●	●		106
<bjpw b="" mini="" monitor<=""></bjpw>	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	169
JPW ML710	230	Good material value but disappointingly uneven bass – check out the 510s instead	20,88,30	●	88	5	40	●	●	2202	177
JPW ML910	330	Loads of speaker for the money, plenty of headroom and loudness capability, but sounds dull	23,104,30	●	91	4	43	●	●		183
JPW ML1010	400	A seriously substantial speaker for the price, and an obvious choice for those who like their music loud	22,5,115,40	●	91	6	25	●	●	2031	170
JPW Ruby 1	400	Very pretty but pricey luxury metal-cone miniature has good, if slightly edgy balance	19,32,21	●	87	6	55	●	●	1572	139
JPW Ruby 4	1,000	Twin metal-cone main drivers improve the dynamic performance and bass extension, with little sacrifice	22,94,26	●	88	8	25	●	●	2132	174
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 Q15	200	Beautifully balanced and voiced stand-mount, but a potentially tricky amplifier load at high frequencies	20,5,31,27	●	90	2.5	30	●	●		187
KEF Coda 9	299	Uneven budget 3-way floorstander with poor bass definition	20,86,28	●	89	6	30	●	●	1785	156
KEF RDM One	499	Cute and tiny, nice midband but lack of bass warmth and weight	23,30,24	●	88	6	70	●	●	1913	164
KEF Q65	799	Dumpy-looking three-way has loads of bass and a laid-back midband; goes loud but lacks poise and impact	23,95,31	●	92	2.5	25	●	●		190
KEF RDM Three	1,500	Definitely a speaker aimed at long-term satisfaction rather than immediate impressiveness. Nice	24,100,27	●	90	4	40	●	●		189
KEF Reference Model 2	1,599	Classy, large floorstander that has massive headroom and clean mid-to-treble, but limited deep bass	23,103,34	●	89	4	30	●	●	1987	167
Kelly KT2	700	Chunky floorstander has tacky finish but whopping sensitivity and a very involving, (if characterful) sound	23,89,34	●	94	4	33	●	●	183	183
Kelly KT3	1,200	Super-high-sensitivity, hefty floorstander sacrifices smoothness for dynamic realism	25,95,36	●	95	4	28	●	●	2133	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 styling. Goes loud and deep but could be smoother	18,26,93,28	●	90	4	20	●	●	1977	167
Linn Kan	295	Great bass discrimination from size, ensuring a very informative, if slightly shut in experience	19,31,19	●	86	4	45	●	●		187
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	180
Magnat Vector 77	450	Tall, dark and a lot of speaker for the money. Beautiful balance, but lacking in subtlety and transparency	22,115,29	●	89	5	30	●	●		183
Magnat Vintage 720	1,200	Slightly crude in some respects but lots of heart, fine scale, decent dynamic coherence and integrity	29,113,32	●	88	4	20	●	●		180
Mission 700	130	A lot of speaker for the money. Good bass weight and extension and goes loud with ease	18,34,26	●	87	8	40	●	●	2257	179
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	169
Mission 771	170	Beautiful stand-mount miniature has a delightfully well balanced and voiced sound, and real wood finish	17,31,22	●	86	7	45	●	●	187	187
Mission 750LE	250	Fabulous cosmetics and a great midband carry the day, though size will out and bass is inevitably limited	17,28,27	●	86	7	45	●	●	2203	177
Mission 735i	330	New tweeter gives a more open sound; a good all-rounder that doesn't sound as big as it looks	20,5,88,30	●	88	8	45	●	●	2027	170
Mission 774	500	Gorgeous floorstander is an entertaining communicator, despite some balance oddities (bright treble)	18,95,31	●	90	4	40	●	●		183
Mission 752 Freedom	578	A beautifully judged compromise in the art of combining presentation with a decent sound	20,90,25	●	89	8	45	●	●	2123	174
Mission 753 Freedom	798	Great styling. New, more restrained tweeter reveals fine midband dynamics	21,90,31	●	89	4	40	●	●	1914	164
Mission 754 Freedom 5	1,298	Tall but exceptionally elegant floorstander gives fine midband projection; goes loud but limited deep bass	22,111,31	●	88	4	40	●	●	1981	167
Monitor Audio Monitor 3	400	An exceptionally discreet floorstander; sonically uneven, but capable of fine results	16,91,21	●	88	5	30	●	●	2032	170
Monitor Audio Monitor 4	500	An oddball balance but an entertaining sound, and a good looking real-wood-box at a realistic price	20,87,24	●	84	6	23	●	●	2210	177
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 intimate midband focus	20,40,25	●	87	8	30	●	●	2128	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	1,400	Beautifully finished compact floorstander with fine midband coherence, but limited bass and top end	20,94,28	●	89	4	25	●	●		180
Mordant-Short MS812	100	Quirky styling and a very laid back presence, but great musical integrity and solid value for money	20,5,42,25	●	88	5	44	●	●		187
Musical Technology Kestrel SE	300	Brighter and drier-sounding than the standard Kestrel (and not the better for it)	20,84,19	●	84	5	50	●	●	1915	164
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 PM15	450	A subtle, understated but very involving example of the 'classic' luxury-finish compact standmount.	20,41,27	●	88	5	38	●	●	183	183
Musical Technology Condor	1,000	Lots of clever ideas in a floorstander, which places transparency and smoothness ahead of dynamic drama	25,91,23	●	85	4	28	●	●	2134	174
Musical Technology Falco	680	Big speaker has a big but also surprisingly smooth and civilised sound. Fine material value too	33,117,30	●	89	4	22	●	●	190	190
Naim Intro	660	Great dynamic range and info retrieval, but thin, lacks warmth	24,89,27	●	89	6	30	●	●	1916	164
Naim Credo	1,060	Involving sound, but rather forward and cold. Good clarity, but some coloration and a lack of richness	24,89,30	●	88	8	28	●	●		180
Naim SBL Passive	1,970	Lively and punchy – smoother but more upfront than before	27,89,27	●	88	6	25	●	●	1352	143
Neat Critique 2	445	Contemporary standmount has a clean, crisp sound with lovely natural midband voicing	22,32,24	●	86	6	50	●	●		183
Neat Mystique Mk2	575	This elegant package delivers a fine overall sound quality; some might find the top end too insistent	20,86,18	●	85	6	23	●	●	2211	177
Neat Petite II/Gravitas	2,000	Beautifully presented miniature/subwoofer combo with ribbon tweeter gives smooth, laid-back sound	23,105,40	●	85	6	25	●	●	1988	167
Opera Prima	495	Good-looking hardwood enclosure, plus fine mid and treble, but less satisfactory bass	19,34,31	●	90	4	40	●	●		190

CONTINUED

Hi-Fi Loudspeakers

SPECIFICATIONS

SIZE WxHxD (CM) FLOORSTANDER SENSITIVITY (dB/W) IMPEDANCE (Ω) BASS FROM (HZ) FREE SPACE CLOSE TO WALL FACTSBACK NO. ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS								
Origin Live Conqueror	1,650	Chunky floorstanding three-way has lovely cabinetwork and lively sound, but limited deep bass	24,94,27	●	88	8	30	●	1989	167
PMC TB1S	430	Pro-audio version of TBI	20,41,30	●	87	6	40	●	2207	177
PMC TB1	482	A classy, laid-back performer that likes going loud and loves the bass guitar	20,40,31	●	87	8	45	●	1830	160
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
Polk LS70	1,200	High sensitivity, but balance has too much midbass boom; mid-top is laid back	31,94,37	●	90	8	22	●	1084	132
Proac Response 2.5	2,700	For aspirant high-enders looking for seriously good boxes, this speaker should be first port of call	22,107,25	●	86	8	30	●	1457	149
QLN Signature	1,000	Attractive pyramidal stand-mount with heavy, laid-back balance but remarkably unboxy sound	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	KYTE drivers in compact floorstander give 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 coherence	34,42,27	●	95	8	55	●	1982	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	●	2023	170
RMS Revelation Series 1	1,299	Innovative metal-box compact with integral port/stand - clean with good timing but very laid-back balance	20,99,24	●	81	8	22	●	1983	167
Rogers dB101	100	This shapely sub-miniature is fast and agile but lightweight and forward: great voices; lacks bass	20,26,20	●	88	6	45	●	2024	170
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	●	1979	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 Epilogue	269	Beautifully finished miniature with a lively balance and plenty of charm; best suited to smaller rooms	17,29,23	●	87	8	47	●		183
Ruark Sceptre	599	'Traditional' cabinetwork with classy veneer and shiny gilt fixings, hampered by rather wayward sound balance	21,38,31	●	87	8	40	●	2129	174
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 three-way with wonderfully even-handed, if rather laid-back balance	24,94,31	●	85	6	22	●	1990	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
Ruark Excalibur	7,000	A big handsome speaker with a big, laid-back, but open sound, rocking bass and loads of headroom	30,125,53	●	90	4	30	●		186
SD Acoustics SD3R	649	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	●	1917	164
Shahinian Arc	1,875	Occasionally wonderful, small, floorstanding omni directional design: bright but coherent and revealing	35,69,25	●	88	6	24	●		110
Silverado Raider	695	Beautifully built audiophile compact: neutral if bright, tough work for amps	20,40,25	●	83	3	30	●	1918	164
Snell K.5	795	Classy AV-ready stand mount is very solidly engineered. Sound is neutral but lacks excitement	22,46,30	●	87	6	25	●		190
Spendor 2030	599	Discreet slimline floorstander with delicately coherent, laid-back sound	18,89,27	●	87	8	30	●	1836	160
System Audio 1130	499	Super-slim, super smooth, involving experience, but not ideal if you like your bass deep and loud	3,100,21	●	89	4	43	●		183
System Audio 1150	749	Pricy but persuasive, sonic subtleties sneak up to confound a dodgy first impression. Super-slim styling	16,105,26	●	90	4	30	●		190
Tangent Monitor 5	80	An uneven performer best suited to small rooms and generous volume levels	17,52,18	●	83	8	55	●		169
Tangent Monitor 9	150	Budget floorstander that motors when the music demands, with a solid bass but occasionally raw treble	19,5,75,5,22.5	●	90	6	45	●	1926	165
Tannoy Mercury M1	120	Sounds much bigger and expensive than it is. Solid, tuneful bass, wide open soundstage, excellent imaging	17,30,20	●	87	8	50	●	2259	179
Tannoy Mercury M2	140	A fine all-rounder with big box and deep bass for the price; could be sweeter and tighter	20,5,38,28	●	87	8	25	●		169
Tannoy R1	200	Pretty little mini-monitor is smooth, well mannered, and polite to a fault, lacks dynamic expression	17,30,22	●	86	4	30	●		187
Tannoy Mercury M3	230	Good-looking floorstander; very neutral and evenhanded, with fine midband but weak dynamics and drive	20,5,87,28	●	87	7	20	●	2025	170
Tannoy Precision P20	400	A creative and attractive design with time-aligned drivers, but the sound lacks sufficient excitement	21,80,30	●	88	5	25	●	2208	177
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 Nucleus 2	130	A very competent miniature. Could be smoother, but no serious flaws, and hence good basic value	20,29,22	●	88	4	45	●		187
TDL RTL3SE	450	A touch of boom'n'tizz might be to taste, but this is a lot of box for the money, with floor-shaking bass	20,91,39	●	89	6	22	●	2124	174
TDL CF100 Chiltern	450	Tiny but classy monitor has a laid-back balance, a fine midband and a surprising bass; but needs space	20,29,23	●	85	8	50	●		183
TDL CF200 Cotswold	650	Fine midband tonality and dynamic range, but less happy towards the bandwidth extremes	22,5,78,23	●	86	6	40	●	2212	177
TDL T-Line 3	700	Plenty of bass and treble, but broad midband is rather repressed	20,97,38	●	86	8	20	●	1921	164
Technics SB-M20	200	Well-balanced with natural perspectives and fine midband coherence, but bass is a bit boxy and uneven	20,32,23	●	70	8	50	●	1413	148
Technics SB-M500	450	This model offers a clean, open sound, offset by midbass, heavy balance and low sensitivity	25,78,37	●	85	8	25	●	1666	152
Triangle Zephyr II	599	Loads of fun. Dramatic dynamics and righteous timing will give any hi-fi system a wake-up call.	22,94,29	●	91	4	25	●		190
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
Wilson Benesch Bishop	20,000	Deep and even bass sets new standards for cleanliness and clarity; lovely open midband too	23,161,561	●	89	4	S20	●		189
Wharfedale Diamond 7.2	140	A good-hearted, lively and up-front performer that's a little lacking in subtlety and smoothness	19,29,5,23	●	88	4	45	●		169
Wharfedale Diamond 7.2 Anniversary	200	Lively and exuberant, but a tad untidy with it; can sound a bit cold and hard	19,29,5,24	●	88	4	40	●		187
Wharfedale Valdsu 400	200	Very loud with a minimum of amplification, but the sound is thick and uneven, with a heavy upper bass	25,80,26	●	91	8	30	●	1414	148
Wharfedale Valdsu 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	●	1922	164
ZYP AI	199	Cute metal-cased micro-miniature is quite coloured but great fun	14,22,12	●	88	8	30	●		110
SUBWOOFERS										
Acoustic Energy AE108S	299	Lots of loud subwoofer for your money, though ultimately more film than music oriented	50,42,43	●			20	●	2247	179
B&W ASW1000	499	(Active) Very competently engineered all round, and goes (unnecessarily) very loud	54,47,48	●			20	●	2248	179
B&W AS6	500	(Active) Good material value with a fair amount of low bass from 100W design	45,51,45.5	●			30	●	1736	154
Celestion CS135	139	Compact hideaway passive sub lacks deep bass for high sensitivity speakers	52,19,34	●	86	8	45	●		128
Jamo SW600	530	(Active) Has some neat styling touches and remote control, but deep bass is limited	38,41,53	●			30	●	1736	154

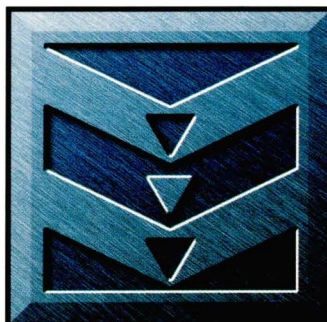
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Hi-Fi Loudspeakers

SPECIFICATIONS								
SIZE WxHxD (CM)	SENSITIVITY (dB/W)	FLOORSTANDER	BASS FROM (Hz)	IMPEDANCE (Ω)	FREE SPACE	CLOSE TO WALL	FACTSBACK NO.	ISSUE NUMBER
JPW SW60	349	A real heavyweight, sounds clean and transparent, if perhaps a little understated. Usefully flexible	55,47,39				20	2249
KEF Model 30B	499	(Active) Commendably discreet with good sense of timing but limited extension	38.5,37,43	●			45	1736
KEF AV1	2,499	(Active) Works well, looks great, shakes the windows but costs a lot and is bulky	56,43,50	●			45	128
M&K VX-7B	450	(Active) Baby of a big range; this active design delivers deep, plenteous bass but lacks transparency	35,25,37	●			40	1736
M&K MK70	900	(Active) Justifies cost and belies its diminutive size, with an agility that makes sense of the toughest material	25.5,46,35				25	2250
REL Q50	375	(Active) Genuinely deep, clean bass from an attractively compact and cost effective package	40,41,42				20	2251

STATUS

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Stands & Supports

Hi-Fi supports are more important than you might imagine – they can have very subtle effects on the sound of your system! There are two kinds of support: those for equipment and those (stands) for loudspeakers. Equipment supports keep vibrations and resonances from affecting electronic components, while speaker stands hold enclosures stock-still and ensure they are at the correct height for your ears. Equipment supports may be rigid affairs fabricated from steel or more exotic materials; or they may have a form of suspension. Speaker stands come in a variety of sizes and styles to suit different models, and vary between open-frame and solid-pillar types. Always check with speaker and electronics manufacturers to see which supports they recommend.

KEY TO SPECIFICATIONS

- **HEIGHT (cm):** How tall is your support?
- **TOP PLATE SIZE (cm):** Dimensions of top surface on stand or equipment support.
- **FILLABLE:** Some speaker stands can be mass-loaded with sand or lead-shot to improve sound.
- **WELDED:** The better stands and supports are welded together rather than just bolted.
- **NUMBER OF SHELVES:** The number of tiers on an equipment rack or support.
- **SHELF TYPE:** The material from which shelves are made. Wood generally means Medium Density Fibreboard (MDF).
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback advert on the penultimate page of the magazine.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

B BEST BUY
R RECOMMENDED
E EDITOR'S CHOICE

Stands & Supports

SPECIFICATIONS						
TOP PLATE SIZE (cm)	FILLABLE	WELDED	NUMBER OF SHELVES	SHELF TYPE	FACTSBACK NO.	ISSUE NUMBER

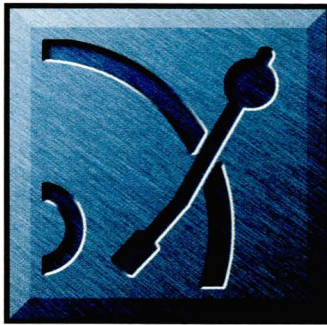
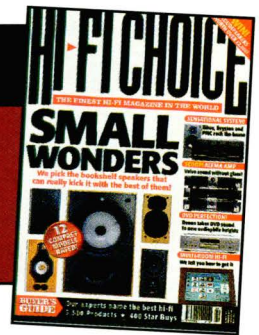
STATUS

PRODUCT	(£)	COMMENTS	TOP PLATE SIZE (cm)	FILLABLE	WELDED	NUMBER OF SHELVES	SHELF TYPE	FACTSBACK NO.	ISSUE NUMBER
EQUIPMENT SUPPORTS									
Alphason GR 17/17-AS	275	Great looks but sound can be bettered at this price	36	60,39		4	Glass		181
Elemental Isotube x 4/Ref	1199	Blockbusting size and build. Super sound quality	92	45,49	●	4	Marb		181
Fi-Rax R4	399	Lively, exuberant sound, slightly weak bass				5	Glass	1633	151
Frameworks H500/H175	404	Two-shelf stand and isolation platform combo in tubular steel – made a spectacular impression on audition	70	52,34	●	3	Glass	1952	166
Ixos Deadrock 704	250	Looks unassuming but sound is full and inviting		46,39		4	Resin		181
Kudos Corinthian	599	True heavyweight that doesn't quite manage knockout sound	91	46,38		4	Wood		181
Mana Acoustics Ref. Table	350	King of its type: angle iron, chipboard and glass combine to make a significant difference to sound quality	56	49,39	●	1	Glass		147
Mana 5 Tier Sound Table	600	Infinitely upgradeable. Persuasive and thrilling glass and angle-iron design that adds speed and bandwidth	91	49,39	●	5	Glass	1633	151
Optimum Int 2000 OPT490	299	25kg stand with shelves between variable-height tubular uprights. Sounds smooth and relaxed with sturdy bass	50	60,40		4	Glass	1953	166
Optimum Int 2000 OPT660	349	Glitzy style isn't reflected in sound, which is wholesome	82	60,52		5	Glass		181
Quadraspire Q4	250	Easy to live with, tonally neutral	54	40,49		4	MDF	1633	151
Sound Organisation Z038	135	Too lively and lacking order – but inexpensive	50	84,40	●	5	Wood	1633	151
Sound Organisation Z560	160	Welded and bolted members give structural integrity. While performance is not up with the best, it's great value	90	46,36	●	5	Wood	1954	166
Soundstyle X100	230	Looks lovely, sounds lively but slightly bright	64	49,28	●	4	Glass		181
Soundstyle Select 6105	290	Respectable sonics: structurally solid and smart	78	43,36		5	Glass	1633	151
Soundstyle Finewoods W105	320	Veneered shelves clamped between tubular uprights. Delivers with classical material	82	48,27		4	Wood	1955	166
Sound Organisation Z545	150	Budget gem from the stalwarts of sound supports	70	46,36	●	4	Glass		181
Stands Unique Sound Tower	289	Wooden uprights combine with glass shelves to provide a fresh, forward sound, but bass could be quicker	81	72,42		5	Glass	1633	151
Target B5	175	Free of colorations, fine grip and good value	81	49,36	●	5	Wood	1633	151
Townshend Seismic Stand	1245	It's big, it wobbles and it's pricey. But this is the ultimate equipment support	72	58,45		3	Wood		181
Wilson benesch Asside	590	Sounds even better than it looks. And it looks wonderful	72	37,50		4	Wood		181
SPEAKER STANDS									
Alphason NC I	45	Filled single-column design without threaded spike holes, that's appropriate for non-critical applications	40-60	16,16	●			1373	146
Alphason NCII	85	Tall, slim and elegant, though sound and value are unexceptional	40-60	17,17	●				159
Alphason HDS	85	A reasonable stand with a smooth but rather bland sound balance. Good finish options.	45-60	15,5,15,5	●				189
Alphason Titan	125	Excels in the midband and allows voices to come across in a detailed and expressive fashion	40-60	16,16	●	●		1373	146
Apollo Olympos	75	A popular stand and a decent performer, but unremarkable by today's standards	40-60	15,12,5	●				189
Apollo AZ6	80	Fine engineering value, but sound is unexceptional and top-plate small	66	15,13	●	●			159
Atacama BD21	55	Good-looking and good value, but doesn't match the SE24's sound quality	56	15,17	●				159
Atacama R724	150	Atacama uses its market strength to deliver a superbly appointed product at a very reasonable price	60	15,17	●	●			189
Atacama SE24	70	Stands out from the budget crowd because of the consistency and overall quality of its performance	61	19,17	●	●		1373	146
AVF Tower 400	35	Ridiculously cheap and much better than no stand at all	54	17,20	●				159
Black Box Speaker Stand	797	A strange and costly beast. Bass is a touch thick, but performance with synthetic music types is worthy of the price	92-112	40					189
Custom Design R/S 300	70	Combining strong aesthetic and sonic appeal at a popular price point, this is a good stand all-round	40.6-60.9	15,15	●				189
Elemental Isotube SZse	599	Stands of distinction, able to free the speaker's sound from its box in a way budget stands simply can't	61	23,27	●	●			189
JPW HS1	120	A purposeful stand, a touch dry-sounding but particularly strong with bass. Great for rock and dance music	61	19,21	●				189
Kudos S50	100	Better sound than the budget stands, particularly in low-frequencies	60	15,21	●				159
Kudos S100	270	The best all-round stand around... Probably...	63	15,21	●				159
Mana Soundframes	125	For use under floorstanders and equipment racks, these make music effortless and natural. Can be stacked	5			●		1373	146
Partington A-4	119	An odd-ball stand with a sound that's sheer class. More open and focused than almost anything below £150	50-100	19,22	●	●			189
Revolver RS1	70	A good blend of performance and appearance for the price	53	18,18	●				159
RMS/Stands Unique Vivus	349	Pricy carbon fibres give ultra-clean sound with exceptional voices	50	N/A					159
Russ Andrews Torlyte	599	Subtle and musical-sounding stands, though a touch more 'pizazz' is need for Recommendation at this price	61	33,5,24					189
Sound Organisation Z524	69	A coherent-sounding stand with particular strengths in the midband, though quality drops at the frequency extremes	61	16,17					189
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	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



HI-FI CHOICE ARCHIVE

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Tonearms

Less expensive turntables are usually supplied with a matching tonearm (and often a 'starter' cartridge, too). However, hard-core vinyl fans should invest in a more expensive separate motor unit with specialist tone-arm – the only way to make the most of vinyl LPs. It is essential to achieve operational synergy between such components, so this is one area of hi-fi where the skills of a knowledgeable dealer are invaluable. The quality of a tonearm's construction and design affect sound quality significantly. There are three basic arm designs listed in the key, and each has strengths, but pivoted designs are the most popular, being usually the most practical and affordable.

KEY TO SPECIFICATIONS

- **EFFECTIVE MASS:** This relates to cartridge compliance. Generally high mass arms are suitable for low compliance cartridges and vice versa.
- **PARALLEL TRACKING:** An arm which allows the cartridge to track the disc in a linear fashion.
- **PIVOTED:** Arms which allow the cartridge to describe an arc as they traverse the record.
- **UNI-PIVOT:** Pivoted arms with a bearing that allows movement in two planes.
- **EFFECTIVE LENGTH (CM):** Length of arm from bearing to cartridge mounting.
- **ADJUSTABLE HEIGHT:** Important for accurate cartridge set-up.
- **FACTSBACK REFERENCE:** The Factsback Reference number permits direct access to our faxed review reprint service. For full info, see the Factsback ad on the penultimate page of this issue.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

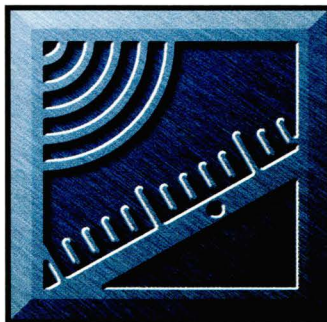
B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE

Tonearms

SPECIFICATIONS

STATUS

PRODUCT	(£)	COMMENTS	PARALLEL TRACKING	PIVOTED	UNI-PIVOT	EFFECTIVE LENGTH (CM)	FACTSBACK NO.	ISSUE NUMBER
Kuzma Stogi Ref	1,250	Large, solid and well-made arm, gives exceptionally clear sound with just a hint of brightness	High	●	●			79
Linn Ekos	1,500	Superb, state-of-the-art design which builds significantly on predecessor's strengths	Medium	●	●	229	●	67
Moth Arm	95	The ultimate budget arm? Refined, sweet, detailed and natural	Low	●	●	237	●	60
Rega RB300	174	Despite its modest price it sets exceptional standards and could be used on many high-end turntables	Low	●	●	237	●	60
Roksan Tabriz Basic	275	Targeted at the Xerxes, this is a good alternative to the Rega arm in many cases – a touch bright though	Low	●	●	240	●	91
SME Series IV	983	Superb engineering and finish with a finely balanced sound, impressive stereo focus and low coloration	Low	●	●	233	●	60
SME Series V	1,461	Excellent in all respects, this arm arguably sets the standards for pivoted arms, regardless of price	Low	●	●	233	●	60



Tuners

TV has stolen radio's status as the foremost broadcast entertainment medium, but with its Radio Four plays and Radio Three music, the BBC still makes a potent case for audiophile reception equipment. For how much longer, under the cost-conscious Birtist régime, remains to be seen. Another new imponderable is the arrival of digital radio broadcasting, though reception apparatus is currently non-existent outside of the in-car market. These days tuners play second fiddle to hi-fi sources like CD, but in many ways they are a greater engineering challenge than digital equipment, and thus higher prices dearly equate to superior performance. High-quality, roof-mounted antennae are essential for audiophile listening, so factor them into your budget.

KEY TO SPECIFICATIONS

- **WAVEBANDS:** FM – (VHF), M – MW, L – LW.
- **PRESETS:** Number of station frequencies that can be stored.
- **RDS:** (Radio Data System) was originally designed for in-car applications. RDS tuners can identify and display the name of the radio station being received, traffic news and other information about broadcasts.
- **REMOTE CONTROL:** Infra-red control handset supplied.
- **SIGNAL STRENGTH METER:** Indicates strength of signal from aerial – useful for aligning your 'twig' during installation.
- **ROTARY TUNING KNOB:** Experience has shown that this analogue throwback is ergonomically far superior to the button-based approach.
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Tuners

SPECIFICATIONS

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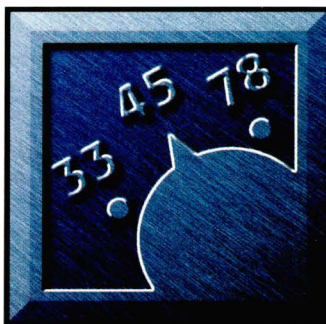
PRODUCT	(£)	COMMENTS	WAVEBANDS	PRESETS	RDS	REMOTE CONTROL	SIG. STRENGTH METER	ROT. TUNING KNOB	FACTSBACK NO.	ISSUE NUMBER
AMC T7	130	Performance adequate but price is sharp, especially with remote control. Some hum	FM, M	30	●	●			1945	166
Arcam Alpha 7	230	Indifferent RF performance but a touch of audiophile sound quality with clean, strong signals	FM, M, L	24					1946	166
Arcam Delta 280	300	Fine sound quality marred by mild synthesiser whine; RF performance only average. Remote £60 extra	FM	20		●				120
Denon TU-425RD	200	A fine all-rounder with advanced RDS, good RF performance and decent sound. Remote extra	FM, M	40	●				1947	166
Denon TU-1500RD	250	A well-balanced and clean sound with good bass and treble extension	FM, M	40	●					184
Magnum Dynalab FT11	499	All-analogue tuner: receives weak or tightly packed stations but loses out on noise and sonic neutrality	FM	3						184
Harman/Kardon TU950	200	Bulky but effective, delivering fine RF performance and good sound for the price	FM, M, L	30	●				1948	166
Linn Kremlin	2,600	Controversially good sound at a very high price	FM	80	●	●			1254	142
Magnum Dynalab FT101	825	Although fairly expensive given its minimum set of facilities, its excellent sound provided ample compensation	FM							72
Marantz ST-48	120	A classic budget model which manages a performance only just behind much more expensive models.	FM, M	60	●					184
Micromega Tuner	750	Has digital output but even without the Micromega DAC, this provides exceptional sound quality. Looks good too	FM	39		●	●		1810	157
Mission Cyrus FM7	400	Open, generous soundstaging gives the music plenty of foundation; a touch shut-in at the top	FM	29					1254	142
Musical Fidelity E50	300	Sounds involving if coloured and with a subjectively larger-than-life presentation	FM	20					1810	157
Myryad T-10	530	A very smart unit which works well and offers good rhythmic drive and vitality, albeit at a price	FM	20						184
Naim NATO1	1,730	There may be better sounding tuners in the world, but we have yet to hear one	FM						1254	142
Pioneer F-504RDS	250	Cable-friendly with advanced RDS and excellent RF performance; slightly disappointing sound	FM, M	40	●				1949	166

CONTINUED

Tuners

STATUS

PRODUCT	(£)	COMMENTS	SPECIFICATIONS					ISSUE NUMBER
			WAVEBANDS	PRESETS	REMOTE CONTROL	SIG. STRENGTH METER	ROT. TUNING KNOB	
Pioneer F-504RDS Precision	300	Lots of features, plus a sound that's low on noise and high on communication, adds up to a good value package	FM,M	40	●	●	●	184
Roksan aspian	595	Neat fascia with great ergonomics, but sound is not really any better than models at half the price	FM	50	●	●	●	184
Rotel RT-935AX	160	Good ergonomics and sound quality at a realistic price, but limited features and RF selectivity	FM,M	20				1950 166
Sony ST-SA3ES	250	Clean, lean presentation but needs a quality aerial to perform at its best	FM,M,L	30	●	●	●	1810 157
Sony STS-B920S	180	A little hiss and image compression don't detract from the clean performance of this feature-packed tuner	FM,M,L	30	●	●	●	184
Technics ST-GT350L	130	Decent RF performance is offset by sound quality more typical of a mini/midi system	FM,M,L	30	●	●	●	1254 142
Thorens TRT2000	499	Not exactly neutral sounding, but nonetheless makes listening fun	FM,M	59	●	●	●	1810 157



Turntables

Specialist turntables are at the heart of high-fidelity sound. CD players may offer ultra-low noise and a flat frequency response, but they can't match the dynamics and superlative rhythmical timing taken for granted by serious turntable users. Less expensive turntables are usually supplied with a matching tonearm (and often a 'starter' cartridge, too). Still better quality is found at higher prices among the separate motor units and tonearms. Because turntables are mechanical devices, designed to retrieve micron-small modulations engraved into vinyl, engineering quality is of paramount importance. This is also the reason why turntables cost as much as they do, and require the finest equipment support systems.

KEY TO SPECIFICATIONS

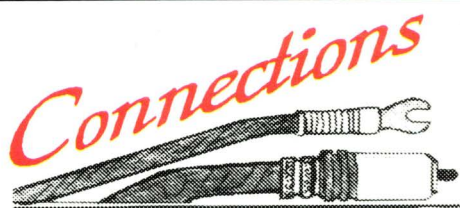
- **MANUAL:** You do all the work.
- **AUTO:** The record player does all the work.
- **SEMI-AUTO:** You put the needle on, the turntable lifts it off at the end of the record.
- **SPEEDS:** In RPM to correspond with long-playing records or seven/12-inch singles.
- **SUSPENDED SUBCHASSIS:** Sprung suspension to minimise structural interference.
- **EXTERNAL PSU:** Outboard power supply; generally indicative of higher-quality performance.
- **SUPPLIED WITH ARM:** Many turntables do not come with a tonearm fitted, but if this category is checked, the deck is already thus equipped.
- **SUPPLIED WITH CARTRIDGE:** If a turntable comes complete with arm and cartridge.
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Turntables

STATUS

PRODUCT	(£)	COMMENTS	SPECIFICATIONS					ISSUE No.		
			MANUAL	AUTO	SEMI-AUTO	SPEEDS	SUSP. SUBCHASSIS		EXTERNAL PSU	SUPPLIED WITH ARM
Clearaudio Reference	3,990	Opulent beast tested with Souther TQ-1 arm. Tends to gloss over detail, but can sound bold	●						33/45	1328 144
DNM Rota 2	5,600	Tonally slightly bleached, but extracts detail like few others. Works well on its own table	●						33/45	1328 144
Dual 505-4 UK	250	Consistent sounding and well isolated turntable. It is slightly lacking in oomph				●			33/45	103
Kuzma Stabi/PS	1,950	(Tested with Stogi Reference) Solid oak plinth; sound is very clear, detailed and extended	●						33/45	91
Linn LP12 Basik	1,100	Trails the full LP12 significantly, but pace, rhythm, timing etc still top rank	●						33	103
Linn LP12 Lingo	1,750	The classic reference is improved by the Lingo, but charming character remains	●						33/45	91
Michell Gyrodec	875	Sweet and natural-sounding player, well matched to Rega RB300 arm	●						33/45	55
Michell Gyro SE	775	A stunningly desirable combination of looks, solidity and sound make this a tempting turntable	●						33/45	190
Moth Kanoot	329	Rather coarse-sounding deck that requires decent isolation and comes with a Rega RB300 arm	●						33/45	1907 164
Notts Analogue Spacedeck/Arm	750	No frills, just a first-rate, outstandingly natural-sounding deck that will last forever	●						33/45	159
Pro-ject 2	300	Remarkably effective at the price, with decent timing and a generally well defined sound	●						33/45	1907 164
Pro-ject 6/Sumiko	850	Don't think of this as a deck with a good arm, but as a scaled-down Oracle Delphi – it's that good	●						33/45	138
Rega Planar 2	214	A remarkable product at the price, surprisingly articulate and confident	●						33/45	48
Rega Planar 3	274	Sounds musical in a balanced manner, needs decent isolation and suffers a little pitch instability	●						33/45	1907 164
Reson RS1	600	Supplied set-up and ready-tuned, this unconventional deck is packed with mid-band detail	●						33/45	159
Roksan Radius 3/Tabriz zi	890	Elegant-looking turntable with a tidy, ordered sound. Bright and breezy if a shade lightweight	●						33/45	159
SME Model 20.2A	4,863	Beautifully built, extremely neutral damped and suspended deck with superb sound. Inc V arm	●						33/45/78	186
Thorens TD166 V/UK/RB	400	Refined, solid sound with well-focused imagery; suitable for use with good MM/MC budget cartridges	●						33/45	103
Thorens TD2001	700	Balances convenience and sound well, but deck lacks detail and bass could be better controlled	●						33/45	159
Well Tempered Record Player	1,850	Intriguing and challenging. Musically not ideal, but its limpid quality and lack of artificiality set standards	●						33/45	1180 136



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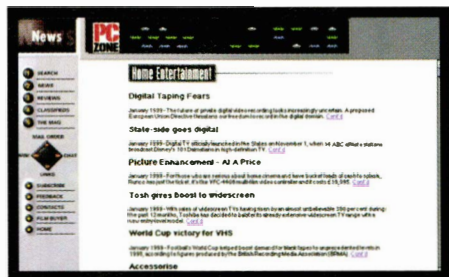
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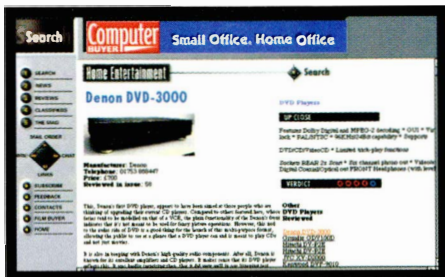
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HI-FI STUDIOS, Sunnyfields, Doncaster, DN5 8SA. Tel/Fax (01302) 781387. Audiolab, Electrocompaniet, Pro-Arc, Ruark, Castle, TEAC, Unison Research, T+A, Impulse Horns, Monitor Audio, Harbeth, Alchemist, Michell Turntables, Nottingham Analogue Studios, Blueprint, Audio Analogue, Exposure, Living Voice, Densen, Celestion, (A series only), Opera, Etalon, Audio Physic, Trichord research, Yamaha and Klipsch Home Cinema Pro-Logic demonstrations Nordost, Stands Unique, stax Electrostats, Ortofon, Ringmat Developments, Audio Technica, Goldring. Listening room, Demonstrations, Home Trial, Free Delivery and Installation. 2 Years Guarantee. Access, Visa. 10-8pm Tues-Fri, 10-6pm Sat, Closed Monday. phone for further information & FREE fact-pact. **BADA**

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PHONOGRAPHY Star Lane, Market Place, Ringwood. (01425) 461230. See under Hampshire

SUTTONS HI-FI, 18 Westover Road, Boumemouth. Tel (01202) 555512. Acoustic Energy, Arcam, Atacama, Celestion, Cable Talk, Denon, Definitive Audio, KEF, LINN, Meridian, Mission, M+K, QED, Rotel, Sennheiser, Teac, Sony, Talk Electronics, Tag-Maclaren, Wharfedale, Yamaha, DTS & Dolby Digital, DVD. 2 Single Speaker Listening Rooms, Home Demonstrations, Free Installations. Open Mon-Sat 9-5.30. Call for details. **BADA**

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AUDIO T, 30 Crown Street, Brentwood CM14 4BA. Tel: 01277 264730 Fax: 01277 264731. Open Tues-Sat 9.30-6 Late night Thursday until 8pm. See our main entry under Oxford. We also sell Michell, Ruark & Technics. **BADA**

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RAYLEIGH HI-FI, 216 Moulsham St, On-the-Parkway, Chelmsford. Tel (01245) 265245. **BADA**

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YEAR	HFC N°S	SOLD OUT ISSUES	AVAILABILITY
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1989	66-77	Jan, Feb, Mar, Jul	Very limited
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1991	90-101	All except Mar, Apr, Jun, Jul	Very limited
1992	102-113	All except Mar	Very limited
1993	114-125	All except Feb, Apr, Jul, Dec	Very limited
1994	126-137	Jun, Aug, Nov	Very limited
1995	138-149	All except Feb	Very limited
1996	150-161	Mar, May, Jun, Oct, Nov	Very limited
1997	162-173	Feb, Jun, Jul/Aug, Sept	Very limited
1998	174-185	Jan, Apr, May, Nov, Dec	Limited
1999	186-	None sold out	Good

2. GET REVIEW REPRINTS BY FAX



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The *Hi-Fi Choice* website holds copies of reviews from the past two years. It also offers a user-customisable search facility for specific products and price-points. In addition, there is a unique opportunity to swap hints, tips and gossip in our online 'chat' areas. Our site has been remarkably successful since its launch earlier this year, and is currently scoring approximately 405,000 hits per month, with a total of 90,000 page impressions. The site has no less than 6,700 unique users!

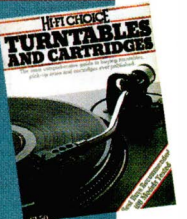
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If you are interested in an *HFC* review of an older component, and the back issue has sold out, we can send photocopies of old reviews to any UK address for a flat fee (inc. p&p) of £5.00 per review. You must know in precisely which issue the original review appeared; we are unable to search back issues for old reviews. Send a written request, enclosing a cheque made payable to Dennis Publishing Ltd, to: *Hi-Fi Choice* Reprint Service, Dennis Publishing Ltd., 19 Bolsover Street, LONDON W1P 7HJ.

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HOW TO ENTER

Find the letters in the highlighted boxes within the crossword which form an anagram of a hi-fi related word, for you to decipher.

THE HI-FI RELATED WORD HIDDEN IN THE CROSSWORD IS:

Post this entry form to:

Hi-Fi Choice Competition (CHFC 906B)
Bradley Pavilions, Bradley Stoke North,
Bristol BS12 0BQ

All entries must arrive by First Post,
Thursday 24 June 1999.

Name

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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 further information on other products or services.

Please tick one only of the following:

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Competition Rules

1) The Closing Date for the Reference Cable Competition is Thursday 24 June 1999.

2) Winners of the competition will be judged from all correct entries submitted, and drawn at random after the Closing Date given in 1) above.

3) All winners will be notified by post.

4) The Editor's decision is final and no correspondence will be entered into.

5) The Reference Cable Competition is not open to employees of Dennis Publishing Ltd nor their suppliers, agents or associates.

6) We regret this competition is open to UK residents only.

7) No cash alternatives will be offered.

8) We reserve the right to substitute alternative prizes with equal value to these shown, in the unlikely event of stock being temporarily unavailable.

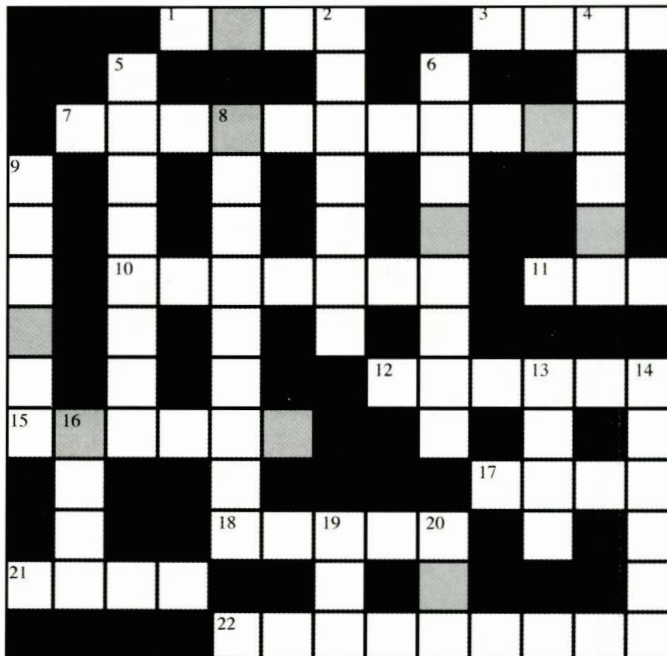
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10) All entries must be on this official entry coupon. If you do not wish to cut your magazine, you may send a photocopy of the page instead. Please note: only one entry form per household.

CHFC 906B

THE HI-FI CHOICE CROSSWORD

Test your hi-fi knowledge and win a complete set of Reference Cables worth almost £1,000!



THE CLUES

CLUES ACROSS:

- 1) Start regarding the Kyte loudspeaker's maker (4)
- 3) Something fish-y below treble and midrange (4)
- 7) Rendition of a Fase Evoluzione amplifier (11)
- 10) Magnum analogue tuner from a somewhat dynamic little laboratory (7)
- 11) Arrow-firer with a Wazoo amplifier (3)
- 12) Sonic Frontiers integrated amp playing our national song (6)
- 15) Danish manufacturer of the Beat series in a hidden sentence (6)
- 17) They make an Intro to a speaker (4)
- 18) Acute company behind the MD-R3H CD/MD combo (5)
- 21) Flying insect gets the Kanoot turntable (4)
- 22) Alan meets a pharmacist – creator of the Nexus CD player (9)

CLUES DOWN:

- 2) A serial about radio antennas (7, anag)
- 4) Two-channel sound from such a piece of equipment (6)
- 5) Digital audio specialists found at midday (8)
- 6) Gesture to the musicians on FM or AM (8)
- 8) Boundaries that follow a Sonic firm (9)
- 9) Can Rod name Johnson's hi-fi partner? (6, anag)
- 13) Phones the school boss for a private listening (4)
- 14) Get a Gamma amp in an instant (6)
- 16) Resound under the Beam PP-21 preamp (4)
- 19) Budget amp specialist in a tramcar (3, init)
- 20) Disturbed a rep before amps (3, anag)

AFTER SOLVING THE PUZZLE, UNSCRAMBLE THE LETTERS FROM THE HIGHLIGHTED BOXES TO SPELL OUT THE HI-FI RELATED PRIZE WORD.

WIN WIN WIN

Get your hands on a grand Reference Cables prize

Unleash your system's full high-end potential with a full set of top-of-the-range cables and interconnects. Ecosse Manufacturing is this month's generous prize-giver with a selection of superbly made top-notch, non-directional, monocrystal cables from the much respected Reference Cable company.

This tremendous, once-in-a-lifetime give-away comprises two sets of speaker cable: MS2.15, worth £338, and MS2.3, worth £238. Both come in 5m pairs for bi-wiring the tweeter and woofer respectively and are supplied terminated according to your requirements.

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Here's the deal: the first reader out of the hat who correctly identifies the hidden word in the adjacent crossword wins this stunning prize of highly-regarded audiophile cables, worth almost £1,000!

So, get your brain in gear, complete the form opposite and post it to us by Thursday 24 June for your chance to get wired and you could soon be reaping the musical rewards – for free!



HIGHLIGHTS OF NEXT MONTH'S ISSUE ...

AMPLIFIER MEGA TEST

Choice looks at some of the latest hot integrated amps from the likes of Arcam, Creek, Denon, Edmund Audio, harman/kardon, Marantz, Myryad, NAD, Pioneer and Yamaha. We put ten models in three price groups, from £170 to £400, through their paces.

SPEAKER CABLE

We all know that to get the best performance from your hi-fi components it is worth investing in some top-notch cables. Richard Black takes a Super Test look into the world of recalcitrant speaker cable from the likes of Audioquest, Cable Talk, Chord Co, Ixos, Kimber, QED, Nordost, Sonic Link, Straightwire and van den Hul.



SPINNING VINYL

A long awaited Super Test look at turntables and cartridges. Turntables come from the Michell, Pink Triangle, Pro-ject and Wilson Benesch stables, with six cartridges on test from Audio Technica, Dynavector, Lyra, Ortofon, Reson and Sumiko.

HIGH-END LOVELIES

Next month's combined July/August issue brings you high-end reviews on the KEF Maidstone and ProAc Studio 125 loudspeaker (pictured left), and features Krell's KAV500i monster integrated amp.

■ The July/August issue will be on sale from Thursday 17 June 1999.

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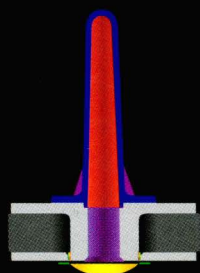


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