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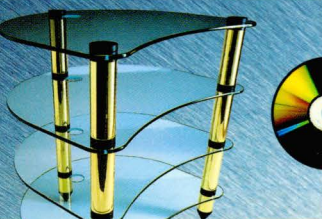
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SHOCK REPORT!
WHAT'S WRONG WITH THE CDS YOU BUY? p14

EXCLUSIVE! WE PUT HDCD ON TRIAL IN GIANT GROUP TEST



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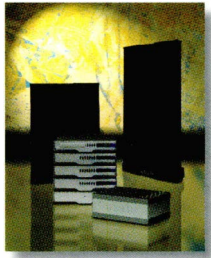
WHY £6,500 WILSON CUB SPEAKERS BLEW OUR SOCKS OFF!



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ISSUE 181
SEPTEMBER
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● DENNIS

PHOTO BY SEAN BLOOMFORTH

Editor's Notebook



Audiophile and bon viveur **Stan Vincent** raises his glass to traditional customer service — an oft-forgotten nicety these days.

When I talk about choosing hi-fi with people who are not enthusiasts, sometimes it helps to draw an analogy with selecting a bottle of wine. Hi-fi is like wine, because both products are hard to choose on a purely objective basis. Not all expensive wines are good; some inexpensive wines are excellent.

At the same time, the choice of wine, like hi-fi equipment, is very much a matter of personal taste. I well remember a dinner with friends when I selected an unusual Lebanese wine acclaimed by the experts for its unusual spicy character. To my palate it was a refreshing alternative. For my companions it might as well have been Vimto.

However, because wine (and hi-fi) both carry a regrettable burden of snob value, all too often novices choose on the basis of conservative, face-saving tactics, rather than trying something new for a change. I saw a prime example of this in a restaurant recently, where a couple spent ages poring over the wine list — not especially long or fancy — only to end up selecting a bottle of house claret. It is always safer to plump for a mainstream conservative choice if you're worried about revealing your ignorance.

However, the customer's ignorance of a subject should be a prime opportunity for specialist dealers to capitalise upon. Help novices choose expertly in uncharted territory, and they'll happily pay you a premium for the service. However, while many of today's hi-fi dealers have grasped this fact, too many still neglect customer service and expect to make a fat profit.

The fact is, you can have the greatest product to sell, but if you don't treat customers properly, they won't feel like they got value for money. This was brought home to me recently in a small but not cheap hotel, which specialised in organic cooking and offered a unique historic situation. However, so wrapped up were the proprietors in the location and bill of fare, they forgot to treat their guests with anything more than modest courtesy. Their prices were hard to stomach; but if the welcome had been warmer, I should not have balked so much.

More recently, while soliciting quotes for TV and FM aerials to be installed at home, I spent time with a contractor who

was obviously a knowledgeable chap, but he couldn't resist using his knowledge in a negative fashion in an attempt to make me feel stupid. Even if I shelled out top whack for a high-gain aerial, he revealed, there was still no guarantee of a decent picture because of tower X in position Y causing multipath distortion. Subtext: when you bought the house you obviously didn't do your TV reception homework properly, schmucko. Needless to say I declined his services on this occasion.

The moral of this story? Good old-fashioned service costs little to provide, yet is worth so much on the bottom line.

Erratum

The Wilson Cub speaker, reviewed on page 45 of this issue, costs £5,495 (plus stands), not £6,500 as advertised on the cover. We apologise for any inconvenience caused by this administrative error.

LIVE98 — SPECIAL TICKET OFFER FOR HFC READERS!

Live98 comes to London's Earl's Court exhibition centre between 24 and 27 September this year. On show will be high-tech gadgets by the score, including digital television, a virtual reality theme park and a dedicated home cinema/hi-fi village. At the time of going to press, hi-fi related exhibitors were: Arcam, Acoustic Energy, Audioclub, BBC, Bose, Celestion, Chord Company, Gamepath Ltd, GLL, Grundig, Henley Designs, Jamo, KEF, Linn, Marantz, Mission NXT, Mordaunt-Short, Naim, Philips, Pioneer, REL, Sanyo, Sennheiser, Sharp, Sony, Teac, Wharfedale and Yamaha.

Normally full-price tickets would cost £9 for adults or £27 for a family of four; but as a *Hi-Fi Choice* reader you're entitled to buy for £6 and £20 respectively, when you call the Ticket Hotline and quote code P53. Ring now on (0171) 341 9341. Even better, there's a free pair of tickets for each of the first 10 HFC readers who call up and quote our code! For more info see the show Web site at www.live98.com. See you there...





MEGA TEST!

An amplitude of amplifiers: our big power test on p64.

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Richard Black compares the latest 24/96 digital disc standard with regular CD. dCS on p40.



MEGA TEST!

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WIN! WIN! WIN!
Stunning Kenwood MD recorders plus TDK discs!

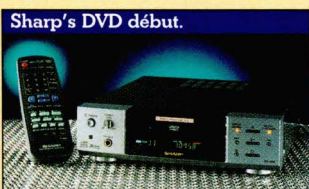
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Update

THIS MONTH... MARANTZ RE-DESIGNS THE SYSTEM... PALMTOP PERSONALS... PIONEER GETS RE-RECORDING.....

In brief



Sharp's DVD début. The population of DVD players continues to expand with the launch of Yamaha's £599.95 DVD-S700 and Sharp's £499.99 DV-560H. Both have built-in Dolby Digital/MPEG2 decoders and component/S-Video outputs. Sharp ☎ (0800) 262958. Yamaha ☎ (01923) 233166

Nordost's new Solar Wind replaces the Blue Angel interconnect at £84.95 per metre pair.

Nordost's patented, extruded, five-millimetre Teflon dielectric surrounds twelve parallel conductors in four groups of three; conductors are silver-plated oxygen-free copper. Low capacitance and inductance are claimed. ☎ (01352) 730251

TLC is a new speaker brand for the UK, from the Tonsil Loudspeaker Company in Poland. Claiming to be one of the first loudspeaker companies to develop foam surrounds and aluminium cones, and also to have the largest anechoic chamber in Europe, TLC will offer a range of speakers aimed specifically at the UK market. First enclosures out of the gate are the Classic 1 and Classic 2 with piano-lacquer finish and angled, time-aligned front baffles. ☎ (0171) 538 4430

Nakamichi Service has moved to: Becket Building, Littlehampton Road, Worthing, West Sussex, BN13 1QA. The company claims it can service and repair all Nak decks except for the 250, 350, 500, 550, 580 (serial no. below 10101), 600/600II, 700/700II

Marantz sets record!

Marantz has joined the re-recordable CD game with its new DR700 CD-RW/CD-R machine priced at £599.90. Though based on the Philips CDR880 (HFC 179), Marantz's version uses custom discrete components and a die-cast CDM36 transport mechanism. User facilities include CD-sync, automatic recording start, sample rate conversion for different types of digital source and a full-function handset.

Also new is the PM-48 integrated amp at £149.90. This remote-controlled, 50 Watts design has defeat-able tone controls, a phono stage and headphone output. Joining it is the SD455, a twin deck cassette recorder at £169.90; the ST-48, a 30-preset RDS tuner at £119.90; and a whole stack of AV receivers.

At the expensive end of Marantz's range, and due at the end of '98, is the CD-7, a high-end CD player

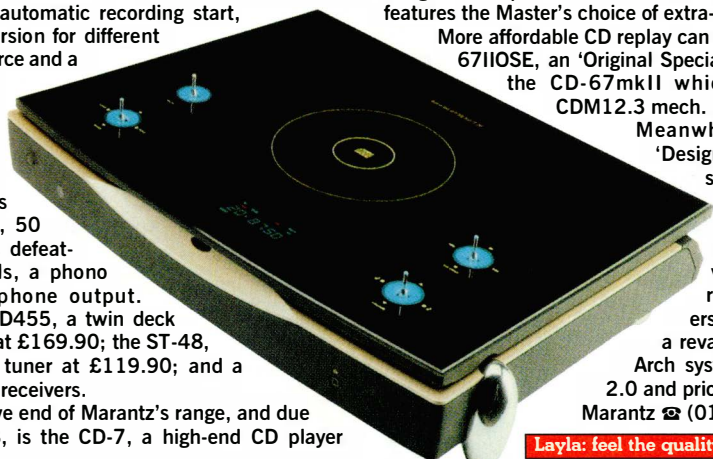
priced at £3,499.90, with DSP digital filtering and twin Burr-Brown converters per channel. Disc drive is courtesy of a CDM12.3 industrial-quality die-cast transport mech.

The KI (Ken Ishiwata) Signature version of the PM-17 integrated amplifier is now available for £1,299.90 and features the Master's choice of extra-tasty components.

More affordable CD replay can be had from the CD-67II0SE, an 'Original Special Edition' version of the CD-67mkII which sports another CDM12.3 mech. Price is £299.90.

Meanwhile in Marantz's 'Designer' series of music systems the latest addition is the MR2020 or 'Layla' as she is known: a very saucy CD receiver with speakers at £499.90. It joins a revamped version of the Arch system, now at version 2.0 and priced £599.90.

Marantz ☎ (01753) 680868



Layla: feel the quality of her joysticks!

Radio Da-Da

The BBC has revealed details of a working Digital Audio Broadcast (DAB) receiver, joint-developed in just six weeks by the BBC and Chepstow-based digital electronics specialists Enigma Ltd. Employing an embedded PC, DAB 'Gold Pack' module from Roke Manor Research and LCD display, the 'two-button' tuner exercise was designed to be very user-friendly and to demonstrate to manufacturers of separates hi-fi equipment the potential of Digital Radio's sound quality and text display facilities.

The display shows station names in sixteen-characters, plus descriptions of content being broadcast.

In a further development mid-June, five car hi-fi manufacturers launched new DAB sets: Blaupunkt's D-FIRE module; Clarion's DAB9475R, Grundig's DCR 200, Kenwood's KTC 959 and Pioneer's GEX-P900DAB.

London residents can now receive up to 20 different digital radio stations, and 60 per cent of UK residents can pick up digital radio broadcasts according to the BBC. e-mail: bbcdab@bbc.co.uk



The two button tuner: wireless goes binary.

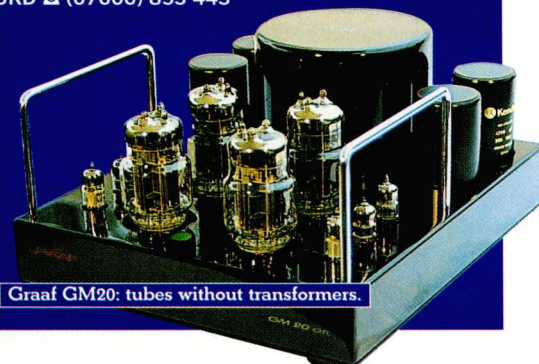
Graaf's Italian stallion

Italy's first ever OTL/OCL (output transformer/capacitor less) power amplifier is now available. The Graaf GM20 is a stylish new valve amplifier which is claimed to be "user-friendly, impeccably constructed and reliable."

As it has no output capacitors or transformers in the signal path, the output stage, with two 6C33C triode power valves per channel, is connected directly to the loudspeaker.

It operates in fully-balanced mode and offers balanced XLR inputs. Rated at 25 Watts per channel in standard guise, the GM20 may also be linked internally so as to provide 60 Watts in mono operation.

It commands a hefty price-tag of £2,750 but comes in an automotive high-gloss black finish, administered in the Ferrari restoration workshops at Modena, Italy. UKD ☎ (07000) 853 443



Graaf GM20: tubes without transformers.

Celestion's metal move

Celestion has broken away from wooden enclosures with its new C-series speakers, which like the Audi A8 have aluminium bodywork. There are three models intended for two-channel stereo applications, built around an aluminium extrusion with cast-alloy top cap, triangular section and curved sides. This, claims Celestion, damps standing waves. An MDF fascia aims to prevent enclosure ringing and the base is a polymer moulding incorporating the dividing network.

Drive units are standardised across the range and comprise a 130mm mid-bass unit with doped-paper cone, and a 25mm titanium-dome tweeter.

The flagship C3, priced at £999, is a true three way which stands 1040mm high, with a tweeter, midrange, two bass units and two auxiliary bass radiators. The C2 is also a floorstander but has two bass drivers and is reflex loaded; price is £699 and height is 850mm. The bookshelf C1, at £299, is a reflex-loaded two-way with matching stand (£199), and is a compact 330mm high. All



Celestion C-Series. Staircase not included.

three are 166mm wide and 247mm deep.

The rest of the range consists of the £299 C4c centre channel, £299 C5r surrounds and £599 C6s active sub. Celestion ☎ (01622) 687442

Hi-fi gets physical

Two British companies have designed what they claim is the world's smallest hi-fi system. Priestman Goode and Cambridge Design Partnership have created the μ -fi which plays music downloaded from CDs or the Internet, and stored in digital memory.



μ -fi: personal stereo for the palm.

The μ -fi is expected to appeal to music lovers, who want to hear high-quality sound as they exercise. "There are no moving parts so it's very light and it won't skip or jump," explained Mike Beadman, of Cambridge Design Partnership.

μ -fi boasts a digital equaliser and audio compressor, plus a screen which displays the artist, album and track.

The two companies are in discussions with Far Eastern manufacturers and expect μ -fi to be available before next summer. The price is estimated to be around £300. Cambridge Design Partnership Ltd ☎ (01223) 264428

Copland's coup de remote

Copland has announced a replacement for the five-year-old, award-winning CSA14 integrated amp. The new CSA28, priced at £1,249, develops on its predecessor with a novel, switchable remote-control system, whose digital processor may be turned off so as not to compromise absolute fidelity. The handset, which will also operate Copland CD players, is sold separately at £60.

The CSA28 retains the 14's valve-powered input pre-differential driver stage, which utilises two 6922 double-triode devices. The output, meanwhile, boasting Toshiba bi-polar semiconductors, claims an RMS power output of 60 Watts into eight Ohms or double that into four Ohms. A built-in phono stage complements four line inputs and a tape or processor loop.

Copland's new 150 Watt power amplifier, the CSA515, also uses valves as high-impedance current regulators in the driver stage. However the real work is done by insulated gate bipolar transistors which are said to blend the properties of FETs and bipolars, in a current feedback configuration. Price is £1,299. Absolute Sounds ☎ (0181) 947 5047

Mr, Mrs and Baby T

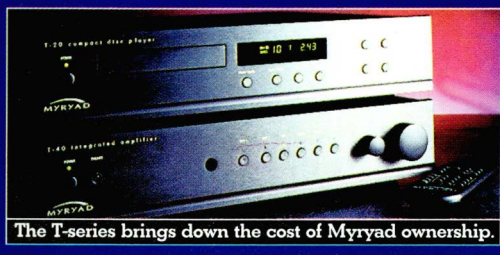
Myryad has just rolled out the first three products in its new T-series. The T-10 CD player is based upon the company's MC100, but is more modestly priced at £399.95. It has a 20-bit Delta Sigma DAC and a 128-times oversampling, linear-phase digital filter.

Next is the £599.95 T-20, more advanced, with all features of the T-10 but the benefit of more separately regulated power supplies, a totally DC-coupled circuit and low distortion FET op-amp in the analogue filter.

Finally there is the T-40, an integrated amplifier which uses the same power amp as the MI120, but now optimised for 50 Watts per channel into 8 Ohms output. Features include five line inputs, and a phono input switchable for line level, separate line-level output for bi-amp operation, and a system remote control handset. Price is £399.95

The range is available in either brushed silver or black anodised finishes.

Myryad ☎ (01705) 265508



The T-series brings down the cost of Myryad ownership.

Get to the bare bones of your CD collection with an X-RAY.



MF's inner vision

Musical Fidelity's new X-RAY CD player claims to be "one of the best CD players in the world, regardless of price."

Designed to sound neutral and consistent, with any CD or amplifier, the X-RAY uses a 24-bit Burr-Brown converter allied to a proprietary five-pole analogue filter

MF claims pre-production samples are exhibiting jitter of only 150picoseconds thanks to a proprietary clock re-timing circuit, while the analogue output is said to draw upon the company's X-10D to give an output impedance of less than 50 Ohms.

Structural stability should be assured by a solid-metal chassis extrusion and a front panel milled from a 'military-specification' aluminium billet.

The X-RAY is styled to match the X-A1 and offers a digital output for connection to a CD recorder or external DAC.

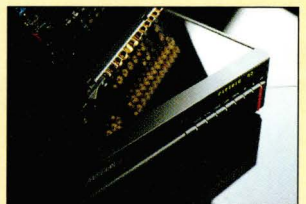
Available as of September, the X-Ray will retail at £799. Musical Fidelity ☎ (0181) 900 2866

In brief

and 1000/1000II. 1000ZXL, 480 and 580 series are still serviceable. ☎ (01903) 695695

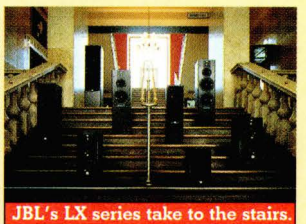
Hot on the heels of recent CD-R announcements, Verbatim now introduces MiniDiscs, available in packs of one or five and retailing at approx. £5 per piece. ☎ (01784) 439781

Straight Wire now offers three 'Level 4' interconnect cables, the Solo, Virtuoso Gold and Platinum priced from £319.99 per one-metre pair. Crescendo is a more esoteric interconnect at £700 per one-metre pair. Three digital cables include one optical and two coaxial designs priced up to £300 per metre. Six new speaker cables are priced from £1.75 per metre (Waveguide) to £9.99 per metre (Stage). ☎ (01423) 359054



Meridian 561 processor/preamp.

Meridian's new 561 Digital Surround Controller combines surround-processing and signal control functions in one box, incorporating many features until now spread between the 565 and 562V units. Features include an analogue tape loop and support for the Meridian '2-Room' system. Furthermore the 561 is a full 500 Series controller and will thus work with Meridian's DSP loudspeakers etc. ☎ (01480) 52144



JBL's LX series take to the stairs.

JBL's new LX Series speakers claim to be high efficiency designs with rated sensitivities of 89dB upwards. A key technical innovation is the poly-methylpentene main driver cone, which is moulded in a one-step process with the surround and suspended within a non-magnetic mineral-loaded polypropylene chassis. Plus there is JBL's renowned titanium tweeter. Prices range

TEAC

You Could Always Get Brilliant Performance From A Mini.

The Mini was always synonymous with performance, whether it was the car or the fashion. And now there's another Mini which delivers unbelievable performance. The Reference 500 System from Teac. The sound quality of separates combined with the convenience of a Mini System. No other Mini comes even close!



"TEAC mini sets standards"

WHAT HI-FI, Jan 97

"All three sources sound big and confident, with an accuracy and delicacy more akin to separates than minis"

WHAT HI-FI, May 97

"In terms of its good looks, the system's asking price could just about be doubled"

Gramophone, Jan 97

Visit your TEAC Stockist for a demonstration or call TEAC on 01923 819630 for more information



You Still Can.

DUE TO TECHNICAL DIFFICULTIES BEYOND THEIR CONTROL, OTHER MINI SYSTEMS WILL NOT BE DELIVERING THIS LEVEL OF PERFORMANCE

Chief Musical Officers' Warning

TEAC

◀ Pioneer rewrites recorders

Pioneer, first into the UK CD recordable market with the PDR-05 but recently undercut by Philips' CDR880, has fired back with the new PDR-555RW, which handles both write-once (CD-R) and rewritable (CD-RW) discs and matches the Philips price of £500.

The '555 features customised 24-bit Burr-Brown DACs and a sampling rate converter adjustable for any input data rate from 10kHz to 59kHz (thus accommodating DJ CD players with adjustable pitch/speed).

There is also a 'recording strategy control' which claims to vary pit burning techniques for different types of recordable disc, and 'Z-concept' jitter reduction circuitry. The PDR-555RW will be on sale in September.

Another Pioneer addition is the £269.99 MJ-D707 MD recorder, which incorporates a Pioneer-developed technology called Advanced Parameter Processing. This is a refinement of the ATRAC system which claims to control the masking characteristics of ATRAC's compression system. The recorder also includes digital noise reduction of the sort found on the Pioneer CT-W806DR cassette deck.

There are two new CD players in the range, the



Pioneer PDR-555RW: £500 competitor for Philips CDR880

£199.99 PD-S507 and £299.99 PD-S707, both incorporating the aforementioned 24-bit Delta-Sigma DAC, stable-platter transports and Legato Link digital filters.

Four new integrated amps can also be found, priced between £129.99 and £229.99.

Finally, Pioneer has a new three-head, digital processing cassette recorder, the CT-S670D, priced at £269.99. This has Pioneer's digital noise reduction system and a synchro feature for recording digital sources.

Pioneer ☎ (01753) 789500

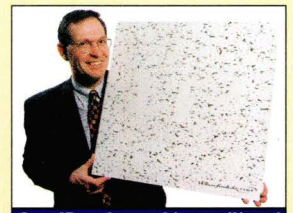
In brief

from £149.99 (LX20) to £549.99 (LX70). ☎ (01908) 317707

FM Acoustics has announced the arrival of two new preamp/line stages in its Resolution Series. The 155, priced below US\$5,000, is housed in a similar chassis to the legendary FM122, offers single-ended or balanced operation and claims to use no feedback. The 255 purports to set "an absolute new standard" with its proprietary balanced inputs and super-coupled outputs. Both units claim to be modular and thus upgradable. ☎ +41 1 725 77 77

Two new rechargeable, UHF-wireless headphones are available from AKG. They have 100m range and permit listening through walls. The K315 UHF, priced at £99.95, offers 10 hours of listening between recharges, while the K415 UHF (£119.95) runs for 20 hours. ☎ (01494) 441736

California Audio Labs claims to have introduced the first 'audiophile quality' DVD players: the CL-20 (US\$2,495) and CL-25 (US\$2,995). Features include Pacific Microsonic's PMD-100 digital filter and front-panel-switchable component/RGB video output. DTS digital output is an upgrade option while an RS232 port offers hook-up to home automation systems. Controversially, both units have two 96kHz digital outputs (one double-speed S/PDIF and one double-speed AES/EBU) which are factory disabled to conform with official DVD standards, but may be "user-enabled" in future... ☎ +1 (707) 668 1736



LoudPanel: speaking ceilings!

A drop-in replacement ceiling tile is Wharfedale's first LoudPanel 'flat' loudspeaker product, which uses NXT technology as displayed in Mission's X-Space unit (HFC 180). Though the ceiling tile has been developed for the professional installation market, Wharfedale claims consumer LoudPanel technology is currently being evaluated. ☎ (01480) 447715

Tannoy's best gets better!

Tannoy's Best Buy Mercury M2 speaker has been refined into the M2.5. Its cabinet has been internally braced top and bottom, a revised 165mm bass driver has been repositioned for closer proximity to the tweeter, and the crossover now benefits from an auto-transformer rather than a resistor.

On the rear panel, binding post nuts are now fitted with brass inserts, and the reflex-loading port tube has been lengthened to extend the low-frequency -3dB point to 48Hz. Price will be around £170.

Tannoy has also added the £199.90 R1 enclosure, which boasts an entirely real-wood, cherry-veneered cabinet, a claimed sensitivity of 87dB and a rated impedance of 8 Ohms. Based on the Mercury range but with less emphasis on wide compatibility, the R1 driver has a 25mm soft-dome tweeter and 125mm long-throw paper cone for the bass. Like the M2.5, it boasts an auto-transformer in its crossover as well as a bi-wiring facility.

Tannoy ☎ (01236) 420199



Mercury M2.5 brings the M2's drive units closer together.

A tidal wave of bass

REL Acoustics Ltd, purveyors of fine low frequencies, has spun off a new brand called Tsunami, which aims to deliver high-performance subs to the budget buyer.

Founder Richard Lord is keen to emphasise the difference between the two brands. "Tsunami's bass products are not REL products. They will go down to 20Hz, but they'll have extra output between 40 and 50Hz, for that kick-drum punch so lacking in other small boxes."

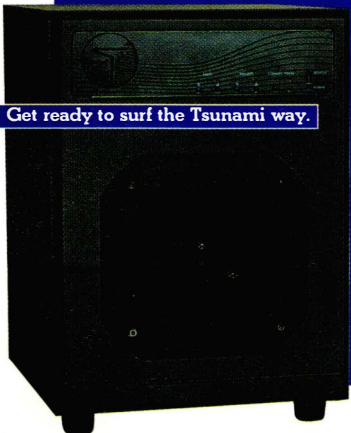
Début products the TS200 and TS210 accommodate long-throw 200mm and 250mm drivers, respectively, both powered by 150 Watts (RMS) amplifiers.

Each has remote control, high-level inputs, low-level outputs and is magnetically shielded. They also feature built-in protection circuitry and a phase-reversal switch.

The TS200 box measures up at 310x550x335mm (HxWxD) and retails at around £300, while the TS210 is slightly taller at 550mm, and is priced at around £400.

Tsunami Electronics Company Ltd ☎ (01656) 768 777

Get ready to surf the Tsunami way.



TAG's premium formula

TAG McLaren Audio has unveiled details of its first hi-fi range, following the take-over of Cambridge Systems Technology's Audiolab/Camtech brand and the subsequent brand renaming (*Update*, HFC 180). A new F3 range will replace Audiolab's long-standing 8000 series, and will be launched at Heathrow's Hi-Fi Show on September 17th.

Announcing 12 models in the F3 series, company boss Dr Udo Zücker revealed this first stage in TAG McLaren Audio's seven-year plan to create three hierarchical hi-fi ranges. Each range will incorporate the full gamut of music and movie-replay components, including stands, video projectors and personal stereos alongside audio electronics.

The F3 series amplifiers consist of two 60 Watt integrated amps, the 60i and 60iRV; two preamps, the PA10 and PA20R; a phono stage, the PPA20; two stereo power amps, the 60P and 100P; and a monoblok power amp, the 125M. Sources will include the CD20R CD player, CDT20R transport, DA20R DAC and T20 multiband tuner.

Prices will be approximately £250 higher than existing Audiolab 8000 series components to reflect completely new circuit boards and upgraded casework.

Though cosmetic design has not been finalised, indicated styling features at the range preview in July included distinctive blue LEDs; silver-grey, anodised metal knobs; and bead-blasted facias, from the drawing board of McLaren F1 road car (and Rogers dB101 speaker) designer Peter Stevens.

The first break from Audiolab's traditional product area will be a composite-bodied F2 loudspeaker due for launch at next January's WCES (Consumer Electronics Show, Las Vegas). TAG McLaren Audio ☎ (0800) 7838007

Serious stuff.



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Ear Waxings

Jason Kennedy wants to get plugged into in the new DVD age, but still can't kick the vinyl habit. Is there any hope for him?

Audio soothsayers are heralding the imminent arrival of DVD-Audio (DVD-A), whose format appears to be compatible with all manner of sampling rates and word lengths, and will accommodate different combinations of audio channels and still video. More dazzling enhancements are promised for the future. There is even a suggestion of the potential for 192kHz oversampling, and the 96kHz audio bandwidth that implies.

However, one important facet of DVD-A has not been addressed in public: its roster of digital connections. For good reason, the record manufacturing industry is paranoid about copyright control, and this has put the kibosh on DVD-A making use of the S/PDIF (Sony/Philips Digital Interface) digital output connections found on all but the cheapest CD players these days. If supplied on DVD-Audio (or DVD-Video) players, or to serve between a DVD-A transport and digital converter, these would make it easy for music pirates to run off copy after copy of digitally-cloned, perfect facsimile discs.

Even though the first Pioneer DVD-V players (DV-505 and DVL-909) will output 96kHz signals, strictly speaking they are in breach of official DVD regulations. Instead, as an anti-piracy measure, DVD devices are to incorporate some form of two-way interface whereby a transport can interrogate an attached ancillary to find out whether it is a converter (good) or a digital recorder (bad).

Get yourself connected

A number of digital signal connection protocols exist already which could be adapted to the task in hand, including S/PDIF. However, the most promising appears to be the I²S system. Until now most widely applied in hi-fi by the now-defunct US company Audio Alchemy, I²S has won favour for its ability to carry a separate clock-synch signal in addition to digital data feeds. (In S/PDIF the clock signal, which ensures accurate timing of digital pulses, is matrixed with the digital signal data information.)

One major hitch of I²S, however, is the limited number of existing high-end DACs, capable of adapting to DVD-A operation, which also feature this socket. If you'd just bought a mega-bucks Mark Levinson, say, under the impression that it could be updated when necessary, you'd be less than chuffed



Michell Iso

Never mind DVD: open a new door on LP replay with Tom Evans's Lithos A PSU upgrade.

to find it would not accommodate new DVD-A transports totting I²S outputs.

Another option is the high-tech Firewire protocol, which is beginning to appear as a means of downloading picture information from digital camcorders into computer storage systems. This has all the bandwidth and interactive capability one could desire, but who knows what it sounds like? In the early days of digital, optical cables were supposedly superior to their electrical cousins, but even very sophisticated AT&T optical digital connectors have trouble beating impedance-matched metal wire. It'll be interesting to see what Muse and Resolution Audio use for their Advanced Audio Disc (AAD) transport and DACs when they arrive. AAD is the generic title for machines that play both Digital Audio Disc (DAD) and DVD-V software. DAD, a precursor to DVD-A, uses the DVD-V audio standard to store two-channel 96/24 recordings and still pictures.

DVD-V for CD

I was surprised by the results of our 'DVD players as CD players' test in *HFC* 180. The findings ran contrary to the results of my own listening using Pioneer's DV-505. One possible reason relates to emission of Radio Frequency Interference (RFI) by the DVD players. Any such device is crammed with microprocessors, and high levels of RFI emission can often lead to variable results depending on an amp's susceptibility to RFI ingress.

Fellow DVD enthusiast Max Townshend suggested that mass-market DVD players don't enjoy the same degree of vibration resistance and damping that is applied to most specialist CD players. Notably, the most successful unit among last month's group, the Denon DVD-3000, appears to benefit from more acoustic deadening than usual. Nonetheless it still perked up no end when placed upon a Townshend 3D Seismic Sink: instruments gained energy and scale, and music took on a considerably greater sense of integration and timing.

Analogue (still) rules

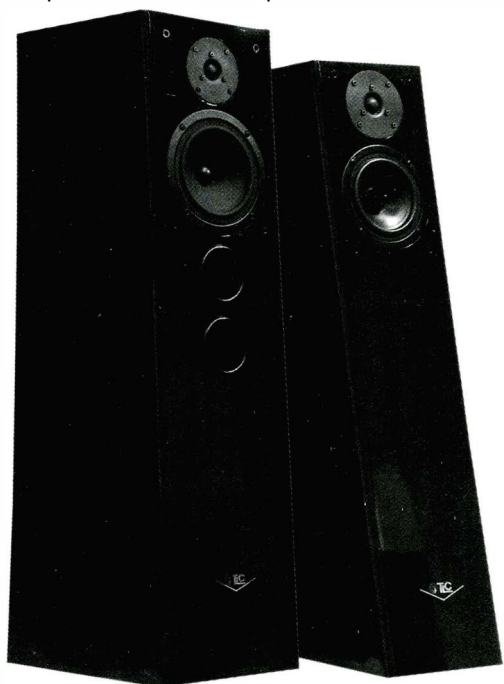
Tom Evans, who in recent months has cooked up the rather impressive Lithos D and A (digital and analogue) power regulation boards for CD players, recently had the notion to try the 'A' version on one of his earlier creations, the Michell Iso phono stage. The results were so good he became a born-again vinyl maniac overnight, and badgered me into sending my HR Iso for the same treatment. The result was extraordinary. This £189 upgrade takes an already fine device into the high-end nirvana stakes. The bass power and depth alone is more than worth the price, but the overall resolution is uncanny and betters even superb phono stages such as the one which graces the DNM 3C Twin preamp. I have joined Paul Messenger in paying over the odds to get music on vinyl! You have no idea how good your record player is without it. ▲

Piano Finish

TLC are proud to announce two new speakers to the UK market, combining British engineering and knowhow, along with Polish high-quality craftsmanship in wood and in a piano finish.

Classic 1: a substantially built and beautifully finished floorstanding loudspeaker, the Classic 1 uses a band-pass bass system with twin internal drivers to give massive power handling, generous loudness capabilities, and deep, well controlled bass. A good size midband driver in its own separate chamber to provide realistic dynamics and plenty of headroom.

Classic 2: a fashionably slim compact floorstander. Classic 2 avoids compromising the bass by opting for a three-way configuration and using a generous 8 inch bass driver. This is mounted in the side panel to maintain the slim profile, while the mid and treble are kept well clear of the ground for optimum sound dispersion.



TLC, Unit 5A, 22 Lantens Court, 22 Millharbour, London E14 9TU.
Tel: 0171-538 4430 Fax: 0171-538 4490

Tonsil Loudspeaker Company, 62-300 Wrzesnia,
Daszynskiego 2/3 POLAND.



The Jimmy Hughes Experience

Does your hi-fi system sound better, or are you simply more receptive to it?

Jimmy Hughes ponders the difficulty of setting benchmarks for hi-fi sound quality.

This may be a minority opinion, but often I prefer the sound of hi-fi equipment when it is still new, before it has been fully 'run-in'. New equipment nearly always exhibits a bite and immediacy that's very tactile and engaging: the edges are more sharply drawn, with heightened contrasts. Over an extended period of operation this sharpness disappears, and the sound becomes warmer and more mellow. Obviously, personal taste decrees which character you prefer, but more than once I've regretted the swing from dynamism and clarity to smoothness and warmth as a component reaches its stride.

Think of a new hi-fi component as an employee who's just started in an office, and is anxious to make an impression. Everything's done crisply and smartly. Inevitably, mistakes are made from time to time, and there's a certain roughness to the work. But despite any lack of consistency, you know that person is trying to do their best. As soon as the probation period is over, routine sets in and quality starts to slide. There's a lack of urgency and drive. Bored complacency replaces enthusiasm. (Naturally this is not the case in the *HFC* editorial office -Ed.)

If your hi-fi system sounds brash and up-front when it is new, you'll probably welcome the fact that it might, and probably will, ease up and become mellower over time. But if you really love the sound when you first listen, what chance is there that the favoured sonority will improve as the weeks pass? Will you still like the sound in six months' time, or will everything sound fat and lazy by then? The problem is, by the time you find out, it'll be too late.

This is the most insidious aspect of all. A running-in period can last weeks, if not months, and by the time everything fully settles down, the sound may no longer be acceptable. Although the biggest changes in sound usually take place within the first 15 to 20 hours of use, it may be much longer before the component (or system) fully runs in. I've seen burn-in times of 500 hours quoted for some components.

Even if you play your system every night, as I do, it could take six months or more for an amplifier or pair of speakers to fully settle down. If things change considerably dur-



Can hi-fi be like a box of chocolates? Forrest Gump listens for a definitive hi-fi benchmark.

ing this time, you may be left with a system that sounds unsatisfactory. Perhaps one reason I enjoy consistent sound right now is because every component of my system is several years old.

First impressions count

Long run-in times make life very difficult for the professional hi-fi reviewer. There is always a risk of forming premature opinions about sound quality unless the component in question can remain on loan for several uninterrupted weeks. This is rarely feasible. Even older components that have been well used (and are thus fully run-in), need to play for a few days after being packed away or left lying idle for a while.

Here's an interesting related fact: a violin has to be played regularly for its sound to maintain tonal richness and depth. Moreover, it is said that a violin somehow absorbs and reflects the 'sound' of the person who plays it regularly. Years ago I read a fascinating book by a Hungarian violin

teacher, who stated that she could identify her students' technical mistakes simply by playing their instruments. The 'sound' of their playing was somehow embedded in the wood of the instrument.

I've often wondered if hi-fi equipment and rooms are the same. Have you ever noticed how new rooms must have music played in them for a while before they sound good? And I've even wondered if (I don't know how) speakers may be temporarily 'upset' for a day or so if used with a different amplifier. I certainly think an amp and speakers settle in with one another over time, though not always with ideal results.

Another variable, hitherto unconsidered, is whether the listener, rather than the equipment, adjusts and changes over time. In other words, is it that we simply get used to a certain sound, and come to terms with its eccentricities and foibles? Maybe this explains 'running in'; perhaps the equipment doesn't change at all — it's the listener's response that changes.

But how do you prove this? To measure subjective reactions isn't easy, but one way to test the water is to find hi-fi systems other than your main one to provide alternative points of reference. You don't have to own the system in question: it could be a friend's set up, the system in a local record shop, or even your in-car stereo. I have two alternative references: the system installed in my favourite CD shop, and a good but simple set-up in my room at work.

The key criterion for the alternative reference is not the absolute quality of sound it produces, but the fact that it remains unaltered and untouched over time. In this way it provides a consistent point of reference for your main system, and should help you distinguish between those times when the rig genuinely deteriorates and needs work, and those when the sound is bad simply because you're retired and not in the mood to listen effectively.

Incidentally, although my main system's sound quality still varies, general day-to-day consistency is much better than it used to be. There are a number of explanations for this, but I think the Kimber mains cables and the Power Wedge mains conditioner (*HFCs* passim) have helped enormously. ▲

Paul Miller's Oasis of Sanity

Just how good are pre-recorded CDs? After one reader wrote in with some worrying test results, **Paul Miller** decided to do some investigations of his own.

Welcome to the *Oasis's* second anniversary. Over the last two years, this column has evolved into something of a technical campaign ground, shedding light on measurement issues while also badgering manufacturers to keep their socks pulled firmly up. Our topic this month comes courtesy of Mr Richard van Everdingen, a Netherlands-based reader who has supplied us with alarming evidence of poor CD recording and/or mastering quality. Richard's letter contains very specific data that I have attempted to reproduce in my own laboratory. On the whole, I concur with his findings though the true horror of the results will, to a degree, depend on the CD player used in the experiment.

The synopsis is simple but shocking: that CD recordings are being released with peak levels running aground at 0dBfs, resulting in momentary bursts of distortion and compromised sound quality. It's important to remember that we are dealing with *digital* levels that are quite distinct from the analogue levels you will know on cassette decks, for example. With 16 bits available we have 96dB of available dynamic range on CD, to describe our audio waveform, sample-by-sample. The maximum level is defined as 0dBfs, the quietest -96dBfs.

With an analogue recording you may let

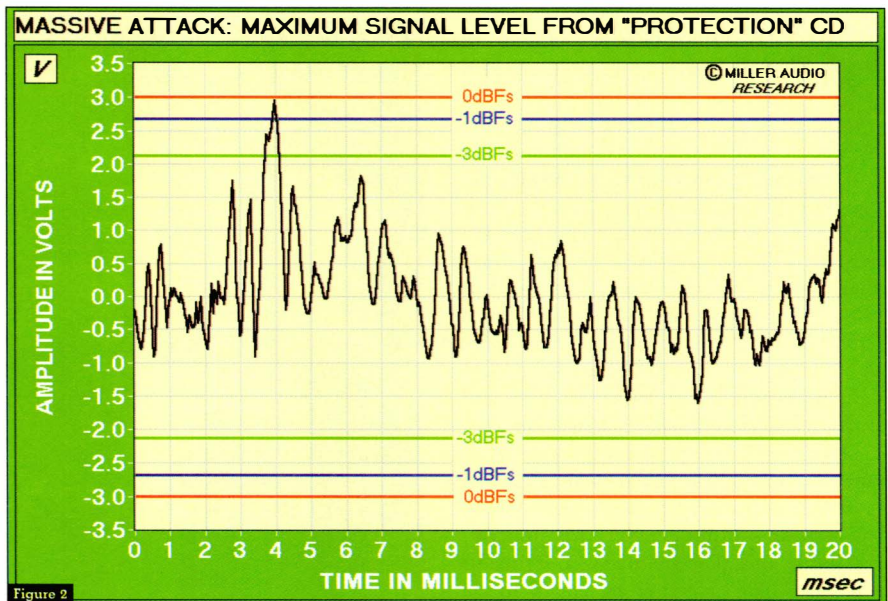


Figure 2

the meters flick occasionally into the 'red' beyond the 0VU point. With a digital recording, there is no similar, graceful drift into overload: life just ceases at 0dBfs. It's an absolute end-stop beyond which distortion will instantaneously increase from, say, 0.001 per cent to 50 or 60 per cent. It really is that dramatic.

At 0dBfs, the output of my trusty Sony CDP-715 CD player is 2.12V which, on the oscilloscope illustration in Fig. 1, amounts to a convenient +/-3.0V peak-to-peak (red sinewave). Remember, this is a *linear* voltage scale and not a dB or *logarithmic* scale. For example, a sinewave just one dB lower in amplitude would turn up at +/-2.67V (thicker, blue sinewave) while a drop to -3dBfs gives just +/-2.1V (thick green sinewave). As we've discussed, CD's 16-bit standard gives it a full 96dB range. On our scale, 0dBfs is +/-3000mV while -96dBfs would be just +/-0.048mV. In other words, very small reductions in dB recording levels are easily visible using the *linear* voltage scale of our graph.

Don't break the barrier

Musical recordings on CD should peak close to the 0dBfs limit if the full 96dB span between the quietest and loudest sounds is to be realised. However, no musical peak should attempt to exceed this 0dBfs barrier for fear of a burst of distortion colouring what might otherwise be a fine sonic performance. In his letter, Richard postulates that a peak limit of -3dBfs or -6dBfs will provide an adequate safety margin without unduly compromising the practical dynamic range of the recording.

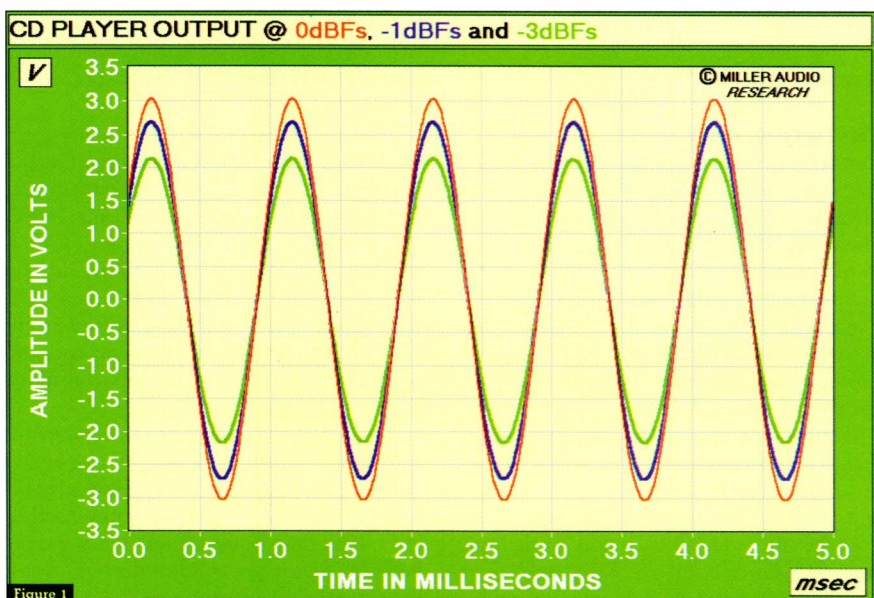


Figure 1

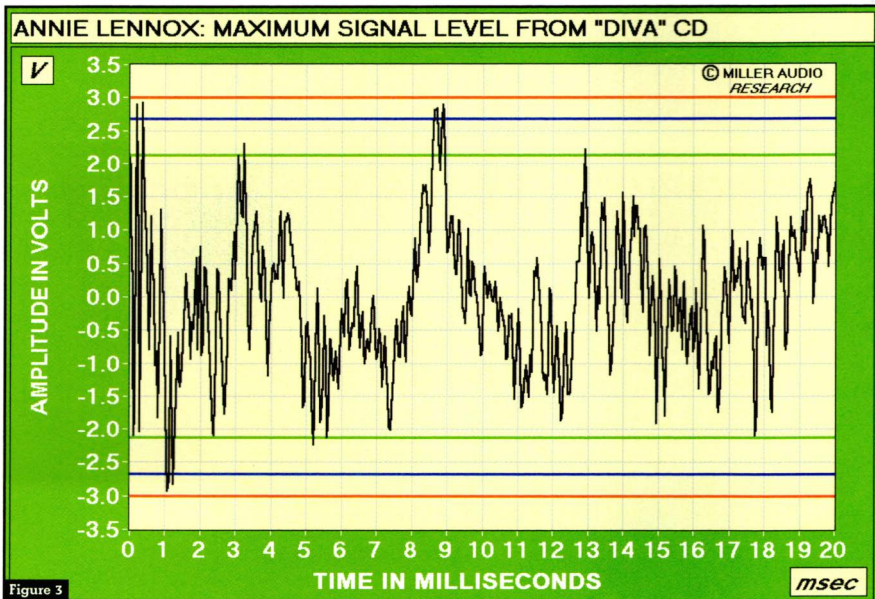


Figure 3

OdBFs red line during the briefest of musical transients. Across the entire disc there is no occasion where the recording slips its anchor and slams into the OdBFs line, regardless of its intensity.

Maximum overload

Now here is the villain of our story and a potentially glorious performance hamstrung, I assume, either by clumsy recording or post-production. I have not annotated this plot in the way of previous issues, if only because those musical peaks that slam into the OdBFs endstops are pointedly obvious. Indeed, you'll notice that some of these peak excursions actually

seem to momentarily exceed the red OdBFs line. This is a transient effect caused either by the inherent 'dynamic headroom' of the CD player's analogue stage or, more likely, an overshoot caused by ringing in its digital filter. As a result, the particular response of the player to peak-level overload may also depend on the internal scaling applied by the filter chip in question.

Either way, it's clear we are still dealing with a digital 'clip' and not a limited transgression of one or two digital samples. For example, one sample of 16-bit audio at 44.1kHz would last for 0.023msec whereas these peak overloads are lasting around 1msec or so. And this is not a lone example. There are at least a hundred instances of peak overload on track five of Gloria Estefan's *Destiny* CD (EPC483932-2), some lasting 2msec. (See Figure 4.)

On audition, I found this track sounded uncomfortably harsh, lacking transparency and subtlety. Hardly surprising given that, in all likelihood, the music is also populated with substantial bursts of distortion. For the sake of a few dBs this disc would surely have realised its true musical potential, but elegance has been lost to what we assume is heavy-handed recording or mastering. We await the record industry's comment with interest.

At this stage, we can only speculate on the extent to which badly recorded and mastered CDs are on the market. Nevertheless, I am bound to suggest that before the industry rallies behind a new 24-bit/96kHz or DSD standard for 'Super Audio CDs', perhaps it had better ensure its 16-bit/44kHz house is in full working order. Our readers can help too. Just write or e-mail us with lists of your most disappointing CDs, judged from the standpoint of audible distortion, not musical taste! I will endeavor to test as many as possible and report back in a future *Oasis of Sanity*.

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

The synopsis is simple but shocking: that CD recordings are being released with peak levels running aground at OdBFs, resulting in momentary bursts of distortion and compromised sound quality.

Neither should we confuse a 'loud' or busy-sounding CD as necessarily breaching the OdBFs barrier. Figure 2 shows the loudest snatch from Massive Attack's *Protection* CD (WBRCD2), a disc that provides an awesome sonic workout for the fittest systems. I've indicated the maximum OdBFs level with red lines, and the -1dBFs and -3dBFs levels with blue and green lines, respectively, to tie-in with the previous sinewave illustration. Nevertheless, and despite the boisterous nature of this CD, its biggest musical peak just falls shy of the red OdBFs line while the remaining, explosive detail is typically below the -3dBFs threshold. This is just one reason why the music sounds powerful, but clean.

Similarly, Annie Lennox's *Diva* CD (PD75326; see Figure 3) could never be accused of sounding shy or retiring, and yet its peak excursions only just approach the

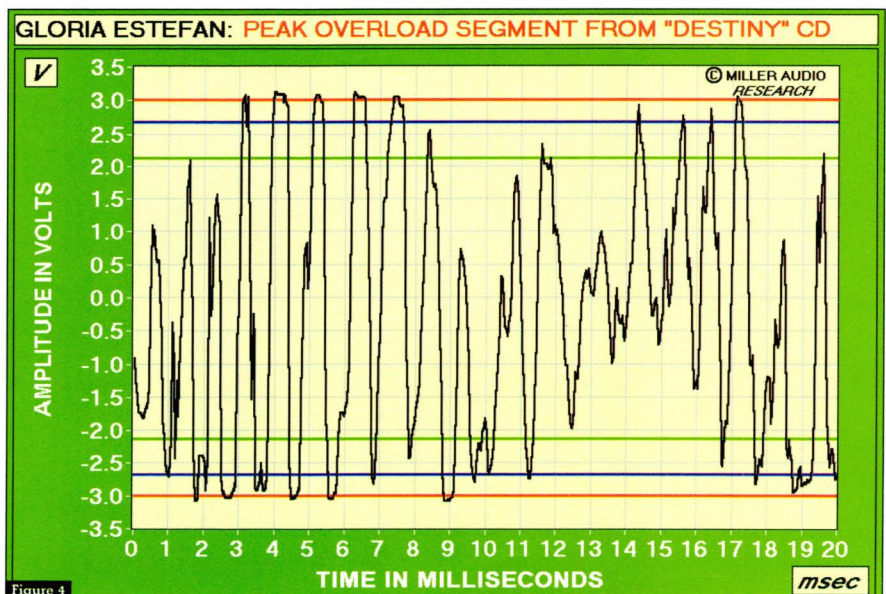
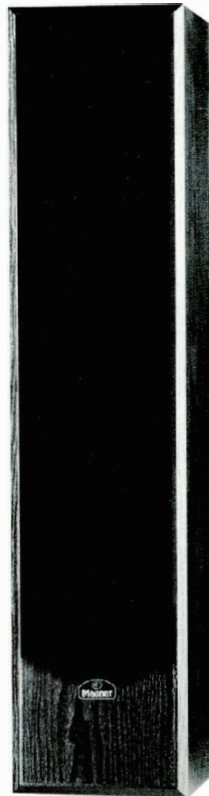


Figure 4

THE BIGGEST CHANGE IN HI-FI THIS CENTURY



The Victory 6: a bass reflex, floorstanding loudspeaker featuring ferrofluid cooled titanium polycarbonate tweeter, specially coated cellulose mid/woofer, bi-wire terminals and spikes. Frequency response is a staggering 25Hz - 28kHz, sensitivity 91dB and power handling a mean 110 Watts RMS.

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Change for the better: contact Henley Designs on 01491-834700 for stockists of the amazing Victory 6 loudspeaker.

Personal Messages

Paul Messenger takes a long view on the controversial Acoustic Precision FR1 speaker, and wonders whether it needs a complementary system for optimum results.

Over the last six months, in this and other hi-fi magazines, we've read a lot about an intriguing and original little speaker called the Eikos FR1, from a company called Acoustic Precision. I've been listening to a pair on and off over the past few months, so now I feel obliged to chip in with my two penn'orth.

The FR1 deserves all the attention it has received. It appears to have real support from dealers, could well become a cult product, and is genuinely novel in a marketplace all too cluttered by 'me-too' products. However, though unique, it is by no means without precedent. Back in 1992 (HFC 106), I reviewed a Jordan JH400, which used a very similar, solitary driver in a slightly larger enclosure. Performance was distinctly odd-ball, but also thoroughly entertaining, so I awarded a Recommended flag. Sadly, that was about the last we heard of it.

Whereas the JH400 used a small (but hefty), piano-glossed, wooden box, the FR1's main claim to fame is an ultra-light enclosure moulded from expanded polystyrene. This means that the inside avoids parallel surfaces (de-focusing the standing waves), and also that stiffness is very high and energy storage minimal. You can feel vibrations coming through the walls of the box, and single-tone sinewave excitation reveals that vibrations are broadly distributed from 60-300Hz. However they certainly don't have the same sonic signature as a conventional wooden box.

Driving lessons

What you hear is essentially the driver, rather than the box, which of course is the way it should be. You don't get to hear a crossover either, of course, because there isn't one, and that's probably the biggest bonus of all. It's all very purist and direct, with lovely close-up coherent communication. But serious loudness is not on the agenda, since sensitivity is low (I'd give an 82dB rating, but the

balance anomalies make this a very approximate figure). Neither is power handling much to write home about.

In fact, the FR1 is almost headphone-like in the way it reproduces music, so much so that I'm inclined to christen a pair 'wall-phones' rather than loudspeakers. From two 90mm metal cones, the sound they deliver into the room is actually quite impressive. The sealed-box loading and low sensitivity ensure that the bass actually goes rather deeper than most of the miniatures around, and treble output perseveres right up to

midrange, towards presence and treble, fine detail tends to be hyped, and harmonics are emphasised over fundamentals. With speech, for instance, consonants and sibilants take precedence over body and resonance. I even find the speakers a bit 'slow', which seems ridiculous for a single-driver system whose biggest strength is righteous time-coherence. However, my observation seems to be a perceived consequence of the rather feeble dynamics.

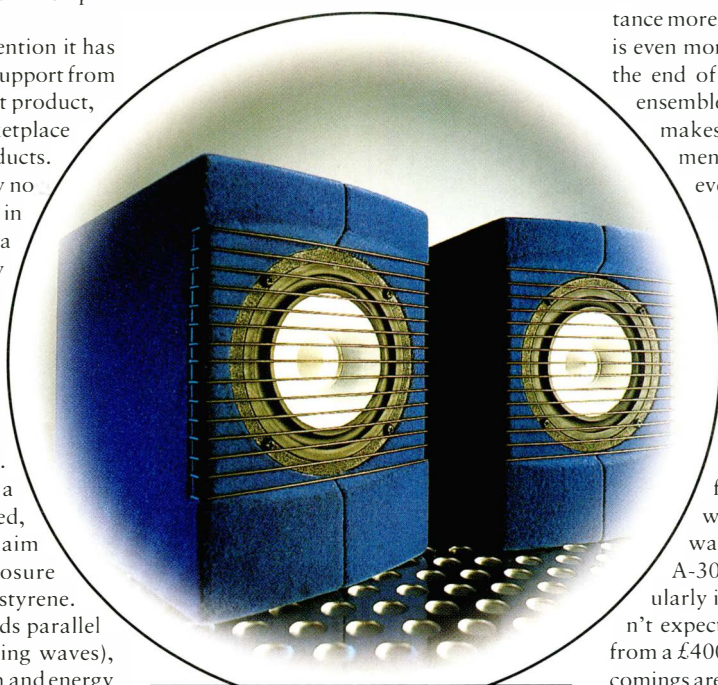
Despite such criticisms, I still consider the FR1 highly enjoyable and entertaining, and doubtless I would find their acquaintance more amenable in a smaller room. This is even more the case when they operate on the end of their 'approved' system. As an ensemble, the Acoustic Precision system makes one of the most powerful arguments for system synergy that I have ever encountered.

Full house

What, I hear you ask, is the approved system? I came to it only after appraisal of these speakers under my usual Naim-based régime (leavened with Musical Fidelity and DNM amps). It was a real ear-opener to start substituting elements from the Acoustic Precision rig, which is tightly specified, all the way down to the cables. The Pioneer A-300R Precision amp made a particularly interesting contrast. One shouldn't expect too much dynamic excitement from a £400 integrated amp, but such shortcomings are glossed over with FR1 at the end of the chain. The sound resulting from this partnership is decidedly bright but exceptionally sweet, and underpinned with a rather effective bottom-end thump. These ameliorating characteristics somehow sweeten and diminish the presence coloration.

Patch in the distinctive Electrofluidics speaker cable for another spoonful of sugar, plus greater top-end focus and delicacy; the Eikos CD player makes its own contribution to reinforcement of overall character. Put the whole caboodle together and you're left with a system of considerable integrity, consistency and charm, distinguished by top-end delicacy, focus, detail and precision, all with real state-of-the-art pretensions — at a price well below the true high end. ▲

Acoustic Precision ☎ (01483) 267516



Nothing if not idiosyncratic: you'll love — or hate — the uncompromising Eikos FR1.

15kHz — a genuine achievement for the single full-range-driver design. It's not the smoothest treble, true, but there's no crossover to add time-smear.

Back on the block

The first stumbling block arises when trying to listen 'through' the FR1's obvious balance anomalies. On first hook-up to my usual system after a day spent listening to 'normal' speakers, they shocked me with their obvious colorations. Voices sounded nasal and quacky, with a curiously telephonic quality.

The human ear/brain system will allow for this, to an extent. But because the balance is biased heavily away from the bass and

Write on!

HERE'S WHERE HI-FI CHOICE READERS WRITE IN TO SHARE THEIR VIEWS WITH THE WORLD.

LETTER OF THE MONTH

In defence of MiniDisc

I am writing with reference to your editorial comments in *HFC* 179 about prerecorded music carrier formats. Although I would agree that recordable CD may be sonically superior to MD, I do not think it will ever really compete with MD for convenience and portability.

I have a portable MD and Sony MD/CD/cassette system, and I listen to the MD or cassette more than the CD. I also have a DCC recorder which I find better than either CD or MD, although it's now obsolete.

We have all these recordable discs and now DVD is soon to be recordable as well. So where is all this leaving the consumer? I would say very wary and confused.

Finally, why don't the record labels bring out some classical recordings on MD? Sony has a few, but no-one else seems interested, despite the increasing popularity of classical music. Is it not time that we had folk, jazz and easy listening on MD, as well as on CD and cassette tape? MD should not be just pop and rock. Please ask all the record labels: what are you waiting for?
R H Owen, Crawley, Sussex



Making your mind up

In *HFC* 179, Alvin Gold and Paul Miller carried out a test on eight CD players. The Denon DCD-1550AR received a less than mediocre review, and was described as a "lacklustre performer that lacks detail and pace." The

same machine was reviewed by Paul Miller in the June 1998 issue of *Hi-Fi News*, when he accorded it a "thumbs up".

Such blatant contradictory reviews, expressed by the same individual in the same month, do little to inspire confidence in either the intellect or integrity of



your Technical Editor, never mind the confusion that he creates in the mind of any aspiring purchaser! It is in the nature of things that a variety of viewpoints may emerge from different reviewers, but surely not such glaring inconsistencies as propounded by your Mr Miller.

You may be interested to know that I bought a DCD-1550AR, partnered with a Rose RV23S preamp, CR Developments Romulus valve amp and B&W CDM15E speakers, and have been very impressed with its performance.

I do not suppose for one moment that you will publish this letter, but Paul Miller does owe your readership some sort of explanation.

J Boyd, Arnold, Nottingham

Paul Miller replies... I did submit a full review of the Denon DCD-1550 in the June issue of HFN/RR, including both a lab report and the results of my blind listening tests. This lab report is entirely consistent with that submitted for publication in HFC.

As should be perfectly clear from this article, the subjective impressions are those of Alvin and his panel, for which I have no responsibility. The fact that the tenor of his article may have differed slightly from my own is simply a reflection of different tastes and interpretations.

Stan Vincent adds... As always, our reviews can only suggest which products are worth considering. You, the reader and hi-fi consumer, must decide for yourself!

Illiterate technology

I was very interested to read your article on the Philips

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OUR ADDRESS

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We reserve the right to edit all letters. Concise correspondence preferred! All letters must include address and daytime phone numbers.

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CDR880 (and its predecessor, the CDR870) in *HFC* 179. I purchased a CDR870 this year, only to discover that it would not read some of my CDs, which play without problems on all other machines I have used.

After the servicing agent had not been able to repair the fault, I was provided with a replacement by Dixons (where I bought it), but neither that, nor a third machine the company had on display, would read the discs.

I was eventually given a refund but neither Dixons, nor the servicing agent, nor Philips, who I contacted, would admit to any faults with the CDR870.



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Neither did they tell me that there was a new replacement machine, the CDR880.

Not being technically knowledgeable, I do not know if there may be a connection between the jitter problem, as described in your article, and the inability to read discs, but I would be interested to find out.

M Austin, Melksham, Wilts

Stan Vincent replies... We answered a similar query in last month's Help! pages, but let me reiterate that intermittent disc playback (skipping) is not related to jitter. The former is caused by dirty or scratched discs, or a fault in the CD player's laser pick-up system; while the latter is a function of how digital data is manipulated within the player. Given that we have received quite a few reports of CDR870s skipping, I will be interested to hear from any CDR880 owners who experience the same problem.

A sensitive little soul

Your review of the Genexxa Pro LX5 in HFC 179 was spot on. It is an extraordinary little speaker which is much improved by using a sub-woofer — a REL QBASS in my system. Driven by a 30-Watt valve amp, this combination makes an ideal small-room set up for acoustic and vocal material. Incidentally, the Pro LX5 has a sensitivity of 89dB, so it is sensitive enough to be driven from the headphone socket of a Walkman — go on, try it!

Better still is to match the superb qualities of the Linaeum tweeter, upon which you commented, with a decent mid/bass unit, such as Ivan Leslie's IPL five-inch doped-paper driver in an 11-litre enclosure. Crossed over at three-and-a-bit kHz with second order networks, you get a stunning DIY combination running smoothly from 40-2,000 Hz. As the photo shows, you can experiment with the aesthetics as well.

Thanks for continuing to review unusual and eccentric bits of kit — it really adds to the fun!

P Chambers, Ampleforth, North Yorkshire

The Gospel according to Choice

A couple of months ago I bought a Marantz CD-17 KI Signature CD player for £1,100, which I was very pleased with, both in terms of sound and build quality.

However, recently I decided to sell the unit in HFC's Reader Classified page, which resulted in another reader making me an offer of £750. Unfortunately the sale never went through, as the prospective buyer read the comments about the player in your Directory.

My question is, does anyone actually read the comments written in the HFC Directory in the context of comparing one model with another? Because if you read the comments on the KI Sig compared with the CD17, it seems that the latter is the better buy!

Now, I know that you will say that sound quality is highly subjective and different reviewers will have different opinions, and that at the end of the day buyers must let their own ears decide. But the fact remains: many, many people do take a great deal of notice of your comments, and if you say a CD player is bland, they will believe that to be the case. It appears that these comments have lost me a sale!

J Hudson, Oakham, Rutland

Stan Vincent replies... We can't help wondering why you are selling this CD player so soon after buying it. If you acquired it only a couple of months ago, in what way has it failed to meet your

expectations? To twist an old adage: purchase in haste, repent at leisure. I must remind you that our comments on the Marantz CD-17, from HFC 155, were made in the context of other players costing from £450 to £980. Comments on the CD-17 KIS, from HFC 176, stemmed from comparisons with players costing £751 to £1,100. Both players were Recommended, but we could not escape the conclusion that the CD-17 KIS did not offer a necessarily better sound over and above the base model, just an alternative. This is further borne out by Paul Miller's Lab Test of the CD-17 KIS, which showed "no obvious technical difference between the two players at all."

Bit between the teeth

I have seen a number of queries like Richard Murray's (*Help!*, HFC 179), concerning the use of computer CD-ROM drives as CD replay sources. However, I have never seen an answer which highlights the fundamental difference between the way data and music is recorded on CDs and CD-ROMs. It is this difference which enables a cheap computer CD-ROM drive to retrieve data with nigh-on 100 per cent accuracy.

When CD was first designed it was found that the accuracy provided by the encoding method (Red Book), which was deemed sufficient for musical reproduction, was completely unacceptable for data. Remember, you only need one single bit to be wrong when retrieving data in order to wreak havoc.

The designers got around this by adding extra error correction information for each data block (over and above what was already there for music), resulting in a 1,000-fold decrease in the error rate. This recording method is called Yellow Book.

You can infer from this that the average CD player may well encounter uncorrectable data errors when playing a music CD. This is where the quality of a CD transport, both mechanical

and electronic, will show through. A well-made, well-designed transport will suffer fewer errors than its cheaper counterpart and this will ultimately be reflected in the sound quality, all else being equal. Jitter, and other technical measurements, are irrelevant if the data is not correct in the first place.

Although I rarely use it nowadays, I have a Meridian MCD dating from 1984, which came with an LED on the front marked 'Error'. When this flashed you knew that the player was having trouble reading the data from the CD and was basically making up the bits that it couldn't read properly. How often does that go on nowadays without us knowing, and how does it affect the perceived sound quality?

P Fowkes, Southend, Essex

Expensive at half the price

I recently read the glossary in your magazine, but alas, it was not what I expected. Here was a pretentious, condescendingly-written article, completely out of place in your otherwise excellent publication. Instead of jargon being explained, it is used in abundance to try and convince your readers of the author's technical brilliance. It doesn't work.

What does Paul Messenger mean when he says that DVD is intended to "introduce 96kHz sampling and 24-bit wordlength with multi-channel to audio discs?" I thought I knew what DVD was, but now I'm not so sure. Also, why does he mention non-linearities when trying to explain distortion?

When I got to the entry entitled "Cassette," I almost wet myself. If your readers don't know what one of these is, how do you expect them to handle expressions such as "digitally encoding a signal to randomise quantisation errors?"

I understand your desire to pad out the magazine with something repeatable each month, but please treat your customers with a little bit more respect — and give them something better than this rubbish. At nearly 10 Aussie dollars, *Hi-Fi Choice* isn't cheap. For that price, we deserve better journalism.

D Barr, Keewdale, Western Australia



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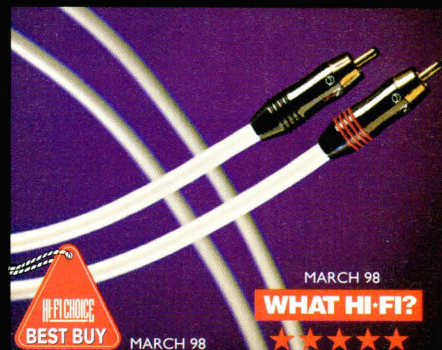
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★★★★★

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APRIL 96

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★★★★★

Profile 4 x 4

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APRIL 97
WHAT HI-FI?
★★★★★

Profile Silver 12

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Price around £15.00/m



APRIL 98
WHAT HI-FI?
★★★★★

WIN!

COMPETITION

TERRIFIC TDK!

WIN MINIDISC SOFTWARE AND RECORDERS WORTH £1,100!

The latest MD range from TDK offers a vibrant new MD colour selection as well as a new-look standard MD-RXG. The new family of translucent discs is available in five different shades: cool (grey), red, blue, yellow and green. They're ideal for colour-coding different styles of music recordings for instant access to your favourites. And, naturally, they come complete with TDK's legendary guarantee of quality – from the enhanced-rigidity shell to the extremely low error rate of the disc.

We're giving away 10 boxes of TDK MD Colour discs, each one containing five MDs and worth £20 apiece. That's a grand total of £200 worth of MiniDiscs! But that's not all. To the first three correct entries out of the hat, we're also awarding fantastic Kenwood DMC-G7R portable MD recorders, worth £300 each! This amazing unit offers over nine hours' continuous playback and seven hours of non-stop recording. It has a head-phone-lead remote control system, and with its 'Name Stamp' feature will copy all album title, track name and other information from other MDs. Naturally, it has the full suite of MiniDisc editing facilities, yet all in a package weighing just 270 grams! Enter today and enhance your portable listening pleasure.



CONGRATULATIONS TO THE WINNERS OF OUR MAY AND JUNE COMPETITIONS!

In May's B&W competition the correct answer was: b) Cherry. First prize of a pair of DM604 goes to: S Crewe of Northants. Second prizes of a pair of DM603 go to: D Angove of Plymouth, E Johnson of Middlesex. Third prizes of a pair of DM602 go to: G Douglas of Leeds, J Smith of Merseyside, B Monahan of Edinburgh.

Fourth prizes of a pair of DM601 go to: I Mills of Beds, M Milkmovics of Suffolk, L Butler of Dorset, and M Edwards of Birmingham.

In June's Music Maestro/Pioneer competition the correct answer was: c) 24.

The lucky winner is: A Aldridge of Surrey.



HOW TO ENTER

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

POST THIS ENTRY FORM TO:

Hi-Fi Choice Competitions (CHFC809A)
Bradley Pavilions,
Bradley Stoke North,
Bristol BS12 0BQ

All entries must arrive by First Post, Thursday September 10th, 1998.

THE QUESTIONS

What's the name of TDK's new grey MiniDisc?

- a) Hot
- b) Cool
- c) Spool
- d) Yule

YOUR DETAILS

Name _____

Job Title _____

Company Name _____

Address (inc. postcode) _____

Day-time Telephone Number _____

Please tick here if you are under 18.

Please tick here if you do not wish to receive any further information about other products or services.

Please tick one only of the following:

Are you a current subscriber? **OR**

Are you a regular reader? **OR**

Are you an occasional reader?

COMPETITION RULES

- The Closing Date for this competition is Thursday September 10th, 1998.
- Winners of the TDK/Kenwood Competition will be judged from all correct entries submitted, and drawn at random after the Closing Date.
- Winners will be notified by post.
- The Editor's decision is final and no correspondence will be entered into.
- The TDK Competition is not open to employees of Dennis Publishing Ltd, TDK UK Ltd, Kenwood Electronics UK Ltd, nor their suppliers, agents or associates.
- We regret this competition is open to UK residents only.
- No cash alternatives will be offered.
- We reserve the right to substitute alternative prizes with equivalent value to these shown, in the unlikely event of stock being temporarily unavailable.
- By entering this competition you agree to be bound by the rules.
- 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 809A

H.D.C.D. R.E.S.P.E.C.T

Why buy DVD when HDCD claims to enhance today's compact discs?

Jason Kennedy tests this premise on eight HDCD-equipped CD players and DACs.



The headlines belong to new digital music disc formats like DVD and SACD, but take care not to throw the baby out with the bathwater. Is CD so bad? Have we heard the best that CD can do? (Tech Ed Paul Miller reckons not on p14.) And when there are CD enhancement systems like HDCD, which claim to enhance the sound of CD without affecting its compatibility, surely it's premature to sound the death knell for the world's favourite music carrier.

On the back of its compatibility claims, perceived sonic enhancements and some very professional marketing, HDCD has established a significant presence in both hardware and software markets. The acronym stands for High Definition Compatible Digital, and the system has been in circulation for approximately four years. (The first HDCD product reviewed in this magazine was the EAD T-1000/DSP-1000 transport/DAC combo in *HFC* 143.)

System creator Pacific Microsonics, of California, USA, claims that over 50 million HDCD-encoded CDs have been sold worldwide and that there are now a thousand different album titles available. It claims fur-

ther that 100 hardware manufacturers are using its digital filter technologies.

A fundamental advantage of HDCD is the way it can be incorporated into a CD without affecting a disc's compatibility with standard players. If your CD player has an HDCD decoder you will hear the claimed benefit of the encoding process; if not, you can still play music.

Until this year, HDCD capability has been exclusively the preserve of separate hi-fi components, whether players or DACs, thanks to Pacific Microsonics' PMD-100 HDCD decoder/digital filter chip. However, thanks to a spate of deals this year, it looks possible that the discreet HDCD logo could soon become as common as Dolby's double D. Pacific Microsonics has licensed the PMD-100's decoding technology to three big chip makers: Analog Devices (*Update*, *HFC* 179) in January; Motorola (ditto, *HFC* 177) in March; and the latest, Sanyo Electric's MOS-LSI division, in early June. All three are incorporating HDCD facilities into mass-produced DSP chips apparently for packaged audio, in-car, CD changer and other high-volume applications.

This is an interesting move given HDCD's

avowedly audiophile pretensions. It claims to encode 20 bits of musical information within the 16-bit CD process, leading to greater dynamic range, a more focused soundstage and natural instrumental timbres — when played via the HDCD decoder, natch. However, the 20-bit PMD100 digital filter has also won favour for its performance with standard CDs — even when there were only a few HDCD-encoded albums in circulation, heavyweight high-end operations like Krell and Mark Levinson used the PMD-100 in top-end CD players. More recently, brands such as Arcam have implemented the filter in relatively affordable new players such as the Alpha 9 (*HFC* 180). And similar non-specific benefits are said to derive from the HDCD mastering process, irrespective of HDCD-decoded playback.

Tech Ed Paul Miller will discuss technical aspects of HDCD in next month's *Oasis*.

Aims of the test

With an unsighted listening panel we tested Pacific Microsonics' claims for HDCD technology. How does sound improve when encoded software replays via a decoder? And what sonic benefits does a decoder-equipped player (or DAC) offer with standard CDs? Also, does the PMD-100 filter impart a consistent character to CD players/DACs from different marques? Only two players (Classé and Pink Triangle) are new on test; the others have already featured in *HFC*. Rotel and some high-end makers promise new HDCD machines soon.

THE CAST LIST

Anthem CD1	£1,699.00 . . .	p23
Arcam Alpha 9	£799.90 . . .	p23
Classé CDP-.3	£1,395.00 . . .	p24
Copland CDA 266	£1,199.00 . . .	p25
Musical Fidelity X-DAC	£300.00 . . .	p25
Pink Triangle Litaural	£2,199.00 . . .	p26
Proceed CDP	£3,395.00 . . .	p27
Resolution Audio CD50	£2,995.00 . . .	p27



ANTHEM CD1

This hefty Canadian multi-disc player was reviewed in *HFC* 178 alongside other machines designed for the same purpose. With its high-end styling and HDCD decoder on board, it looked at odds with its more mundane competitors, but it seems equally incongruous in this group. As mentioned in the introduction, HDCD technology is now being licensed for mass-market applications — is Anthem marking out the high-end of a market segment about to become newly crucial? Whatever, the CD1 is the only CD player in the Anthem range.

It uses a Sony transport mechanism and an unusual standalone DAC, which though inboard is connected like an outboard unit with an S/PDIF link. Conversion is courtesy of 20-bit Burr-Brown chips, while the output stage uses a double triode valve to “eliminate digital ‘edginess’.” The Anthem CD1 is a six-disc machine with Sonic Frontiers’ usual selection of ‘designer components’ scattered over the circuit boards.

Sound quality

A bit of an opinion splitter, this one. Half the panel bemoaned its lack of colour and found

it sounded flat, while the other half thought it was one of the most open-sounding in the bunch, with good pace to boot. With regard to control, most listeners felt that it was either lean or tight and controlled, or even vivid without being overblown. Hands-on listening suggested that focus was certainly one of its strong points. It’s not the most dynamic player around, which is surprising given its tube output, but the tube is probably behind the speed and energy that the Led Zep track elicited, and the fine detail that the most enthusiastic panellist enjoyed.

Conclusion

The Anthem knows its limits and works within them. If the wham-bam style of source isn’t your bag, and you fancy being able to play half-a-dozen discs without going back to the machine, this is a classy contender. If you want to rock, you’d probably do better looking elsewhere.

ANTHEM — VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
PRICE	£1,699.00
ONE YEAR GUARANTEE	
📄	Though sedate, the Anthem is discerning and adept at capturing fine detail and focus.
✉	Anthem, Picture the Sound, 13 Weston Road, Guildford, Surrey GU2 6AU
☎	(07000) 443426



ARCAM ALPHA 9

Last month Paul Miller took us on an extensive technical tour of Arcam’s most sophisticated player yet, so anyone wishing to know more about the 9’s dCS Ring DAC technology should fish out *HFC* 180.

At just under a grand, this is Arcam’s most prestigious one-box player, so it comes as no surprise to learn that it follows its sibling Alpha 8SE in the use of HDCD’s PMD-100 filter. It has no fancy features: outputs are single-ended phono of both variable and fixed persuasion. There’s a digital output which will permit connection of a digital recorder, or an outboard DAC if you can better the onboard unit, and the comfy remote handset will mute or adjust volume.

Sound quality

This player’s conservative balance only managed to fire up one of the four panellists, and even then not comprehensively. It has limited sparkle and a slight midrange glare, so it can sound clear and strong but lacks the last degree of emotional inspiration compared to some other contenders in this test. It’s a little ‘matter-of-fact’ in its presentation.

On the plus side, however, there is pretty tight bass and a lack of character imposed on the music, which is ideal for those who prefer music to be presented au naturel. One listener appreciated its more intellectual presentation, citing fine detail and good ambience among its strong points. As always, beauty is in the ear of the beholder.



Conclusion

Last month’s review of the Alpha 9 sung the praises of its performance with ordinary CDs, using the dCS Ring DAC. That favourable impression still holds, but we were less impressed by its HDCD performance in the context of this admittedly strong group — it didn’t have the requisite joie de vivre. Furthermore we believe that its performance is strongly dependent on the partnering amplifier, and though we were unable to try it with Arcam’s Alpha 10 amp, this might yield better results.

ARCAM — VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
PRICE	£799.90
TWO YEAR GUARANTEE	
📄	Very matter of fact: the Arcam’s HDCD presentation lacks emotional impact and edge.
✉	Arcam, A&R Cambridge Ltd, Pembroke Avenue, Denny Industrial Centre, Waterbeach, Cambridge CB5 9PB
☎	(01223) 203203

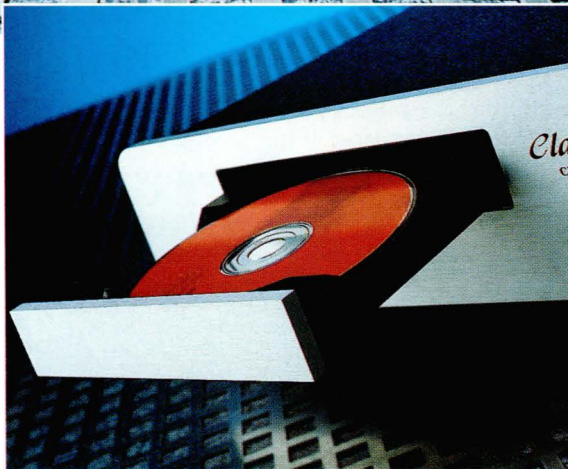


CLASSE AUDIO CDP-.3

Based in Quebec, Classé Audio is Canada's answer to Krell and its many imitators. Although the company's range is focused on amplification (seven power amps, four preamps and two integrated models), there is also a five-strong range of CD players and DACs, of which the CDP-.3 is the least expensive. With a price tag of £1,395 it isn't exactly cheap stuff by our standards, but in North America at least it probably falls into the budget esoterica category. It's impeccably built, superbly finished, and comes complete with an OTT remote control hewn from solid aluminium — presumably a hand-me-down from its more exotic stablemates.

If the Pink Triangle is a bit complicated to navigate, this Classé is so sparsely furnished that even if you can't read the subtle legends, you can still try all the buttons in a matter of minutes (what's wrong with solid blocks and arrows, the international language of audio control?). The remote is more legible and has an easy-to-use keypad, but irritatingly, you have to press 'play' after the track number. Programming and display variations can also be achieved but phase reversal isn't an option.

Outputs are run-of-the-mill, US-style,



balanced XLRs and single-ended phonos, with another phono for digital output. Internal shielding protects the more sensitive electronics from RF nasties, while the transport mechanism is a three-beam Japanese design with damped suspension.

Sound quality

Unlike the majority of players this month, the Classé seems to excel in frequency extremes rather than midband — ambitious given CD's accepted limitations at high frequencies, and Classé doesn't quite manage to dodge all the pitfalls. Several listeners specifically cited the treble as being a little harsh or scratchy, while the vocals seemed to disappear into the mix on several of the tracks. In the long term, it made for a less than relaxing experience when playing music with a lot of treble energy. On the other hand, though, it did give some extra definition to strings and there were no complaints of boredom. The Led Zeppelin track seemed to benefit from this balance, as the guitar came forward and the overall picture

gained much greater definition.

The balance also tended to exaggerate studio compression. Much like the Pink Triangle Litaural, this player made tracks sound loud or quiet depending on how broad a dynamic spectrum was being reproduced, which was good for the commercially-oriented stuff but less impressive with the classical.

One listener described the CDP-.3 as being a bit of a pretender — its mid-weak balance gives a high-end feel, but this doesn't hold up under scrutiny. I found it inescapably inconsistent, sounding great with one disc,

only to prove quite underwhelming when playing another.

Perhaps it suffered from following the Pink Triangle (HDCD filter) into the listening arena, but ironically, it shares some of the same characteristics, especially when it comes to dynamics. The most telling track for this was the Rimsky-Korsakov, which had twice the dynamic range of the other tracks we were using. The players that sounded quiet with this didn't generally fare too well overall. The Classé brought out certain instruments, but the overall structure lacked coherence.

Conclusion

A bit of a Curate's Egg, really. This Classé is an ambitious machine with a lot of energy but only a limited amount of conviction which is applied almost randomly to the material being played. In the context of more accommodating amplification or speakers (some valve amps spring to mind), it has the potential to perform, but it's difficult to recommend for general consumption.

CLASSE AUDIO — VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £1,395.00

TWO YEAR GUARANTEE

Distinct tonal character makes it system sensitive, dynamically sensitive but a little edgy.

Audio Illusion, 23 Langley Broom, Langley, Berks SL3 8NB
 (01753) 542761



COPLAND CDA 266

This Copland saw brief action back in our February issue (*HFC* 175), when Alan Sircom paired it with an amp from the same stable to form an *Instant System*. Then the Copland went on to garner a Recommended flag in the following issue's group test. Competing head-on with the Classé Audio at £1,199, this Danish-designed, Swedish-built player is beautifully turned out.

In finish, it puts the other players here to shame. But it's not just a pretty face either, since the fascia hides a Sony transport mechanism and a Burr-Brown 20-bit DAC chipset

with a discrete Class A in tow.

It reveals its European origin in the simple RCA phono output sockets: these are complemented by an externally defeatable digital output. Ergonomically, it is unusual but intuitive, the right-hand knob looking after the lion's share of the action.

Sound quality

Something of a winner with the panel, this Copland. It has a quick, dynamic, up-beat sound that reminded us of the Proceed at over twice the price. Imaging and ambience were among the more popular areas to be

eulogised, although one listener suspected that a degree of euphony or atmosphere-enhancing distortion might have been at work. Either way, '3D' was the name of the game, with the player picking up points for the projection of instruments and voices — it's not the sort of sound you can ignore.

I found it a little too forward but as only one panellist noted this, there's clearly a taste factor here, which explains my preference for a player they found lacklustre (Eikos). The Copland is clear and convincing with a real sense of vitality that should suit all but the most 'detailed' of systems.

Conclusion

This Scandinavian beauty was the highest scoring player on the day, and if you like a source with plenty of vivacity and life, there isn't much around to beat it at the price. If you prefer a more relaxed presentation look elsewhere, but if energy and atmosphere are your bag then check it out.

COPLAND — VERDICT	
SOUND	★★★★☆
VALUE	★★★★★
PRICE	£1,199.00
ONE YEAR GUARANTEE	
Vitality-packed and energetic, this is one HDCD player that refuses to be ignored.	
Absolute Sounds, 58 Durham Road, London SW20 0DE (0181) 971 3909	



MUSICAL FIDELITY X-DAC

The least expensive way to decode HDCD discs is with this diminutive digital-to-analogue converter from Musical Fidelity's X series, which plugs into a standard CD player's digital output. It's competitively priced at £300, incorporating both electrical and optical inputs, twin analogue outputs and three-way sample rate converter.

The X-DAC uses an 18-bit Burr-Brown

converter and that test-unifying digital filter, the PMD-100. The requisite 12V supply derives from a plug-top transformer, but this may be upgraded with M-F's X-PSU four-outlet power-supply module.

Sound quality

We used the Alpha 9 as a transport for the blind listening, but I supplemented it with a more down-to-earth Pioneer PDR-04 in the

hands-on listening. If nothing else, this revealed that the quality of the transport has a significant effect on the overall result.

The panel initially found it difficult to differentiate the X-DAC from the reference Cyrus dAD3Q, but soon conceded that it was superior in upper mid and treble detail. My own findings suggested the X-DAC was exposed in this respect, but as there was little hint of fatigue this is clearly a strong point. The bass, on the other hand, tended towards ponderosity, lacking the control of the Alpha 9 on its own. The Led Zep track fared particularly well — the nimble midband woke up several listening-fatigued panellists.

Conclusion

Considering its low price, the X-DAC does a good job. It improved the tone of the Pioneer player and scoring quite well with the Arcam. It has an upbeat 'detailed' character that will suit all but the brashest players, and it's easily the least expensive route to HDCD compatibility.

MUSICAL FIDELITY — VERDICT	
SOUND	★★★★☆
VALUE	★★★★★
PRICE	£300.00
FIVE YEAR GUARANTEE TO ORIGINAL OWNER	
Lively and upbeat, the X-DAC offers the cheapest route to getting on the HDCD trail.	
Musical Fidelity, 15/16 Olympic Trading Estate, Fulton Road, Wembley, Middlesex HA9 0TF (0181) 900 2866	

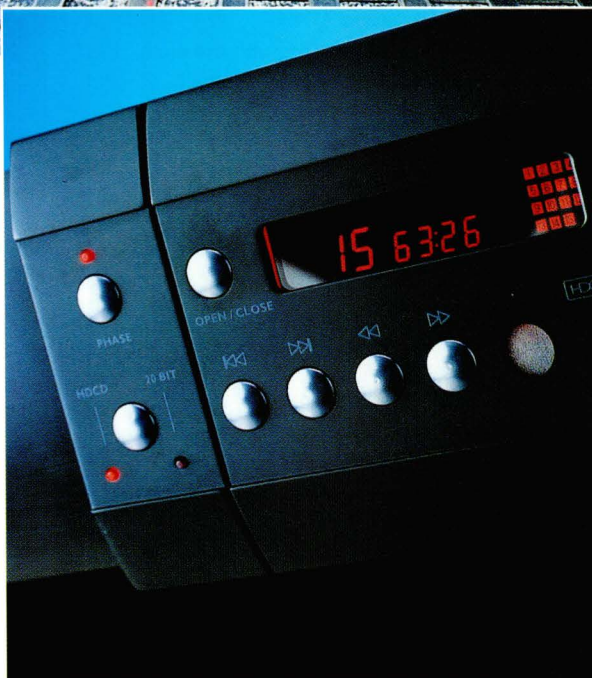


PINK TRIANGLE LITAUURAL

The Litaural tops Pink Triangle's compact range of distinctive CD players, adding several uncommon features to the Numeral at approximately half its price. The Litaural inherits the mantle of PT's radical Da Capo D/A convertor and claims to use discrete technology, which it offers to the user in the form of alternative digital filters. One is a PMD-100 HDCD device, while the other is a 20-bit unit: selecting between them is achieved with a front-panel switch, and yes, you can play an HDCD disc without using the decoding circuitry — a state of affairs that is unique in this group if not the wider hi-fi world.

That aside, this substantial player is otherwise fairly conventional. It has some trademark high-end luxuries such as reversible phase (though not on the remote handset), plus both balanced and regular phono outputs. The digital output has a BNC connection which means a true 75 Ohm impedance, but unless your convertor has the same plug, you'll have to use an adaptor or have a custom-terminated cable made up. However, Pink Triangle's approach is the right one, so full marks. Next to this output is a clock sync connection of the same persuasion, for use with PT DACs.

The Litaural's black and silver styling errs more on the side of distinctiveness than user-friendliness. The buttons are not clearly marked, nor do they follow the norms of size and placement. For instance, I often hit the 'off' button in the expectation that it would induce the machine to play, and it took several filter changes before I found open/close. Users will accommodate such ergonomic



quirks in the fullness of time, but less regular users should prepare for guesswork.

Sound quality

As HDCD is the theme for the group, I started off using the Litaural with the HDCD filter in action. However, the outcome was rather confusing as half the listeners felt that it performed much better on the Eric Bibb

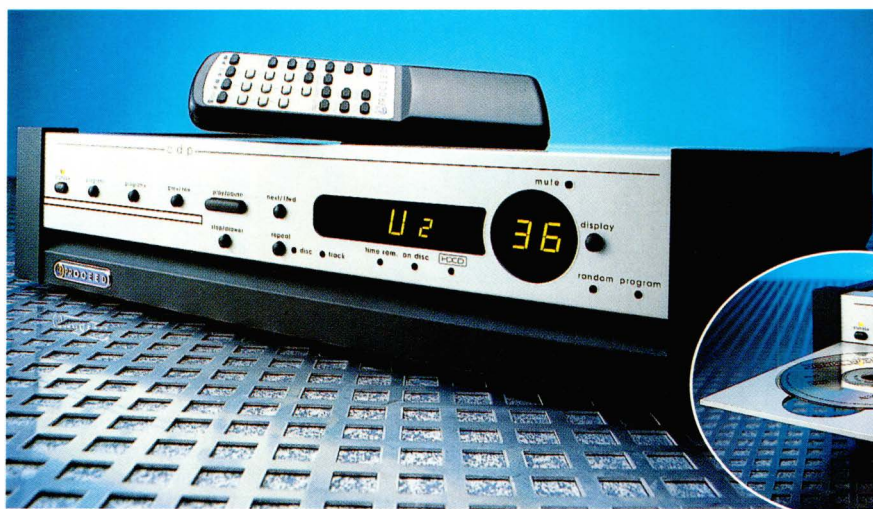
and Led Zep tracks. This would be fine if they were the only HDCD tracks, but the Rimsky-Korsakov, which is also encoded, failed to elicit any enthusiasm. The inconsistency seemed to relate to dynamics: the least compressed track sounded the quietest, even though the level changes were as broad as ever. In other respects this filter gave a high level of detail resolution, so much so that one listener wondered whether it might not become fatiguing. Although the fine quality of the treble would suggest that this is unlikely. The only other grumble related to the bass, which we felt was a little dry.

With the 20-bit filter in action, some HDCD discs sounded distinctly louder and a little harder, but the panel were even less in agreement than before. Some found it a little bit too forward, while others liked this vivacity, commenting on its explicit nature. If anything, our listeners thought dynamics became more effective, and several panellists highlighted the Litaural's good timing. The bass, however, was still considered to be a little lighter than usual.

Conclusion

Not an easy one to sum up, this big Pink. It attracted marginally greater favour with the HDCD filter in action, and clearly it has a 'good ear' for detail and timing. However, the lack of agreement between our panellists would suggest that it's not a player for all tastes. Indeed, extracting the best results from this unit might require a little more system-tuning than usual, but under such circumstances the PT has the potential to deliver superb performance.

PINK TRIANGLE — VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
PRICE	£2,199.00
ONE YEAR GUARANTEE	
<p><input type="checkbox"/> Try before you buy — the Litaural has great potential if it's set up right, but it might not appeal to all tastes.</p> <p><input type="checkbox"/> Pink Triangle Projects Ltd, Camberwell Business Centre, Lamond Grove, London SE5 7HN (0171) 703 5498</p>	



PROCEED CDP

Proceed's stylish CDP was first reviewed last year (*HFC 167*) when it impressed Alan Sircom with its swish operation and luxury sound. The brand is owned by Madrigal, the company behind Mark Levinson, so you can be sure it means business. By high-end standards, features abound. There are two digital inputs, fully balanced operation, a CD-ROM mechanism and the slimmest, silkiest drawer around. It even has onboard volume control using a hybrid digital and analogue system which is claimed to improve on the all-digital variety. Conversion

is courtesy of dual 18-bit DACs per channel.

In operation it is mildly less couch-friendly, since the stop and drawer open functions are on one button, so you have to press it twice to eject the disc. However, the twin displays allow a wide variety of information to be shown, and you can even use an external I/R remote eye.

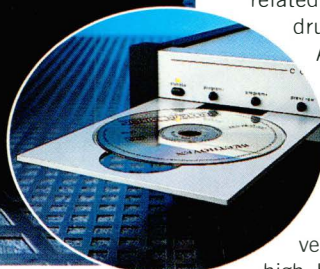
Sound quality

"Upbeat and spacious" was the panel's positive reaction to the Proceed. It has a slightly 'loud' presentation which catches your attention and gives the music more impact

than usual. It's also quite explicit in its resolution of high frequencies, perhaps lending them a hint more emphasis than most. Imaging is clearly one of its strong points, the orchestral piece eliciting comments of this nature across the panel. The Led Zeppelin track was the only one to draw any criticism, but the only consistent thread related to a lack of weight on the kick drum. In this area the Resolution Audio had a slight edge.

Conclusion

The CDP is clearly a classy piece. Its subjectively low distortion combined with fine coherence and articulation make this a very easy player to enjoy. The price is high, but in light of its combined features and sound quality, it offers good value. I liked it a lot, so if you can afford to, put it on your hi-fi shopping shortlist.



PROCEED — VERDICT

SOUND ★★★★★
VALUE ★★★★★☆
PRICE £3,395.00

FIVE YEAR GUARANTEE

Expensive, yes, but the high price is justified by the feature list and articulate performance.

Path Premier, Desborough Park Industrial Estate, Desborough Park Road, High Wycombe, Bucks HP12 3BG
 (01494) 441736



RESOLUTION AUDIO CD50

Reviewed by Alan Sircom in *HFC 177* (April 1998), the Resolution Audio CD50 initially appears to be a more expensive version of the Classé CDP-.3. That resemblance disappears, however, once you get beneath the silver alloy and black steel.

As the price suggests, this is a more ambitious machine that's equipped to take on all comers with an enviable armoury of components. The mechanism is a Philips CDM4 with custom servo-circuitry, plus four Burr-Brown 20-bit DACs to handle the digital to analogue conversion. These permit operation in fully-balanced mode. Combine these elements with the PMD-100 HDCD

filter and you've got a serious weapon with which to defeat distortion.

There are a few extra buttons on both the fascia and remote. These operate a micro-processor-driven digital volume control, which routes the signal through resistors in the same way as a potentiometer, but without the problems of mechanical contacts.

Sound quality

Though not the most popular with the panel, the CD50 nonetheless attracted a lot of praise, not least for its extended and agile bass combined with an overall transparency that set it apart from most of the opposition. It also has a decent sense of rhythm which



gave the Led Zeppelin track more life and energy than usual. It was also commended for its imaging, and it's difficult to see why it didn't do better in the overall marking; perhaps this was partly because it followed the Eikos into the arena. The CD50 was my overall favourite as it had the edge in terms of transparency and detail, and made a convincing job of everything it played.

Conclusion

One of the two more expensive players here, this Resolution brings performance to life. It doesn't look like a lot of player for the money, but don't forget the digital volume control, and just listen to the way it handles music.

RESOLUTION AUDIO — VERDICT

SOUND ★★★★★
VALUE ★★★★★☆
PRICE £2,995.00

THREE YEAR GUARANTEE

The CD50 is sure-footed and highly convincing. The digital volume control is an added bonus.

Audiotreks, 15 Link Way, Ham, Richmond, Surrey TW10 7QT
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HD 570



HD 470



HD 400

This high definition headphone has all the refinements: duofol diaphragms, extremely lightweight aluminium voice coils and a new damping technique to name but a few. The result: simply irresistible.

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Conclusions



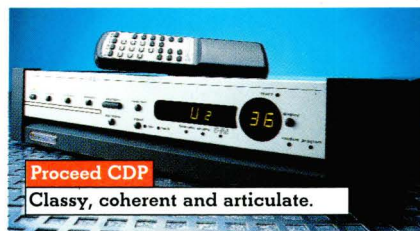
Copland CDA 266
Dynamic and a real panel pleaser.

Despite the wide variation in prices of candidates in this eight-strong group, the bandwidth of results was surprisingly narrow. However, there was a clear preference towards certain players. Our four panellists marked each player out of 10, the maximum mark thus being 40; and the difference between the highest and lowest-marked players was only 14. This could be due to the fact that the HDCD players all use the same digital filter, and perhaps because all but two feature Burr-Brown multi-bit DACs, albeit not the same one. It's impossible to say whether this can be explained by a technical or sonic affinity — perhaps it's purely coincidental, but hopefully Paul Miller will be able to clarify matters next month when he investigates HDCD in greater detail. He will also be explaining exactly how the encode/decode process works, and testing Pacific Microsonics' claim of 20-bit resolution.

As far as this group of players is concerned, there's no hard and fast evidence to confirm whether the decoding facility makes them better CD players per se, or

even better HDCD players. After all, the scores of the two non-HDCD players in the test (see box below, *How The Tests Were Done*) were on a par with their decoder-equipped budgetary counterparts. What I can say, however, is that having the PMD-100 decoder/filter in a player doesn't in itself make the machine a winner or loser, whatever the software.

Reluctant as I am to draw such an inconclusive result, the data that was gleaned doesn't really leave any alternative. There was an instance (namely the Pink Triangle Litaural with its alternative HDCD and 20-bit filters) where one might have hoped for a clear outcome, but this was muddled by the varied opinions of the pan-



Proceed CDP
Classy, coherent and articulate.



Pink Triangle Litaural
Has potential to do great things.

ellists. While it wasn't black and white, there did appear to be a preference for the decoding chip — the score alone didn't confirm this, but the notes were more telling. Implementation, however, is half the deal with CD player design, so this isn't conclusive proof. What I can say is that this feature won't make a weak player strong, as regardless of the type of CD you're playing, the best player will depend on other engineering factors, too. Listening is the only way to sort the good from the great.

We have fought shy of awarding Recommended and Best Buy flags this month, due to the huge differences in prices, not to mention the fact that one machine (Copland) has already achieved Recommendation in a former issue. Look out for swing-tags when this month's candidates re-appear in price-matched group tests soon. Pacific Microsonics clearly has designs on the mass market with its chip licensing deals, so it seems possible that in future HDCD will become one acronym that all well-dressed CD players must display.

HOW THE TESTS WERE DONE

Each of the eight CD players underwent a programme of tests comprising a physical examination, hands-on listening and, most important of all, an unsighted panel audition in which listeners had no knowledge of which player was being auditioned.

Two non-HDCD players, the Acoustic Precision Eikos and Cyrus dAD3Q, were used as benchmarks, while the replay system consisted of DNM 3C Twin preamp, a DNM PA-3 power amp and JBL 4312mkII loudspeakers on MAF stands. DNM interconnects and Electrofluidics Monolith 20/20 speaker cable carried the signal, while Kimber and Living Voice carried the mains. Equipment was supported on a Townshend Seismic Sink Stand.

WHAT MUSIC DID WE USE?

Little Axe: *Ride On (Fight On)* from *The Wolf That House Built* WIRED 27 HDCD

Led Zeppelin: *Whole Lotta Love* from *Atlantic Records 50 Years: The Gold Anniversary Collection* Atlantic 83088-2

Rimsky-Korsakov: *Dance of the Tumblers;* Eiji Oue/Minnesota Orchestra, Tutti Reference Recordings RR-906CD

Eric Bibb and Needed Time: *Good Stuff* from *Good Stuff* Opus 3 CD 19603

THE LISTENING PANEL

Our sincere thanks go to those who contributed their listening skills and time:

Julian Maddock (Mission), **Keith Haddock** (JBL), **Andy Whittle** (Rogers), **Charlotte Ricca** (Hi-Fi Choice).

the man behind TAG McLaren's explains what's

Q: why have TAG & McLaren, best known for their Formula One racing team and watches, bought Audiolab?

Dr Udo Zucker, Physicist and founder of TAG Electronic Systems Ltd.

Largely because of me. I have always loved music. I have my best ideas listening to music and could not live without it. For a long time, I've nurtured an ambition to push music reproduction to the absolute limit. I believe that in TAG McLaren Audio we will be able to do that.

Q: what do you think TAG McLaren can bring to the world of high quality music reproduction?

Dr Udo Zucker: Several things: Firstly, radical ideas and the resource to carry them out. TAG McLaren has over 100 engineers already working in one of the most demanding of all disciplines - developing specialist electronics for Formula 1 racing. Some of this experience is directly applicable to hi-fi equipment: we have world beating experience in digital circuitry design, use of quality materials and in handling complex sensor data signals in the cramped, high vibration and electrically noisy environment of a racing car. There is also a unique, TAG McLaren attitude that overrides all this resource and expertise. This attitude is focused on winning, it demands excellence and is obsessed by attention to detail.

Q: what are your aims and aspirations for TAG McLaren Audio?

Dr Udo Zucker: My goal for TAG McLaren Audio is a simple one: to build the world's best sound reproduction systems. I want to recreate, with absolute fidelity, the artists' performance in your own living room, so that when you close your eyes you can believe you are together in that room.

Q: how has TAG McLaren changed Audiolab?

Dr Udo Zucker: Let's not forget that Audiolab have been making outstanding high fidelity products for many years. In this way Audiolab complemented our own way of working. In fact, both teams of engineers already have the intuitive understanding of people that have been working together for years. When Audiolab and TAG McLaren's electronics division joined forces we became one of the most powerful companies involved in high end audio products.



WORLD LAUNCH AT 'HIFI SHOW 98', EXCELSIOR HOTEL, HEATHROW, SEPTEMBER 19-20

email: helpdesk@tagmclarenaudio.com freephone: 0800 7838007

electronics behind TAG McLaren Audio.

Q: did you change the electronics and appearance of the product?

Dr Udo Zucker: Yes. Most importantly, with our additional resources, Derek Scotland, co-founder of Audiolab, has achieved significant improvements in sound reproduction. Our attitude has been one of 'no compromise', whatever it takes to raise the standard to the level of a true TAG McLaren product. Furthermore, Peter Stephens, designer of the McLaren F1 road car, has made a big investment in design and superior materials to give these products a look for the new millennium.

Q: will you add to the product range in the future?

Dr Udo Zucker: The first fruits of our collaboration will be the new F3 series. This will be the ultimate Audiolab product, but for TAG McLaren Audio it will only be the beginning. We plan to follow the F3 with two further, more advanced and therefore expensive, complete systems: the F2 series and F1 series respectively. These systems will take TAG McLaren Audio into genuine high end products and to new heights in high-fidelity.

Q: what music system do you currently have at home?

Dr Udo Zucker: To be honest, I listen to a much more expensive Krell system at the moment but I can't wait to replace it with a better TAG McLaren F1 Audio system.

Q: and finally, what sort of music do you enjoy listening to?

Dr Udo Zucker: Ah, the question they always ask in the hi-fi stores. But I believe the question is irrelevant. Perfection is what I want, not a system that 'colours' sound. Purity, to my mind, is the most desirable quality reproduced sound can have. So it shouldn't matter what I listen to. In delivering our promise of "hi-performance, hi-fidelity" we will make this question irrelevant for good.

TAG McLaren
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(Don't forget your postal address!)

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

Query of the month

Music needs movie magic

I have a Yamaha DSP-A1 amp, a Linn LP12 turntable (with Valhalla upgrade and recently rebuilt Linn Klyde cartridge), Pioneer CLD-D925 Laserdisc/CD player and Panasonic NV-HS950B S-VHS video recorder. Speakers are a pair of Linn Kaber at front, Tukan at the rear and AV5120 centre. A REL Strata II beefs up the bass. Speaker cable is Audioquest Type 4 at the front and F14 at the rear. Phono interconnects are the freebies and optical cables are from Cambridge Audio.

The sound is excellent for movie soundtracks but flat, muddled and unexciting from vinyl, and a bit thick'n'heavy from CD. All music is played in the amp's stereo mode with effects disabled. I've considered connecting the LP12 to a separate system along with a decent CD player, but I don't want another pair of speakers in the listening room, or the inconvenience of plugging different cables into the Kabers when I want music. Assuming the amp and preferably the Kabers stay, but everything else is open to debate, and with a budget of £5,000,

what can I do to make music sound like music again?
M Seymour, Shefford, Beds

What we have here, apart from the old multi-channel/stereo sound quality conundrum, is a lack of power. Your Linn speakers are notoriously power hungry and will not be delivering anywhere near their best with the DSP-A1, even though it is specified to output five channels at 100 Watts RMS (eight Ohms). Since the DSP-A1 must be a very recent purchase, there is no need to replace it just yet. Instead use its line-level outputs to hook up external power amps. For example, for the front three channels you could invest in three Musical Fidelity X-A200 monoblocs, which would leave spare change for a Denon DVD-3000 or Pioneer DVD-505 DVD player. One of these will provide better CD sound and open up the possibility of DVD movie replay for your system. At the same time don't forget to invest in some decent interconnects like QED Qnect2 or van den Hul D102mkIII for your signal interconnections.

If this doesn't fulfil your expectations for music replay, look to invest in a processor/preamp from Meridian or Acurus.



Spreading the word

My church records services for the housebound, using rather primitive equipment. Intentions for a major upgrade have been halted by the theft of our Sherwood DD6030C twin-cassette parallel recorder. Our service requires multiplication of tapes by members who have dubbing recorders; but they are spread over a considerable area and it is convenient to start with two tapes.

The only parallel recording machines I have been able to identify are the Technics RS-TR575 and the Pioneer CT-W806DR. Any further suggestions?
T Broom, Leigh Woods, Bristol

We tested the Pioneer in HFC 171 but remained dubious about the quality of its transport mechanism. We have not tested the Technics. In addition we know of the Sony TCW-E725 which offers parallel recording: two decks at once from the same source. The unit should be available for about £180, though to record from a microphone you would need an additional microphone preamp (it doesn't have a microphone socket). QED's Microphone Preamp (£64.95) might be the best practical solution.



A noticeable improvement?
I have an old Marantz CD-48 CD player. Would I notice a big improvement in sound quality by buying a new budget-priced player like the Sony CDP-XE300 or Denon DCD-635?

A Freeman, via the HFC web site

It all depends on the rest of the system. If it's good enough to reveal the quality of the source, then you'll find it worthwhile upgrading. If not, then upgrade amp and speakers first. We haven't tried the Denon you mention, but the Sony made a very favourable impression and would be high on our recommendation list.

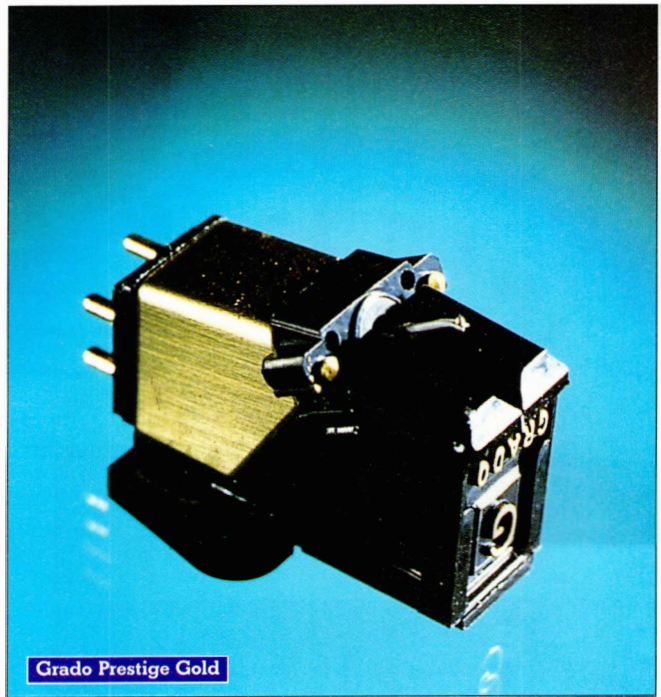
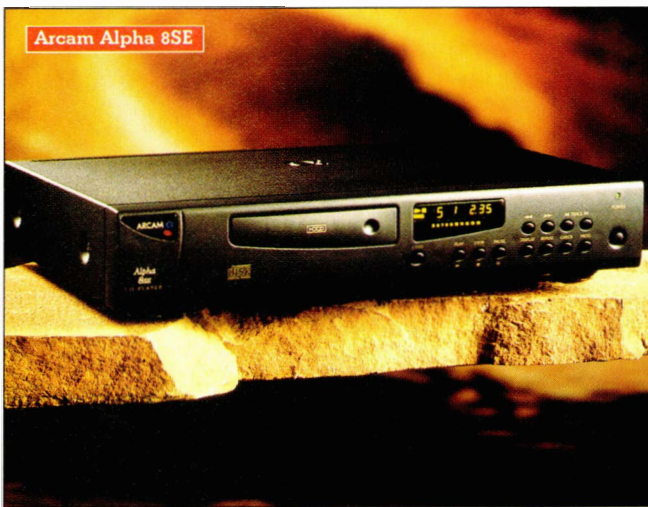
Harsh discipline required

After a spate of house-moving and furniture-buying, now I find myself in a position to think about hi-fi again. My present set-up comprises a Marantz CD-65II CD player, with a Cambridge P40 amp and a pair of JPW P1 speakers. While it lacks true bass extension, the bottom end sounds reasonably controlled, but the treble can be rather brittle and harsh. The harshness is quite noticeable on headphones (Beyer DT550) plugged directly into the CD player, suggesting that this component is the main culprit.

Thus I plan to keep the P40, but would value your suggestions for CD and speaker upgrades. My listening room is roughly 20ft x 11ft and my musical tastes are mainly rock and pop, but include classical occasionally. My budget is about £800, but could stretch to £1,000.

R Gibson, Folkestone, Kent

We would agree with your diagnosis of the CD player as the most likely cause of treble harshness. While the speakers are good per se, with an upgraded front-end you will benefit from better transducers. More refined CD players include Pioneer's PD-S505 Precision, Arcam's Alpha 8SE and Musical Fidelity's A2. Listen to these with your amp and audition some decent interconnects in the process. There is a broader range of speakers to choose from, but we would suggest Dali 104B, Heybrook Heylios and B&W DM602. Don't forget to try different speaker cables as well!



Reload with new cartridge

Can you offer me advice on the purchase of a cartridge? My present system includes Linn LP12 Valhalla/Ittok, Marantz CD-63 CD player, Rotel RC/RB850 (monoblocks), Tangent Monitor 9 speakers and Cable Talk bi-wire. My last cartridge was a Goldring 1012GX. I have around £400 to spend.

I have auditioned an Ortofon MC20 Supreme and found it quite harsh. Is it too good for the rest of the system? Would it be worth splitting the budget between a cartridge and phono stage?
R Mannion, Wirral, Merseyside

We suspect the Ortofon is badly matched with your system, rather than too good for it. You'd be better off with a Dynavector 10X4II, Sumiko Blue Point Special or Grado Prestige Gold. All three have proved their worth on LP12s. Although a phono stage would undoubtedly help, you should first upgrade the speakers. The Monitor 9 offers great value for money, but is unlikely to fulfil the promise of components further back in your system.

MiniDisc mayhem

I have thought about buying a portable MiniDisc (MD) player, since the size is perfect for travelling. However, is the format likely to catch on? Are portable players reliable? Are players universal; if I buy one in the US will it work here? Sharp seems to have the edge at the moment — which of its recording models would you recommend? Will they run off the mains? What's likely to happen to prices? How do MDs record?

F Robinson, Aberystwyth, Ceredigion

After its launch in 1992, MD battled with a digital tape format from Philips, called DCC. However, the latter ceased to exist as a consumer format a few years ago, and since that time MD has been steadily growing its power base, especially in Japan and in professional recording applications.

In Europe, recordable CD has become an alternative to MD, especially since Philips launched the CDR880 (HFC 179). However, while CD recordable offers better quality, MD is much more compact and has more flexible

editing facilities. Blank rerecordable MiniDiscs are also much cheaper than 'rewritable' CDs. Will it catch on? Too early to say. But prices of recorders are coming down steadily, and there is a growing range of portable, separate and packaged audio systems incorporating MD.

When it comes to reliability, only an exhaustive consumer survey could establish statistics, but portable MD systems are likely to be no more or less reliable than any highly-miniaturised high-tech product. In its favour MD does not rely upon a physical contact recording system like tape: instead discs are read and recorded using magneto-optical techniques. Players are universal with regard to software, but units purchased in the US will have power adapters that are incompatible with UK mains sockets. Sharp does manufacture good portable MD recorders, but so too do Aiwa, Kenwood and Sony. Read all about them in our group test planned for the October issue (on sale August 27).



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Alan Sircom
Hi-Fi Choice March 1995



Photos: Paul Hanley Studios



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Mana Sound Frame
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Q Magazine, Robert Mills, May 1997



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- ▼ **CONS:** A right royal pain to clean and dust

SOUND QUALITY
■■■■■
VALUE FOR MONEY
■■■■■

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Listener Magazine (USA)

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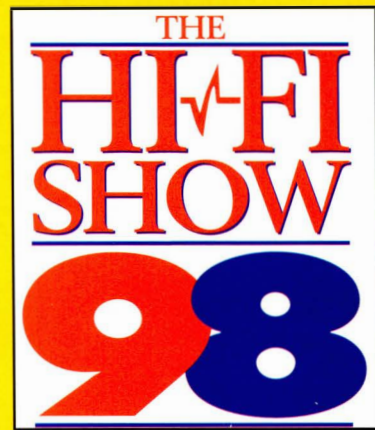
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CD conundrum

Can you help me choose between the Sony CDP-X3000ES and Kenwood DP-7090? I am unable to audition them in my country. I am building a system around the harman/kardon HK620 amp, and I can tell you what I don't like: harsh treble and screaming female voices, which I get from my Philips CD721. This upper-mid glare comes out from almost all the speakers I have tried (Tannoy M3, Mission 733i & 752, Dali 808), and I am afraid to face this problem with a more expensive CD player too.

The problem is greatest with vocal performances, since on instrumental reproduction the '721 offers good (if slightly euphonic) soundstage, presence and detail. Interconnects are Straightwire Chorus.

'Axel S' via the HFC Web site

No one likes glare, but it seems to be a characteristic of many CD players nonetheless. However, by attending to a few key points, you can make offending CD players perform quite sweetly. This means experimenting to find the best (not necessarily most expensive) interconnects and mains cables, with ferrite clamps for RF suppression. Perhaps most important is the need to ensure effective mechanical isolation and damping (see p50 for this month's review of equipment isolation supports).

Having said that, the Philips CD721 is a budget player, and it is easily inferior to either of the machines you mention, though it would be hard to say which of them is the smoothest. The Sony has the advantage of alternative digital filters which offer an element of fine tuning, while the Kenwood is fundamentally relaxed yet resolute (but also the more venerable of the two).

Tubeway army

I am currently wondering whether to upgrade my amplifier in the £600 - £1,000 price range. I have been advised to try a number of solid-state amplifiers, but are there any good tube amps in this price range which would be capable of driving my Epos ES12 speakers?

J Gregory via the HFC Web site

Valve amps are very beguiling, and for many audiophiles their first taste of valve is a 'road to Damascus' experience. Regrettably, ES12 speakers are not the best suited to such amps, but you should still try them with (for example) an Audio Note First, Golden Tube Audio SI-50 or CR Developments Romulus V3. Either of these should have enough grunt for your speakers.



Diamonds and pearls

I use a Marantz CD-63mkII K I Sig connected with Audioquest Opal to my Rotel RC-972 preamp. This in turn hooks up to an Audiolab 8000P power amp with AQ Ruby. I intend to buy an 8000S for bi-amping, or an 8000C for upgrading when finances allow. I auditioned this system with Ruark Sceptre speakers and QED Profile 4x4 cable, but I have my reservations about these latter components and am looking for recommendations on both fronts. I have £500 for speakers and £12/m for cable, and my room is 7 x 3.5m.

W Clayton, Sinfin, Derby

There's no easy answer to this: you will have undertake a programme of auditioning. To condense your shortlist of speakers, consider first whether you want floorstanders or stand-mounts. The former are in vogue these days, but their extra bass extension and sensitivity must be weighed against what is usually the greater sophistication of stand-mount enclosures. Good examples of these include the Dynaudio Audience 50, Heybrook Heylios and PMC TB1. Some decent floorstanders, meanwhile, are the B&W DM603, Dali 606, Mission 752F and Royd Doublet.



Pierce pudding

I would appreciate any suggestion on how to upgrade (cheaply), or perform some refinement on my system to alleviate the brain-piercing treble that my system produces with certain recordings. The system comprises: Sony CDP-X3000ES, Audio Analogue Puccini, Triangle Zephyr, QED Qnect 2 interconnects and Straightwire Flex-4 speaker cable.

R Fernandez via the HFC Web site

Ouch! Your problem sounds nasty, but the system's components seem pretty even-handed. We haven't tested the speakers, though, so perhaps they could be a contributory factor. However, it would not be cheap to replace them, so a bit of tweaking might be necessary. You could try toeing-in sharply, or go the whole hog and turn the speakers around to reflect sound from the back wall. This is a pretty unorthodox solution, but our contributor Jimmy Hughes swears by it. The only drawback is a loss of precise stereo focus. For a less drastic solution try experimenting with a laid-back cable like Audioquest Type 4 or Cable Talk 4.1.

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Tannoy Mercury M2

In search of speakers

I need some advice on speakers for a Marantz CD-63 KI Sig/PM-66 KI Sig set-up. I have listened to Castle Tay enclosures, and while they sounded very detailed, they seemed a bit 'light'. My budget is £350 to £580, and I don't like the B&W DM602 or KEF Q35. I was thinking about Mission 752 Freedom, or what about Epos ES12?

'Rod' via the HFC Web site

We tested a system using your electronics in HFC 174, using Marantz's recommendation for speakers — namely Tannoy Mercury M2. It looked like a somewhat unlikely combination, but when hooked up with Audioquest Emerald interconnects and Kimber 4TC speaker cable, and with the speakers perched on Heybrook stands, the results were pretty impressive. The combined price of these parts would probably fit your budget.

HINTS AND TIPS

A CLEAN SWEEP

THIS MONTH JIMMY HUGHES INVITES STEADY-HANDED READERS TO SPRING-CLEAN THEIR PHONO CARTRIDGES. HOOVER WOULD HAVE DREAMED SUCH A THING?

WARNING: use of this tweak can be seriously damage your hi-fi. To perform it, you're going to need a steady hand and a good eye. And even then, you'll need to take great care. However, what I will describe this month remains one of the best methods that I know about to rejuvenate old phono pickup cartridges.

As a phono pickup ages, it gets dusty inside. It makes no difference if your records are spotlessly clean: there's enough dust in the atmosphere to cause a build-up over time. This clogs the innards, hampering movement of the cartridge's sound-generating components. Hence the remedy I'm about to propose.

Please forgive the Blue Peter overtones, but you're about to take an ordinary domestic vacuum cleaner and use it to suck dust from deep inside your cartridge. Depending on the unit's body shape, it should be possible to perform the operation using the flat, wedge-shaped cleaning attachment that's intended to go down the sides of chairs. Alternatively, remove the vacuum's head attachment altogether, and just use the tube.

With the greatest care, bring the cleaning nozzle up to the pickup cartridge, which should remain mounted in its tonearm. Place the cartridge almost inside the nozzle. I always do this with the cleaner's motor already running; others may feel happier to get the nozzle-end in place before switching on the suction. Once the end's in place over the cartridge, you need to hold everything rock-steady. Make an unpredictable movement when the motor comes on, and you might damage the stylus.

That's why I prefer to start the vacuum cleaner motor first. It means you can feel the increasing pull of the suction as the nozzle gets closer to the pickup, so you can guide it into place slowly, knowing the direction in which it's being pulled. Once everything's in place I like to cover any gaps between the nozzle and the pickup to increase suction. By covering up the gaps, then letting opening them again, you can alternately increase and decrease suction force during the cleaning cycle.

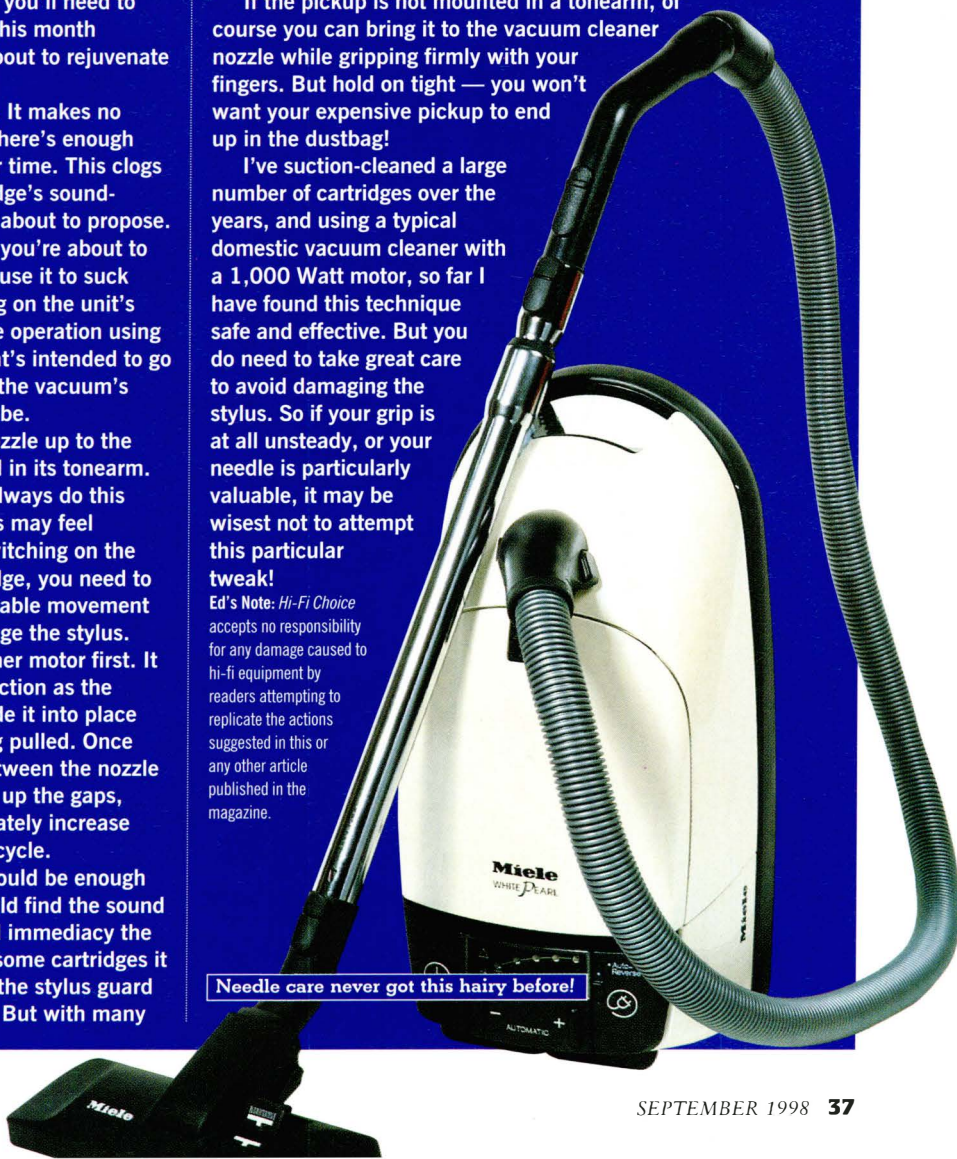
About two or three minutes of vacuuming should be enough to clean out any cobwebs. Afterwards, you should find the sound crisper and cleaner, with more of the clarity and immediacy the pickup would have possessed when new. With some cartridges it may be possible to carry out the operation with the stylus guard in place — a big plus-point as you can imagine. But with many

pickups it will be necessary to dispense with the cover and perform cleaning with the stylus exposed. So take great care!

If the pickup is not mounted in a tonearm, of course you can bring it to the vacuum cleaner nozzle while gripping firmly with your fingers. But hold on tight — you won't want your expensive pickup to end up in the dustbag!

I've suction-cleaned a large number of cartridges over the years, and using a typical domestic vacuum cleaner with a 1,000 Watt motor, so far I have found this technique safe and effective. But you do need to take great care to avoid damaging the stylus. So if your grip is at all unsteady, or your needle is particularly valuable, it may be wisest not to attempt this particular tweak!

Ed's Note: Hi-Fi Choice accepts no responsibility for any damage caused to hi-fi equipment by readers attempting to replicate the actions suggested in this or any other article published in the magazine.



Needle care never got this hairy before!



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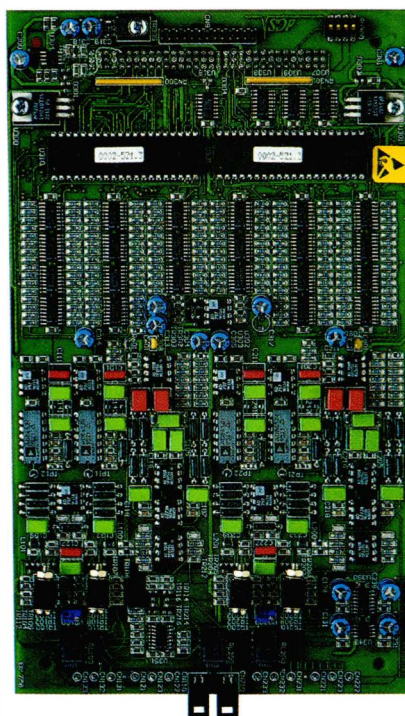
Suddenly we are besieged by new digital disc formats promising untold sonic riches. Do they live up to expectations? With a little help from our friends at dCS, **Richard Black** compares the latest 24/96 standard with regular CD.

Regular readers may recall my article in *HFC 175*, in which I extolled the virtues of Super Audio CD (SACD), a new-generation, CD-compatible digital music disc proposed by Philips and Sony. On paper, this promises bandwidth and dynamic range far in advance of those available from CD.

This system, if it is launched as advertised, will be in direct competition with DVD Audio (DVD-A). DVD-A can store various audio formats including linear PCM (as used for CD), but to a much higher specification. It can accommodate a 192kHz sampling frequency, yielding over four times the bandwidth of CD; and it supports up to 24-bit resolution, giving much better dynamic range. Although its final specification has yet to be finalised, it looks certain to offer high-quality surround-sound music as well as two-channel presentation.

At present there are thus two formats competing to be CD's successor. However, after the first article was published, I received a call from Robert Kelly of dCS, a UK manufacturer of professional analogue-to-digital converters (ADCs) and digital-to-analogue converters (DACs) including models capable of 96kHz/24-bit and even 192kHz/24-bit. (dCS also played a key role in the development of Arcam's new Alpha 9 CD player, as reviewed last month. Ed)

Robert, and his designer colleague Mike



Story, pointed out some significant technical question marks over the absolute level of sound quality attainable with DSD (Direct Stream Digital) the technology behind SACD. dCS is possibly the only firm other than Sony able to offer a DSD ADC, so there could hardly be an ulterior motive for these

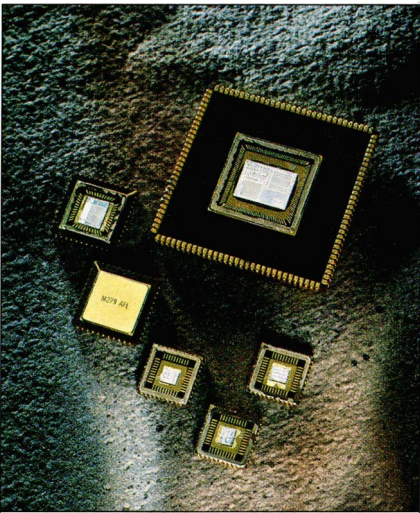
Above: the mighty Elgar, a solid slab of high technology audio. Left: the heart of the beast.

misgivings. Other problems with the SACD system are related to the amount of re-equipping that would be needed in recording studios and mastering suites. (The recording business is notoriously conservative and careful with its budgets where unproven new technologies are concerned. Ed)

However, although there has been much discussion of the new super-quality disc formats, the debate still lacks an effective appraisal of the subjective differences between the standard of regular CD recordings and the new high-bit, high-sampling-rate systems. A big drawback has been the inability to compare like with like, certainly so far as prerecorded commercial material is concerned. But dCS offered the loan of recording equipment which permitted *Hi-Fi Choice* to effect this most important comparison between current (44.1/16) and future (96/24) sonic standards. We were eager to accept, since the loan was to include the company's consummately-engineered Elgar DAC. We made our own recordings and used the master tape to compare the two standards side by side.

Elgar's variations

Naturally, the dCS Elgar is compatible with CD, DAT and all current digital recording



Digital jewellery: the processing power of the Elgar can be found in these rare chipsets.

formats, but it is probably the first unit of its kind to cope with the higher sampling rates of DVD. Though priced firmly in the high-end ballpark at £8,500, it competes in CD terms with some highly-rated products from US manufacturers. However, apart from the high sampling rates it has a unique technical selling point, too: dCS's proprietary 'Ring DAC' architecture. Arcam's Alpha 9 CD player employs a version of this, licensed from dCS.

As you may have read last month, the Ring DAC is essentially a five-bit converter, i.e. pitched between traditional multi-bit and one-bit 'bitstream' converters in terms of its designs. When operated at a suitably high oversampling rate, such a system can offer very good performance both in terms of low-level resolution and high-level dis-

ortion. dCS claims to have achieved a 'Differential Non-Linearity' (DNL) of at least 29 bits. In English, DNL is a measure of DAC goodness, and the Ring DAC's score is pretty good.

In fact, the Ring DAC is at the heart of dCS's DACs and ADCs, buttressed by extensive digital signal processing circuits developed by the company's own engineers. To date, the Ring DAC has been made with discrete components and logic chips, although dCS has recently devised a fully custom-integrated circuit made to do the same job, doubtless at lower cost.

The Elgar is a distinctive and tasteful-looking unit, with a nice touch of natural slate in the top panel. At our recording session, however, due to various factors including the varying commitments in both parties' schedules, dCS actually provided a 954 for review rather than an Elgar. The former is the professional version: electrically the two are almost identical (the Elgar has separate mains transformers for digital and analogue sections, and has disabled a few professional features such as test-tone generation). Everything you read here should apply equally to the Elgar.

Box and buttons

Inside the unit is a large circuit board, spanning the full width of the case, and this carries the gate array and DSP chips. Both Ring DAC and analogue output board are mounted piggy-back upon it. Everything seems very well made: the several audio op-amps, for instance, are of a high quality, though brand-name-component freaks will find little to get excited about.

On the rear of the unit are rather more

sockets than you will find on most DACs, with two AES balanced digital inputs, one phono and one BNC coaxial, one Toslink and one AT&T optical. There are also balanced and unbalanced audio outputs. Note that while the coaxial and optical S/PDIF interface can handle 96kHz sampling rates (with appropriate partnering equipment) this is limited to 20-bit resolution.

On the front panel are numerous controls, of which the simplest are push-buttons for standby, display brightness (eight levels), absolute phase and mute. The input selector allows selection of any single input and also of 'Dual AES' mode, used by some 96kHz equipment to transmit high sampling rate digits over standard-bandwidth connections.

Unusually, there is a button to select de-emphasis, although this is not required by the majority of discs; and in any case is normally flagged by the incoming data stream. dCS offers manual control of this function in case the normal automatic mode fails to engage for an incorrectly mastered disc.

Last but not least, users can adjust volume and balance, completely in the digital domain, with a pushbutton working in conjunction with a rotary control. Range is from



Serious kit: the Nagra D digital tape recorder used for the 96/24 location recording.



From left to right: Robert Kelly, Richard Black and Veronica Reznikovskaya check out the results from the Nagra D and Sony DAT recorder.

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The dCS 954 is a professional version of the Elgar DAC and trades a nice box for more socketry.

0 to -60dB, in 0.5dB steps, allowing the Elgar/954 to be plugged directly into a power amplifier.

Not enough gadgets? Okay, well how about a function menu which adds a channel-swap feature, access to serial and issue numbers and even information on the internal temperature of the unit? This information is given on the display, which otherwise defaults to the current sample rate. Most functions are duplicated on the infra-red remote control.

Live and kicking

This author does a small line in demo recordings, for young professional musicians who need some promotional material to tout around the record companies. Thus it was not difficult to find one such individual prepared to undertake a little equipment testing in return for a free tape. Our candidate was an exceptionally fine opera singer from Russia, Veronica Reznikovskaya.

One evening in late May, Robert Kelly, HFC Dep Ed Jason Kennedy and I set up a full-on dCS rig (with Nagra D 96kHz digital open-reel tape recorder) inside a church within the City of London. This is a small Christopher Wren building with lovely acoustics, a serviceable piano and low background noise. The microphone was a novel stereo unit (a prototype) from Tim de Paravicini of EAR, with which I had already achieved excellent results on a couple of CD projects. Amplification was also by EAR.

Well-produced operatic female vocals are rich in overtones, and the same is true of piano. The unusual directional characteristics of the EAR microphone permit use of a relatively high level of the church's very even reverberant decay, without sacrificing clarity. dCS had already hinted that ambience was one of the most obvious areas improved by high sampling rates.

Setting up and balancing did not take long, so Veronica and I (accompanying on piano) set out to achieve a recording that would not be out of place when reproduced in opera houses all around the world. Meanwhile, Robert manned the controls and tried to overcome his disappointment at the lack of electric guitar in the line-up. (Actually, I think he quite enjoyed the performance.)

In most professional fashion, Veronica sang a selection of opera arias and songs in

straight-through takes, only repeating two of the items. Before anyone's bedtime we had over 40 minutes of material.

One of the biggest problems in location recording is the usual lack of a decent monitoring room, and this church was no exception. As usual in these circumstances we had to check the recording balance on headphones, so the critical listening began back at home. Robert had also loaned us a dCS 972 sample-rate converter, so that we could establish a strict comparison between sample rates, as fairly as possible. And since this converter also allows truncation of word length — with suitable noise-shaping — to anything from eight bits upwards, we could test the effects of that variable too.

Digital dreams come true

Want to hear some good news? 96/24 is a pretty tasty way of listening to music. I've never been the world's biggest fan of CD-format digital audio, though it can manage fairly decent tonal qualities and low background noise. At the end of the day you, I, and millions of others have had deep and meaningful musical experiences listening to CD.

However, in critical comparisons with the best analogue master tape, with live sound and with a direct line feed from a microphone, CD never quite manages the last word in background detail or top-end clarity and sparkle. Listening to our recording via the 972 and the DAC at 44.1kHz or 48kHz gave a familiar CD sound — good as far as it goes. But when we set the 972 to bypass, and listened to the recording at full sample rate and resolution, this was really something else altogether.

For a start, the soundstage really opens out. In our recording there wasn't much direct sound in the soundstage: a solo singer standing in front of a piano, recorded from about 10 feet away, is pretty much a mono source. But the reverberation is very stereo indeed, and while there was something of the church's acoustic signature in the 'CD' version, the full 96/24 version was considerably more detailed, open and generally three-dimensional. I can't resist pointing out that this is the sort of comparison many people have made between really good LP replay and CD. Some folks 'explained' this as an illusion created by various LP faults, though I think we can discount that here!

Then there is the question of purity and detail in the tone of both voice and piano. I've spent thousands of hours listening to live pianos — certainly long enough to know that not once on a CD have I heard a totally pure attack to a recorded piano note. There's always at least a hint of a bizarre sort of 'twang' on it. This can be reduced by good CD players but never (yet) eliminated — perhaps this is due partly to loudspeaker deficiencies, but 96/24 reduces this effect to levels I have never heard from any digital audio system. The instrument becomes more solid, more tangible and significantly less fatiguing (in my view, listening fatigue is the greatest evil in any sound-reproducing system).

There is a similar effect with vocals. Veronica's clear diction was quite obviously compromised on 44.1/16, with particularly coarse and spitty sibilants; while on 96/24 it simply required less effort and imagination to understand her, and vowel sounds were much clearer and sweeter.

But is this due to the greater sampling frequency or the increased word length? It is interesting to compare, for instance, 96kHz/16-bit, or 44.1kHz/24-bit. I felt the former had more life and detail to it, though the latter was certainly an improvement on 44.1/16. However, it seems clear that full sampling rate and full word length (actually 96/20 seemed virtually indistinguishable from 96/24) are necessary for best results. The few people who have heard 192kHz sampling rates claim it is even better still; I wait with bated breath. Quite why these differences are so obvious is a question for the psychoacousticians.

Conclusion

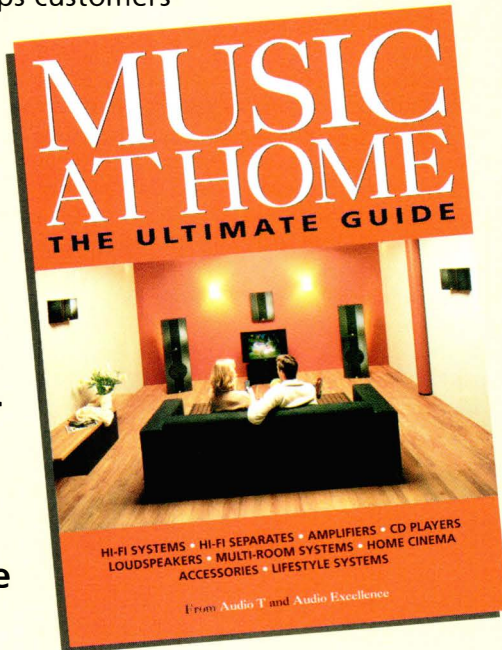
Back, briefly, to the real world. Although we could hang on to the dCS gear only for a regrettably short review period, clearly the dCS 954/Elgar is a top performer with regular CDs. But 96/24 is enough of a step forward to make one wonder what all the fuss is about with CD. And before anyone queries the performance of the dCS 972, it's worth mentioning that this unit in conjunction with the 954 might have been the poor relation to 96/24, but it performed no less competently than a good (44.1/16-sourced) CD. In other words, it really is the format that makes the difference.

There's no question that we are on the brink of a wholesale hike in the level of sound quality achievable in the home, and we must congratulate dCS not only for demonstrating this but also for coming to market with innovative products well ahead of the competition. For the well-heeled audiophile, the Elgar would seem to be a fine investment, capable of good performance now and in the future. (It is also upgradeable, should the need arise, via software). In the meantime, audiophiles can sit back, secure in the knowledge that the touted new standard does, indeed, offer tangible improvements. ▲

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Pack Animal

Wilson's new Cub speaker, a £5,495 'budget' design, is a technological jamboree. **Alvin Gold** scouts out a pair.

Grand Slamm is the Wilson Audio speaker folks gawp at, but this US company doesn't only make six-foot-tall Daleks with five-figure price-tags. It also produces 'entry-level' loudspeakers like the £5,495 Cub reviewed here, which claims to have modest system requirements for use in smallish rooms.

The Cub is a medium-sized stand-mount, as deep as it is high (56cm), but just 25.4cm wide. It is available in a wide range of finishes, and each enclosure is unusually solid and heavy (34kg each). Equally weighty are the mass-loaded, six-pillar stands built with even less regard to the poor guy who has to schlep them around.

The drive-unit array comprises a centrally-mounted inverted tweeter from Focal, flanked by two 17cm SEAS drivers in a D'Appolito array (above and below the tweeter). The tweeter is mounted on a recessed panel, which helps in time-alignment. The crossover is divided into two parts housed in a separate box on the back of the enclosure. Bi-wiring is off the menu: only a single pair of heavy-duty connectors is available for spade-terminated speaker wire.

This claims to be a medium-bandwidth design, in which low-frequency cut-off is specified as -3dB at 48Hz. Allegedly there is a broad presence-band boost, tuneful but lean bass, and excellent imagery. Sensitivity is 94dB, but this is said to be a low-impedance, four-Ohm load — not exactly valve-amp-friendly. Though its sensitivity is high, the Cub likes meaty, high-current amps.

The bear necessities

It was not easy to make the Cub equal my expectations, even though the review samples had obviously been well run in. I connected the speaker to Krell equipment (KAV-300cd CD player and KAV-300a/p pre/power amp) thoughtfully provided for the purpose, using Nordost interconnect and speaker cables. Strangely, the results proved remarkably unsatisfactory. The Cub hinted at great midband strengths, and of an unusually controlled, tuneful bass. But everything was dominated by the treble, which had a coarseness and congealed quality that smothered any subtlety. Metal



Wilson Audio Cub Tweeters are from Focal, with two D'Appolito-arrayed drivers from SEAS.

dome tweeters often sound rather like this one, but rarely to the same extent.

However, changing the cables for some Transparent Audio wires turned things around. Treble quality was recognisably similar, and there was still a certain unwanted sharpness and prominence to the mid treble, though the real highs sounded smoother and more naturally distanced. The musical effect, however, was unambiguous. The treble no longer intruded — indeed for all intents and purposes it was no longer a separate entity from the rest of the speaker. If the treble deficiencies had not been overturned, they had at least been defused, and now serious listening could begin.

A ruthless revelation

The Cub's blend of virtues is unlike that of any other loudspeaker I can name. First, Wilson's studio monitoring background clearly informs this design, which in many respects behaves like the best studio loudspeakers. In particular I would point to the dynamic range, the forward, almost 'in-yer-face' imagery, the openness, and the ability to go loud, with no obvious hint of the compression or change in sound which afflicts almost all box loudspeakers to some extent.

Studio speakers often fall down when it comes to transparency and tonality, but the Cub is outstanding here, too. The strong box

and support, and the efforts that have been taken to keep the crossover from harm, provide a design which is as near inert as I can remember. The result is much less overhang and coloration than usual, and almost total suppression of normal box-type coloration artefacts. The effect is reminiscent of quality flat-panel speakers in terms of delicacy, articulation and subtle tonal differentiation, but with superior bass and a more physical quality. It just feels more like there are real musicians in the listening room.

More than any loudspeaker I have experienced directly, the Wilson Cub is a precision instrument, an analytical tool for dissecting recordings. Cleanly, even pedantically, it picks over the bones of music. It does not set out to flatter, or to render the unlistenable listenable. These things are in the domain of the source material, and when fed with capable recordings, the Cub came nearer to realising their strengths than I have had the pleasure of experiencing in a long time.

It was a revelation with some recent recordings, which opened out in space and air with a firmness that was remarkable, but other less rounded albums won't survive long on the digital roundabout when played in a Cub-based system. So while it took time to acquire the Cub habit, saying goodbye to it will be an equally protracted affair. ▲

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Xtra Ordinary

Here's Naim's top-dog CD player until a new two-box CDS comes along. Is CDX equal to the task?

Paul Messenger investigates.

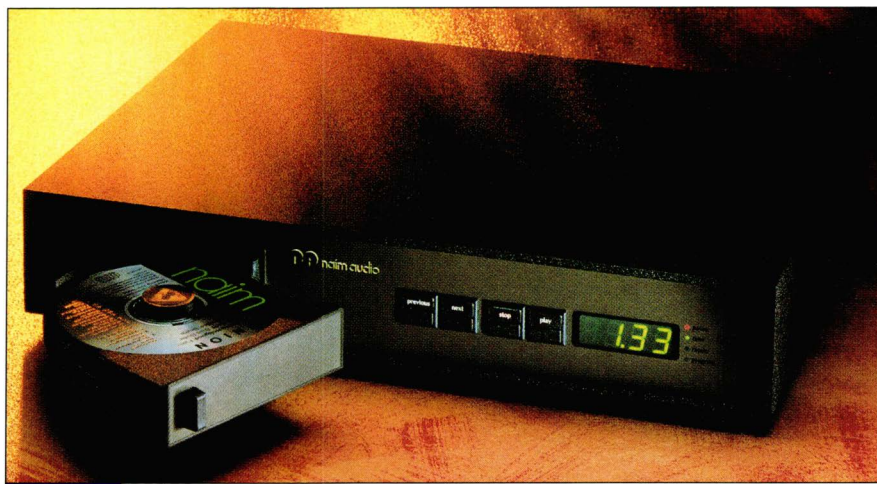
Naim Audio has built its formidable reputation on an extensive range of high-quality amplifiers, some of which have remained in the range for over 20 years. Nowadays, however, its high-quality CD players have been attracting just as much attention.

Amplifier designs might go on and on forever, but CD player technology changes constantly. For example, a key component of any CD player is the mechanism which spins the disc and reads out its data. It is a highly specialised piece of engineering, and each new version has a relatively short production life. Small hi-fi manufacturers have to buy in components such as these, and thus are at the mercy of the international conglomerates which manufacture CD transports. Thus, due to obsolescence of the CD mech used in Naim's original CD player, the CDS (reviewed in *HFC Collection* 1992/93), the £2,200 CDX currently represents Naim's top CD player. A replacement CDS is promised soon, but in some ways the CDX looks the more interesting option.

Upgradability has always been an essential characteristic of Naim hi-fi systems, so although the CDX is a fully-operational, stand-alone, one-box CD player, it may be substantially upgraded by the addition of a £1,925 XPS external power supply. (The XPS, which will also be used in the forthcoming CDS, was not ready in time for our review schedule, but it will be in the shops by the time this appears in print.)

The ergonomics of the CDX are exceptionally simple, and quite deliberately so. The player has just four back-lit buttons, for play, stop, previous and next tracks. More functions are actuated by the supplied system handset. The minimalist display (just track number or duration) is legibly large, if a little bright for my taste, so its 'off' setting is welcome for aesthetic reasons as well as the sonic benefits it brings. Under the hood there's a Pacific Microsonics decoder/digital filter which automatically provides HDCD enhancements when such discs are played. (See p22 for more reviews of HDCD players this month - Ed.)

While the CDX uses a number of key



Naim CDX This player's idiosyncracies emphasise musical communication above aesthetics.

parts from external sources, Naim writes its own software code for the servo controller/decoder chip governing the disc-drive mechanism. The power supplies might be built into the unit, but they're elaborately implemented, with double regulation and no fewer than 20 low-noise supplies to the main circuit board, plus separate supplies to the servo controller and display.

Turn on, tune in, swing out

Switching on the CDX is not as simple as you might think. The instruction manual omits to explain that attaching a mains lead and switching on is not enough: you also need to insert a large power-supply link plug in the rear. And while some will balk at the manually-operated 'swing tray' CD loading mechanism, I rather like it.

Before doing any listening I left the CDX in 'repeat-play' mode for a few days, because Naims are notorious for needing a lengthy warm-up. When finally connected to my Naim-amplified system, it impressed me immediately with its forcefulness, brio and dynamic expressiveness.

My first impression was that it actually sounded better than the venerable CDS which is my regular player. The bass seemed firmer and deeper, and the treble appeared cleaner and more extended. However, first impressions can be misleading. It was a while since I'd gone through the regular maintenance routine of unplugging and replugging the CDS's various leads, to clean up the contacts; once I'd done this, the superior subtlety and greater dynamic range of the CDS shone through. However, the new CDX is clearly struck from the same mould, delivering the same righteous timing and superior dynamic expression.

The Naim sound, consistent throughout the company's electronics, will not be to

everyone's taste. The adjectives sweet, delicate and transparent don't spring readily to mind, and the CDX's stereo soundstage doesn't have the tangibility or depth of, say, the Acoustic Precision Eikos CD player, which was on hand as a usefully representative upmarket alternative.

Skip the formalities

The fact is that Naim components' strengths are found elsewhere, in their communication rather than their presentation skills. The sound might not always be inherently 'pleasant', but it will delineate differences in musicianship, recording techniques and sound quality. All of these help engage the listener in the musical experience, making even unfamiliar material interesting and involving.

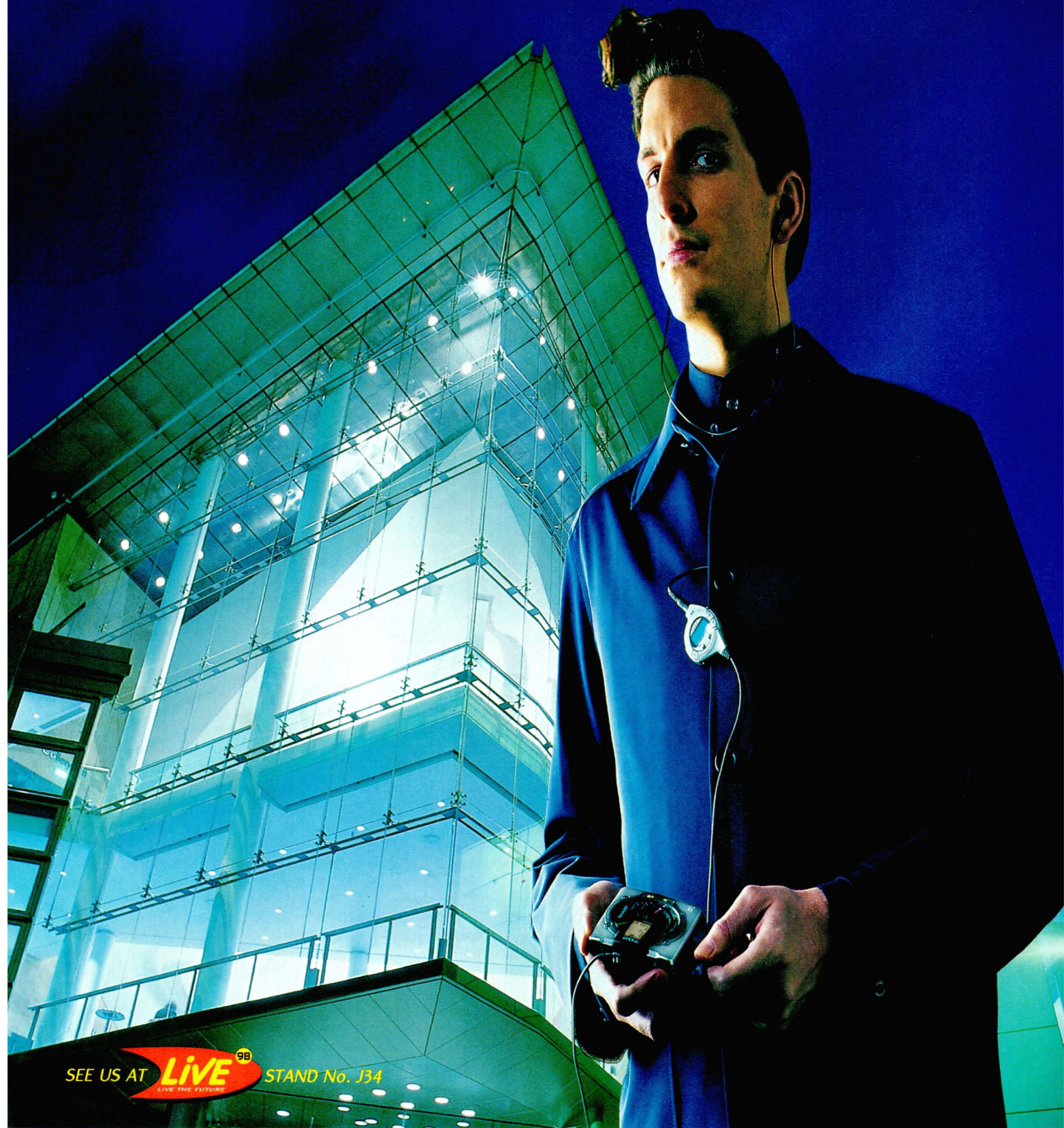
There was only one real disappointment, which came when I tried, rather unsuccessfully, to play an old and decidedly battered copy of Laurie Anderson's *Strange Angels*. The CDX didn't like this disc at all, skipping and jumping like a spring lamb at irregular intervals, whereas both the CDS and the Eikos sailed through it.

We cannot deliver the final word on the CDX until we've tried out its XPS upgrade. In basic form its performance lacks the subtle shading and dynamic precision of the two-box CDS, but as a stand-alone component it does a very capable job indeed, at least when playing CDs in good condition. (I'd advise caution if your discs are borrowed by less careful members of the household.)

I can't say for sure whether it's the most CD player fun you can have for £2,200, but it does possess Naim's characteristic communication skills, which do a great deal to break down the barriers of perception between listener and musicians. ▲

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WHAT HI-FI? ★★★★★ **T3** ★★★★★
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THE RIGHT FOUNDATION

Behind every great system there's a great stand. **David Vivian** evaluates nine models priced from bargain basement to penthouse pad.



Forget to buy a source component, and your hi-fi will just sit there hissing at you. Leave out the speakers and no matter how enthusiastically you tweak the volume knob, all you'll hear is the sound of dropping pins. A stereo system sans amplifier is quieter than a mouse asleep behind the skirting board. And without interconnects and cables you might as well stick your head in a bucket of water; at least rising bubbles make a noise. If you want high fidelity music reproduction, there are certain things you have to buy. A specialist equipment support isn't one of them.

A hi-fi system will work pretty well if you pile the components on the carpet. Sloppy, but it's probably what you did the day you moved into your house. Later, sundry tables and shelves may well have been pressed into supporting roles. Wasn't it Linn's boss, Ivor Tiefenbrun, who said his world-beating Sondek turntable required nothing more elaborate than a cheap'n'cheerful coffee table to perform perfectly well? Seems strange that anyone would shell out £200, £500, or even £1,000 for a fancy stand...

Actually, the table just happened to be light and rigid. Qualities of supreme indifference to a cup of coffee, but characteristics which, significantly, shaped the thinking behind the nascent specialist support market. The Sondek sounded better on the coffee table than it did sitting on just about anything else available at the time. That's when it really started, when people heard the difference a table could make — and some wondered how far they could take it.

Growing support for hi-fi

Today there is a diverse and often confusing range of equipment isolation supports available. ('Furniture' is considered a derogatory

THE CAST LIST	
Alphason Design GR 17/17-AS . . .	£275.00 . . . 51
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Kudos Audio Corinthian	£499.00 . . . 54
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Townshend SSS	£1,245.00 . . . 58
Wilson benesch Asside	£590.00 . . . 59

term by true devotees of the art.)

Modern approaches to hi-fi support range from spindly frameworks which would blow away in a stiff breeze, to hulking, super-dense structures layered with slabs of rock, that a team of rugby players would struggle to move. To support the shelves, some have more spikes than a punk's barnet; others use little rubber grommets pushed into strategically-located holes in the frame.

It's analogous to the difference between cars which have a unitary bodyshell, and those built upon a separate chassis.

One school of thought suggests that a hi-fi stand should be a tripod, naturally stable like a milkmaid's stool. The other prefers the cow's solution: four sturdy legs. One make of stand you even have to inflate with compressed air.

Hi-tech composites and carbon fibre are infiltrating the traditional ranks of wood, iron and glass. Brutally functional designs can still be found, like the Sound Organisation stand tested on page 56). But at the same time high style has become a much more serious consideration. In addition to bestowing their sonic benefits, supports can enhance or de-emphasise the appearance of the gear sitting on them.

They're a statement. Rather than hide your kit away in a cupboard, you're saying: "I like hi-fi: get a load of my gear".

If you're reading this, you must be intrigued by the notion that function, appearance and performance of hi-fi can be enhanced by a mere table or rack.

There is a simple notion underpinning an isolation support: to reduce the harmful effect of external vibrations. However mild a vibration may seem to us humans, it will be huge compared with the minute domain in which hi-fi processes signal information. Ironically, your system is generating most of the vibration in the first place. So in a very real sense, a good equipment stand will protect your hi-fi from itself.

Benefits of taking a stand

Stand-endowed improvements aren't always all-embracing, but after installing your rig upon one, expect to hear more extended treble with less grain, greater focus and reduced muddle in the mid-range, plus deeper, faster bass. There should be a greater sense of presence, image solidity and dimensionality, but without noticeable emphasis in any part of the audio band. Ideally, the listening experience will be more vivid, entertaining and, above all, real.

The nine tables here cover just about all of the, ahem, bases. Prices range from a pocket-friendly £150 (Sound Organisation Z545) to a "say-that-again?" £1,199 (Elemental Audio Isotube X4 + Reference Upgrade) and £1,245 (Townshend Seismic Sink Stand). The tripods are represented by Kudos Audio, Optimum International and Wilson benesch; and, uniquely, the Townshend comes with a bicycle pump. Read on to discover why!

ALPHASON DESIGN GR 171717AS

This is the classic, modular, 'glass-with-legs' design: spare, smart and unassuming. The look of the elegantly-proportioned GR 171717AS is very much an Alphason Design original concept: it doesn't take up much room, blends with any style of décor, and won't cause a hernia when you try to move it. Unpack it, stack it and you're in business. Do not underestimate the significance of these points: if something looks right, it has a psychological advantage straight off.

The shelves are five-millimetre-thick smoked glass, and the unit can be supplied with spiked leg-ends if required. (Our tests made use of the slightly convex, smooth-surfaced alternatives.) As with most Alphason designs, the leg pieces are connected by threaded rods that pass through small holes punched in the glass. Screwing the sections into the rods tightly sandwiches the glass shelves, and this, in turn, contributes to the impressive strength and integrity of the overall structure. Putting it all together is a doddle and takes just a few minutes.

Sound quality

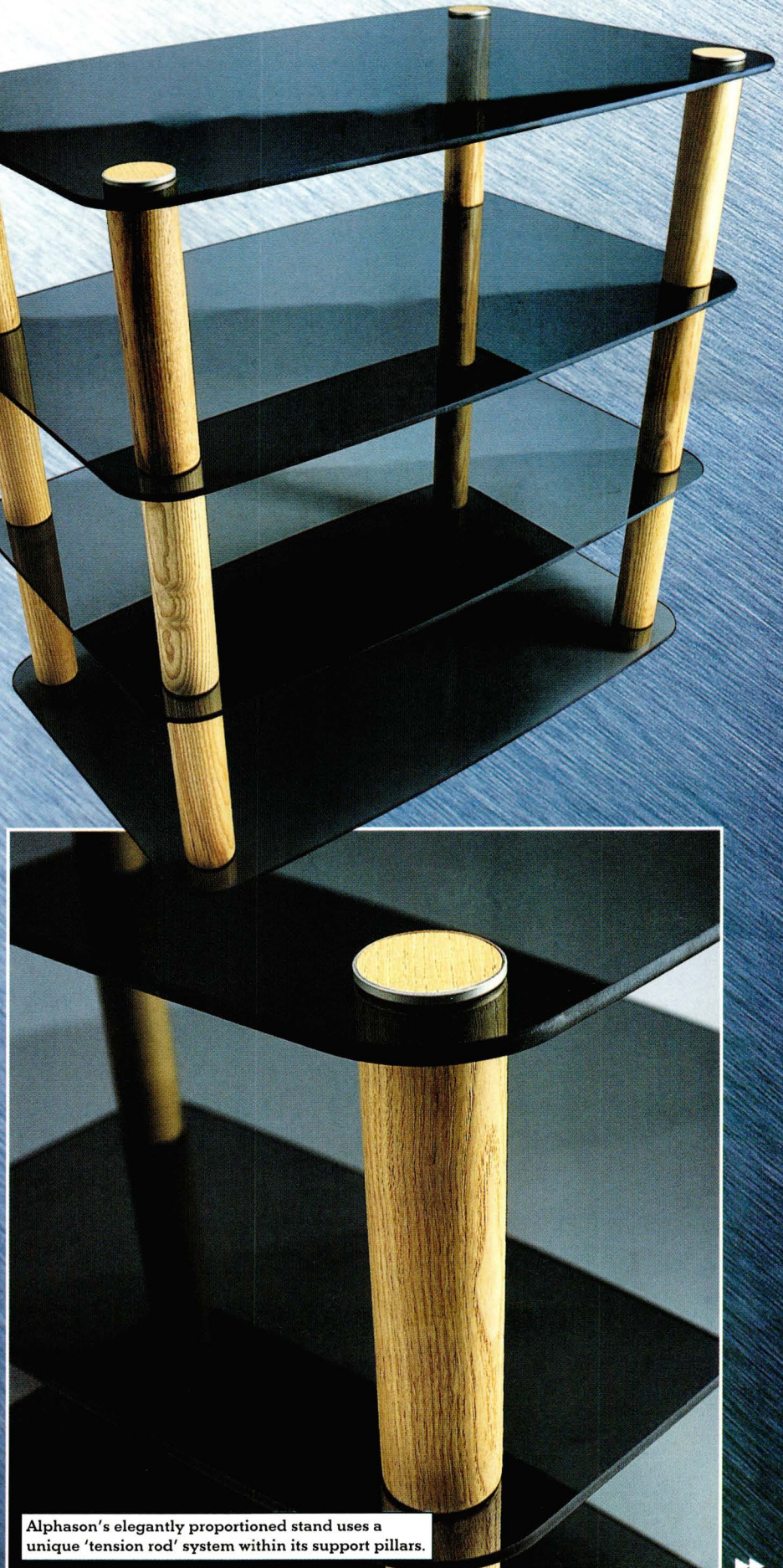
Regrettably the sound does not match up to the visual appeal. This Alphason table can sound very good, but it's inconsistent. On the recently released double CD *Piano Moods — The Very Best Of Oscar Peterson*, Oscar's piano sounded forward and a bit rattly, while the output from Ray Brown's double bass was comparatively recessed and soft, albeit smooth and tuneful. Bob James's *The River Returns*, from the HDCD-processed *Playing Hooky*, was more opaque than usual — his keyboard playing was uncharacteristically diffuse and phasy.

It did much better at capturing the power and drive of *Billy Jack Bitch* from *The Gold Experience* (by Prince); but, even so, to some extent this stand smoothed off the high treble and compressed the dynamics. The Alphason's influence is a little greyer than the best here — tonal separation is less distinct and ambient clues are veiled or missing.

So it's a decent-sounding table, but nothing to set your pulse racing. Using the GR 171717AS is better than plonking your kit on a coffee table or sideboard, but it can't match the Optimum International with its thicker glass and tripod configuration.

ALPHASON — VERDICT**SOUND** ★★☆☆☆**VALUE** ★★☆☆☆**PRICE** £275.00

- Classic glass-with-legs support actually looks better than most coffee tables and feels remarkably rigid. Sound quality easily is eclipsed at the price, though.
- ✉ Alphason Design Ltd, Unit D2, Moss Industrial Estate, St Helens Road, Leigh, Lancs WN7 3PT
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Alphason's elegantly proportioned stand uses a unique 'tension rod' system within its support pillars.



ELEMENTAL AUDIO ISOTUBE X4 + REFERENCE UPGRADE

Elemental Audio, of Camelford, Cornwall, is a relative newcomer to the equipment and speaker-support business. This hasn't stopped it making a big impact already: its stands are big, heavy and expensive. Standing some 92cm high and weighing in at 60kg, the Isotube X4 four-tier system makes most of the competition look fragile and toy-like. The model supplied for test is called the Isotube X4 + Reference Upgrade, meaning the framework belongs to the more affordable of Elemental's two support ranges, while the spikes and shelves come from the premium Reference line-up.

The four-legged Isotube frame is a monster, made totally from thick-walled tubular steel which is Gas Tungsten Arc welded (TIG) for maximum rigidity. Elemental says that this confers excellent standing-wave dispersion characteristics. It differs from the Reference frame by not having hemispherical polished aluminium fittings and fine lead-shot loading. (This would push the weight to a stunning 89kg).

Each knuckle-sized Reference spike comprises a nickel-plated, carbon tool-steel tip, aluminium body and finger grip, with 'hard-grade' stainless-steel threads, nuts and washers.

The Reference shelves are fabricated from 20mm-thick polyester-bonded marble agglomerate, available in different colours and grain structures. Each shelf is damped with rubber matting and decoupled from the spikes by bonded, inset lead/zinc discs.

Sound quality

On audition, the Elemental falls into our 'revelation' category. It's as if all distortion and coloration have been scrubbed from the slate. Highly unlikely, of course, but that's how it sounds: remarkably clean, fresh and unsullied. But that's sometimes the case when you get control, focus, separation and resolution of this order. The Elemental is certainly clearer and more articulate than most of the stands in this test.

Where it really shines is with complex passages played loud. It held the fast and densely-layered Prince track superbly, keeping the strands separate and clearly defined. Images have tremendous solidity and stability, and there's a pinpoint sense of instrument placement and ambience as well as bags of dynamics, freedom and shading. Once you've set this table up, you won't want to move it — even if you could!



TIG-welded tubular steel frame supports 20mm-thick, "polyester-bonded marble agglomerate" shelves, damped with rubber matting.

ELEMENTAL — VERDICT

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

- ☐ Sumo-class stand that looks as subtle as a JCB, but makes your hi-fi sound stunning. Big shelves accommodate big gear, with peerless control and precision.
- ✉ Elemental Audio, Unit 4c, Highfield Road Industrial Estate, Camelford, Cornwall PL32 9RA
- ☎ (01840) 211045

IXOS DEADROCK 704

Terrible name, but a rather nifty table. It's a modular design, to which shelves may be added as your system grows. It's a lot heavier than it looks, too, but not quite as rigid as you might expect. There's a little bit of lateral movement, even with the spikes firmly embedded into the carpet. Intriguingly, IXOS has gone for neo-MFI styling and finish, but at least it's unpretentious and doesn't look so bad once components are occupying the shelves.

These are made out of what IXOS describes as "a complex granite resin matrix, conferring a unique finish with superb damping characteristics and considerable strength". Toughened glass is offered as an alternative, but we prefer the granite-loaded resin. It looks intriguing and sounds impressively inert when you rap it with your knuckles.

Our example came ready assembled but putting it together should be no more of a task than building the Alphason or Optimum. One advantage of the Deadrock over these is the absence of leg top-caps on the top shelf. The entire top panel may be utilised for larger items of equipment or even televisions.

The table's legs are made out of the matrix resin, too, and its natural density is roughly equivalent to hollow legs that have been filled with lead shot or some other high-mass aggregate. No bags, funnels and unpleasantness, then. Just screw it together, position your hi-fi gear and start listening to your favourite sounds.

Sound quality

First, the good news. Music sounds natural and organic on the Deadrock. It promotes a determinedly non-chromium-plated hi-fi sound. If you want your bright, aggressive CD player to come across a bit more like a turntable, letting it loose on a Deadrock wouldn't be the worst thing you could do.

The Bob James cut sounded about right: relaxed, warm and full bodied. Oscar was mellow and inviting on grand piano. But Prince lost his strut, sparkle and snap as *Billy Jack Bitch's* drive and dynamics were sapped by the 704. In short, this isn't the fastest-sounding stand around and recordings with heavy bass can become a bit bloated and plodding. The Deadrock is a table with which to achieve a certain sound rather than one which reveals the whole truth and nothing but the truth.

IXOS – VERDICT

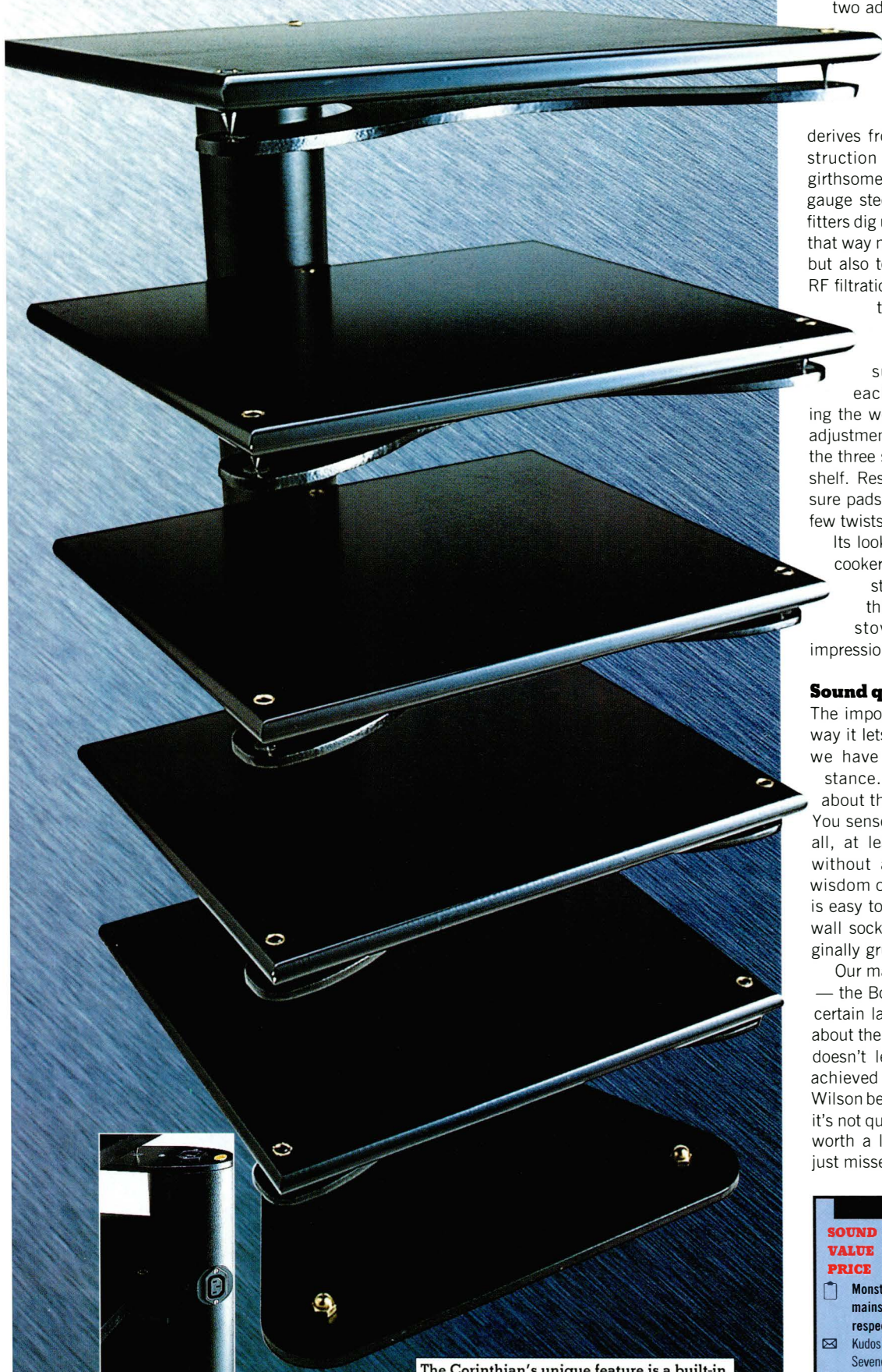
SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £199.95

⊞ Not a table for squeezing the last degree of detail from your hi-fi, but agreeably warm, full-bodied and musical. Modular versatility, cheapo appearance.

✉ Path Distribution Ltd, Unit 15, Hayward Industrial Park, Tameside Drive, Birmingham, B35 7BT
 ☎ (0121) 776 7616



Shelves made from "complex granite resin matrix" are impressively inert. Lack of top caps permits large components to be positioned on the top shelf.



The Corinthian's unique feature is a built-in mains distribution system with RF filtering.

KUDOS AUDIO CORINTHIAN

If the Elemental is King Kong, this is Godzilla. It even looks like a dinosaur's backbone, and carrying it is a struggle for two adults. As you set it down, you can hear a distinct "scrunch" as the base plate's corner spikes penetrate the carpet and dig into the floorboards below.

Most of the Corinthian's bulk derives from its massive columnar construction and solid metal footplate. The girthsome spine, manufactured in heavy-gauge steel, looks like something that gas fitters dig up with pneumatic drills. It's made that way not just to give it bulk and stability, but also to house the built-in, bipole-fused RF filtration system for the mains. You plug the stand into the wall, and plug your hi-fi gear into the five, CE-compliant mains outlets (plugs supplied) which are adjacent to each of the metal platforms supporting the wooden isolation shelves. Levelling adjustment of these is dead easy thanks to the three spikes actually threaded into each shelf. Rest their tips on the platform pressure pads, slap on a spirit level, and with a few twists of an Allen key you're there.

Its look is an acquired taste. If AGA, the cooker people, got into hi-fi equipment stands, they'd make something like this. The Corinthian even has a black stove-baked finish. It gives the impression it will last for a hundred years.

Sound quality

The important thing about this stand is the way it lets hi-fi show what it can do. What we have here is detail, order and substance. There's something quite correct about the way hi-fi sounds on the Kudos. You sense that if you're not quite getting it all, at least you're getting it straight — without artifice or added euphony. The wisdom of having an on-board mains filter is easy to hear. Route the gear back to the wall sockets and the sound becomes marginally grubbier.

Our main criticism is that on some tracks — the Bob James in particular — there's a certain lack of air and a matter-of-factness about the sound. The effect is rather dry and doesn't let the music soar to the heights achieved by the Townshend, Elemental and Wilson benesch. For absolute sound quality, it's not quite in the same league. But it's well worth a look, because the Corinthian only just misses Recommendation.

KUDOS — VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £499.00

☑ Monster support with brutal appearance and built-in mains filter. Looks tougher than RoboCop but sounds respectable, even if it can't run with the best.

✉ Kudos Audio Ltd, Beeches, Mount Harry Road, Sevenoaks, Kent TN13 3JL
 ☎ (01732) 461648

OPTIMUM INTERNATIONAL OPT 490G

This is a self-assembly tripod with modular shelf stacking. In its sandwiched-glass-and-screw-together-legs construction, it shares much with Alphason's approach. You can have up to eight levels with variable spacing as the leg sections are available in 120, 150, 170 and 230mm lengths. It comes with five shelves but, for consistency with the rest of the group, we used four.

Aesthetics are decidedly ambitious with curved shelves that even incorporate 60mm diameter cable management apertures to thread signal leads and mains cables through just ahead of the rear leg. This is the kind of attention to detail Optimum does so well; the company name is also etched into each piece of eight-millimetre-thick machine-polished, toughened glass.

Whether you'll like the way it looks is another matter. All smoked glass and shiny metal, the Optimum is kitsch central — the sort of thing Donald Trump might have bought for Ivana to support her radio in the bathroom. Optimum says the brass-gold finish legs will enhance the look of gear with gold lettering. Fair point, but you could also argue that two wrongs don't make a right.

Sound quality

It sounds good, though, and it does the business with all types of music. Detail isn't as sharply etched as with the best stands here; it doesn't sound especially fast, but it is a consistently classy and engaging performer.

The Oscar Peterson trio came across with fine clarity, good timbral colour and realistic scale and imaging. Oscar's Steinway had body, soul and plenty of attack. In this respect, the Optimum was very similar to the Wilson-benesch but without quite that table's lightness of touch, insight and down-right resolving power.

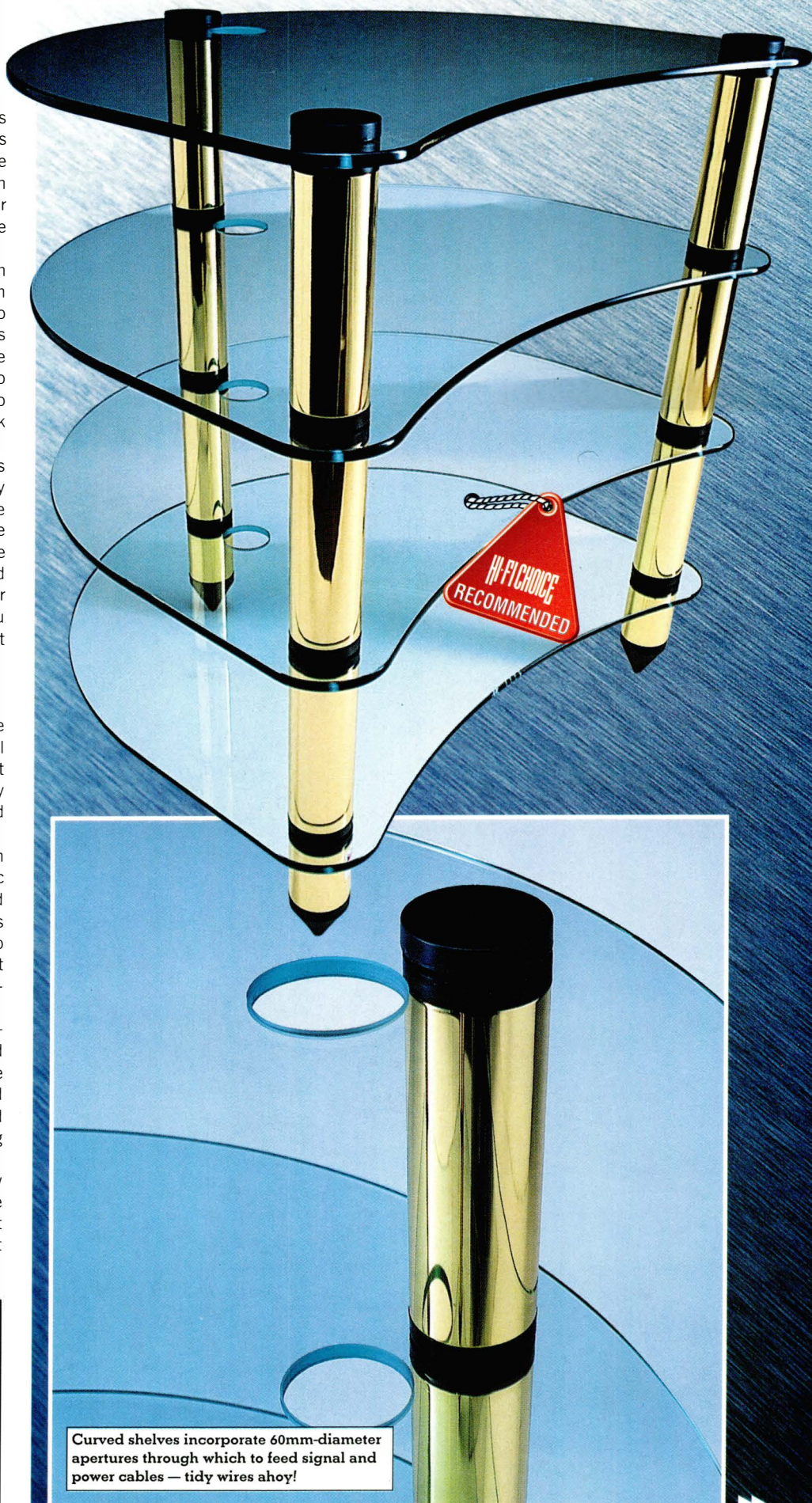
Bob James' laid-back fusion was pleasingly portrayed with lashings of richness and depth. The Optimum was effective in pure hi-fi terms, too: transparent, well balanced and smoothly integrated. Prince sounded appropriately in-yer-face without being overly aggressive or shouty.

All in, the Optimum gives a natural view and easy access to the music. It has ample measures of grip and solidity and doesn't stint on dynamics. If you like the way it looks, go for it!

OPTIMUM INT — VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £299.95

- 📄 Glass-shelved tripod that wouldn't look out of place in Trump Tower. Don't be put off by the glitz. It's well made, beautifully finished and sounds fine.
- ✉ Optimum International 2000, PO Box 108, Shipley, West Yorkshire BD18 3YJ
- ☎ (01274) 583249



SOUND ORGANISATION Z545

The Z545 is a compact, simple and straightforward stand with conventional bent-metal construction and glass shelves. Its bare essentials, no-nonsense approach squares well with its £150 beer-budget price. It comes flat-packed for self-assembly. This is more fiddly than with designs like the Alphason and Optimum but, if you were good with construction kits as a child, you'll have no problems. And it's satisfying when you know you've tightened up every nut and bolt to the nth degree.

The two upright supports (shaped like inverted Ts) are pre-drilled to accommodate the fixing nuts and back plates: they keep the contact area with the rectangular tubular steel shelf supports to a minimum. There can be up to four of these (you choose the number and spacing) and the glass shelves, back-painted black, sit flush on top, raised from the metalwork by four small rubber domes. Four spikes isolate the upright supports from the floor.

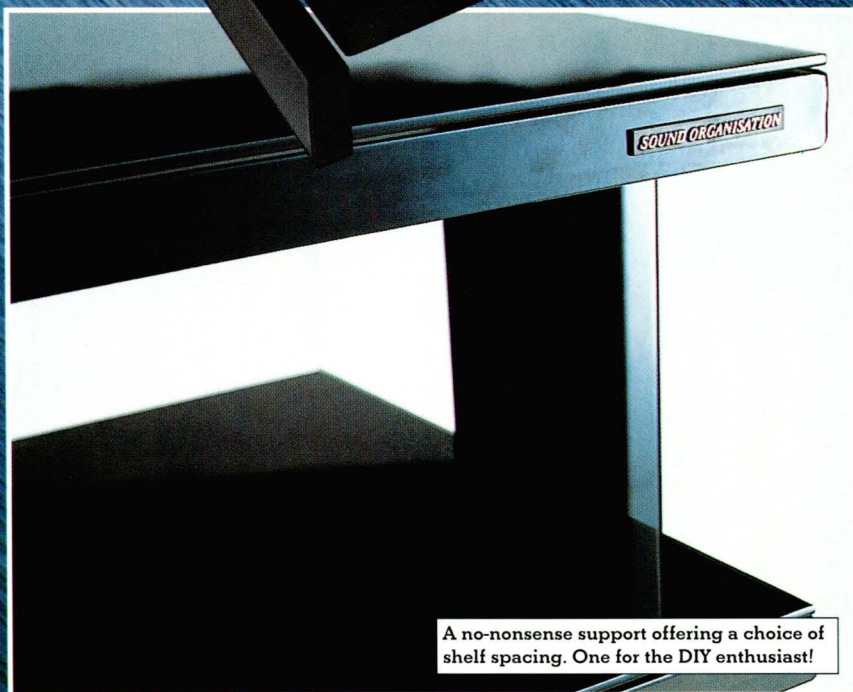
Sound quality

Its sound quality may not be the last word in resolution or timbral finesse but it is crisp, authoritative and honest. In many ways, it has the same tonal and dynamic character as the best tables, just a little reigned in.

While satisfyingly punchy and enthusiastic with Prince, for instance, it isn't as ruthlessly revealing as the Elemental. Or, for that matter, as rhythmically capable as the Wilson-benesch — snappy enough when required but lacks the last degree of agility and precision when the musical pace really begins to hot up.

In the end, though, it's a good all-rounder with solid, tuneful bass and a likable musical presentation. It doesn't excel in any particular area, but doesn't trip up, either. The sumptuous Bob James track was smooth and easy on the ear even if its sound stage was slightly narrowed.

The Z545's five-shelf stablemate, the 560, was such a comfortable Best Buy the last time we tested it, the opposition would have needed a magical transformation for anything to change this time round. True, standards at the top have risen but the simple SO is still in touch with the best. So, at £150, it's a bigger bargain than ever.



A no-nonsense support offering a choice of shelf spacing. One for the DIY enthusiast!

SOUND ORGANISATION — VERDICT

SOUND ★★☆☆☆
VALUE ★★★★★
PRICE £150.00

- 📄 Budget gem from the company that started it all. Functional, effective, great sound, even better price. Probably the best value support on the market.
- ✉ Sound Organisation, 8 Greyfriars Road, Bury St Edmunds, Suffolk IP32 7DX
- ☎ (01284) 701101

SOUNDSTYLE X100

Soundstyle has been in this market long enough to know what people want. For the most part, they want something that's a little too good to be true — a support they can covet and show off, that works equally well visually and sonically, yet doesn't break the bank. They want style and sonic ability on a shoestring. And that's what Soundstyle has always tried to provide... well, if not on a shoestring then within the boundaries of a shoebox budget.

No complaints in the beauty department. The striking 'Legato Silver'-finished X100 supplied for the test won't be everyone's idea of desirable décor, but, fortunately, Soundstyle offers a range of lacquered paint finishes, too. You'd be unlucky not to find one that suits.

In essence, the X100 is a simple metal frame with four large tubular legs. It's wider than it is deep and has a reassuringly stable stance. Straight out of the box it sits four-square on the deck and feels very sturdy. The meaty glass shelves are back-painted to match or contrast with the frame colour and rest on non-adjustable rubber nipples that are located in holes in the topside of the cross supports. Hefty cone-style spikes with an almost mirror finish screw into the legs and offer a rudimentary form of levelling adjustment.

The frame itself is one of the lightest in the test but decently rigid and beautifully finished. Cross member spacing gives a generous 165mm gap between shelves. Set up is simplicity itself and everything from the packaging, to the brightwork finish of the top caps and cones, inspires confidence.

Sound quality

After the IXOS and Townshend, the Soundstyle could sound a bit bass light but this didn't make much difference to its presentation of the Bob James track which was very fluid and sexy. More generally, its tonal balance is a little brighter and brasher than most of the stands in the test but, with the right material, it never fails to sound lively and entertaining.

It isn't the most subtle or revealing performer here, lacking the resolving power of the very best, but it has good timing and fine overall balance. Recommended.

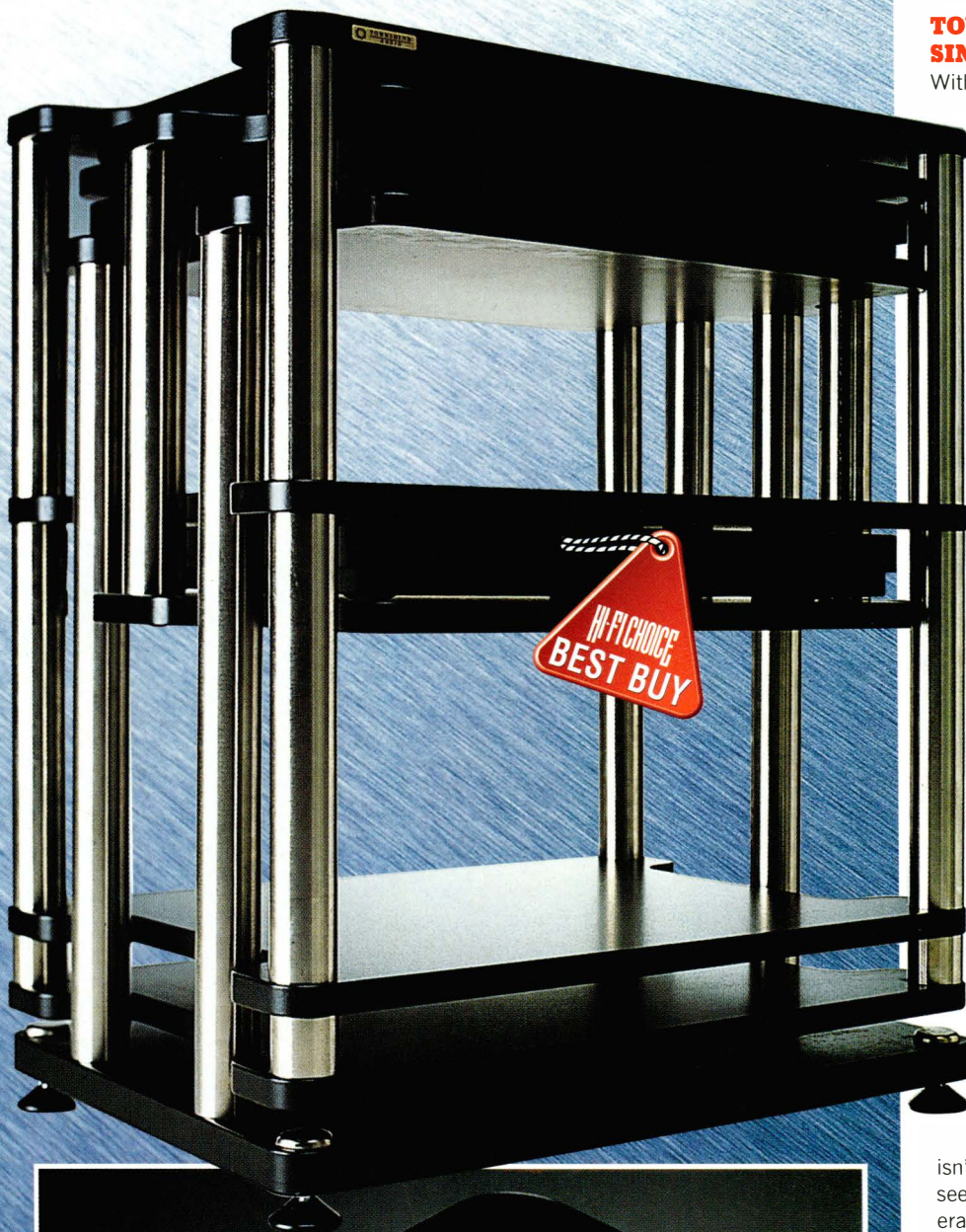
SOUNDSTYLE — VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £250.00

- ☑ Smart styling, build and finish at the price and a lively, engaging sound. Simple set-up. Might be too bright for some but preserves the spirit of the music.
- ✉ Soundstyle, 8 Greyfriars Road, Bury St Edmunds, Suffolk IP32 7DX
- ☎ (01284) 701101



One of the lightest frames deployed in this test group, but rigid and beautifully finished.



The Seismic Sink Stand uses a unique air suspension system to filter out low frequency acoustic interference.

TOWNSHEND SEISMIC SINK STAND

Without the Seismic Sink Stand, claims Max Townshend, your kit will never perform near to its full potential. That is, unless you do all your listening between two and four in the morning. Only then does most of the low-frequency environmental grunge (allegedly filtered out by the SSS) die down naturally.

Looking like a model of an oil rig, the stand is a high-mass amalgam of steel pillars and heavily damped shelving, with a fixed base unit on which the shelf-supporting structures 'float'. In fact, they rest on a couple of strategically-placed air cells developed from the 3D Seismic Sink isolation platform, which you inflate with a bicycle pump. The degree of inflation depends on the weight of the equipment to be supported, but it's important not to overpressure the air tubes: the more slowly the table wobbles and bounces when you nudge it, the lower the frequencies it will absorb.

Townshend's preferred demo technique is to play something on CD or vinyl with the SSS pumped up, then deflate it and repeat. The degradation in sound quality is dramatic, almost shocking. But then it could be said that the SSS was never designed to run flat; of course it's going to sound dodgy. It doesn't mean all solid stands sound that way.

Sound quality

They don't. The SSS is, by a small margin, the support that will get the most out of your gear, but the difference isn't night and day as Max's 'one note dem' seeks to suggest. At its best it has a truly liberating effect on music with a wide-open, three-dimensional sound entirely free from the confines of the speakers. Treble is pure and grainless, instruments and voices often startlingly natural, the bass deep, resolved in texture as well as pitch and effortlessly powerful. Just occasionally, though, it can seem a shade too relaxed for its own good. That's when we found ourselves hankering after the more explicit speed, focus and precision of the Elemental and Wb stands. But nothing will make your gear sound more expensive, expressive and sexy than Max Townshend's Seismic Sink Stand. Wobbly bits 'n' all, it's a new reference.

TOWNSHEND — VERDICT

SOUND ★★★★★
VALUE ★★★★★☆
PRICE £1,245.00

- ☐ Townshend's radical wobbly pump-up table is a technical tour de force that justifies its price with amazing sound quality. Fiddly to set up but worth it.
- ✉ Townshend Audio, 7 Bridge Road, Hampton Court, Surrey KT8 9EU
- ☎ (0181) 979 2155

WILSON BENESCH ASSIDE

'Class act' is an overworked compliment but it fits well enough here. Even if the Asside wasn't a top-flight sonic performer, we'd be mighty tempted by its drop-dead-gorgeous appearance alone. A perfect expression of the Wilson benesch house style, it combines exquisite woodwork with elegant design, both in the engineering and aesthetic sense. And, of course, it benefits from a conspicuous helping of carbon fibre — loved by Wb for its stiffness and exceptional self damping properties, being thus a prominent feature of Wb's speaker designs.

In this instance, the carbon forms three upright tubular legs, that support the four, 10mm-thick laser-cut steel platforms on which the real-wood shelving rests. Little brass tablets with conical underbellies take the weight of the shelves on the spikes (three per shelf) screwed into each platform. Some Asside owners have found that they can get even better results by siting their equipment directly on top of the brass tabs — a ploy that didn't work with our Pioneer/Arcam/Musical Fidelity hardware.

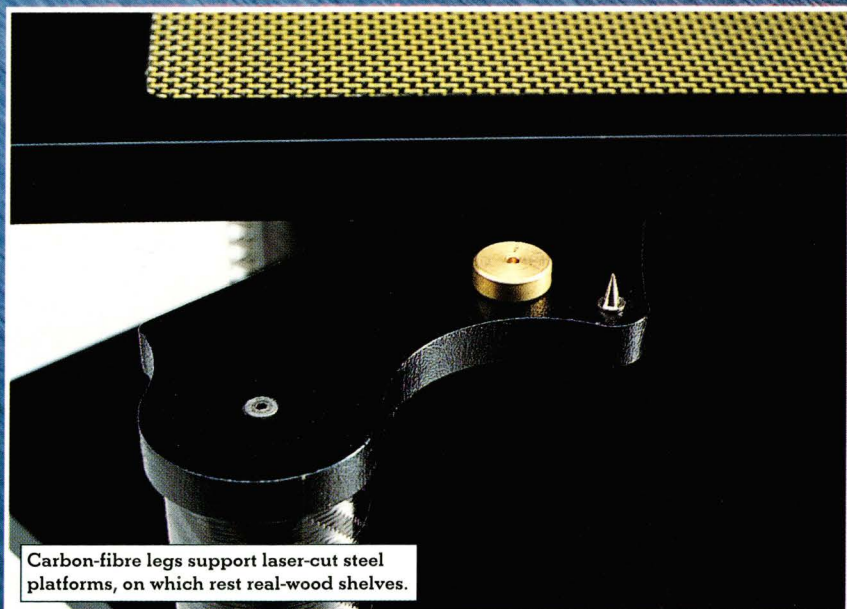
The shape of the structure is formed entirely from complex curves and is said to exhibit no single-frequency sympathetic resonance. The basic tenets of the design are low mass and a high stiffness-to-weight ratio. Nothing new there, but seldom is it executed with such panache.

Sound quality

So much for the theory. In practice, the Asside is a knockout product. By a clear margin, it gets our vote as the best looking table in the test and only narrowly misses the best sound award (which went to the Townshend), tying with the Sumo-class Elemental for second place. Quite an achievement since it's around half the price of both (without platforms).

In a nutshell, the Asside sounds right. That's all. It doesn't seem to add or subtract anything from the music. If you want a thumbnail assessment, you could say that it combines the warmth and body of the Deadrock with the precision and dynamics of the Elemental. But, in truth, it's better than that. It brings naturalness to the party and its rhythmic abilities are second to none. If it doesn't quite have the grip and control of the Elemental or the openness of the Townshend, it's as deftly musical as either — you just want to keep on listening.

An obvious Best Buy.



Carbon-fibre legs support laser-cut steel platforms, on which rest real-wood shelves.

WILSON BENESCH — VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE **STAND £590.00**
PLATFORMS £130.00 EACH

- ☐ Traditional light/rigid table brought bang up to date in the distinctive Wb way. Sounds even better than looks, and it looks wonderful. Sky-high ownability.
- ✉ Wilson benesch, Falcoln House, Limestone Cottage Lane, Sheffield S6 1NG
- ☎ (0114) 285 2656

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Conclusions



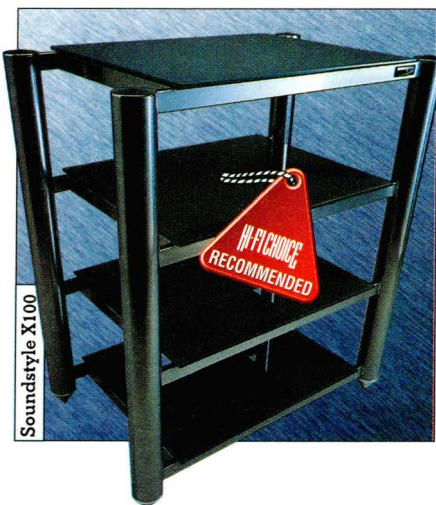
Elemental Audio Isotube X4



Optimum International OPT 490G



Sound Organisation Z545



Soundstyle X100



Townshend Seismic Sink Stand



Wilson benesch Asside

It's tough to draw hard and fast conclusions about the sound of equipment supports. Deciding what's hot and what's not is complicated by the numerous interactions taking place between components and supports, and the consequent maze of variables to weigh up. Fortunately for us, the differences discovered this month are not particularly subtle. One thing's beyond doubt: the sound of hi-fi changes when you move it from one place to another. Its support makes a difference. Even a modestly-priced, decently-engineered stand can generate a more significant improvement than swapping from a giveaway interconnect to an expensive one. Try it for yourself and you'll believe!

After living with these nine supports, two points spring to mind. One, equipment support standards are rising — not just in outright performance, but also in visual appeal and value for money. Secondly, an exceptional equipment support is worth every penny, even if it costs £1,000 or more.

Best Buys and Recommendations

The stand-out products here, in order of sonic excellence, are from **Townshend Audio** and, coming a close second, **Elemental Audio** and **Wilson benesch**. To anyone setting out on a first adventure in hi-fi, we would suggest that one of these should be an integral part of your system. They really are beneficial to the performance of any hi-fi gear they support. Otherwise you could spend £2,000 on a system and only achieve £1,500 worth of performance.

The cheaper tables work smaller miracles, but are still worthwhile. Star of the budget basement has to be **Sound Organisation's Z545**. Some might take issue with its uncompromisingly functional appearance, but in sound it has the edge on not only the **Ixos** but the suaver-looking **Optimum** and **Soundstyle** units. It's the out-and-out bargain of the group, but all three come warmly Recommended.

The **Kudos Corinthian**, although well designed and offering a huge amount of

metal for the money, doesn't cut the mustard sufficiently to bag a Recommendation; but it's worth investigating. And the **Alphason** won't fail to make even the drabest hi-fi look enticing. It's just a shame it doesn't work similar magic on the sound! ▲

HOW THE TESTS WERE DONE

The system used for these tests comprised:
Arcam Alpha 8SE and **Pioneer PD-S904/Musical Fidelity X-DAC** CD players;
Pioneer A-300R Precision and **Musical Fidelity X-PRE/twin X-A50** amplifiers; **Castle Kendal** and **B&W CDM2SE** speakers; and **Slate Audio** speaker stands. Cables were **van den Hul**, **Sonolith** and **Kimber**.

WHAT MUSIC DID WE USE?

Music used during the testing included the following albums:
 Oscar Peterson: *Piano Moods — The Very Best of Oscar Peterson* Polygram 557 462-2
 Artist Formerly Known As Prince: *The Gold Experience* Warner Bros 9362-45999-2
 Bob James: *Playing Hooky* Warner Bros 9362-46737-2

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ABERDEEN Sevensoks Hi-Fi 01224 587070	BOURNEMOUTH Movement Audio 01202 529988	CHANDLERS FORD Hampshire Audio 01703 252827	EDINBURGH Bill Hutchinson 0131 220 0909	HUDDERSFIELD Huddersfield Hi-Fi 01484 544688	LONDON A&M Electronics 0171 580 1577	MANCHESTER Bill Hutchinson 0161 832 1600	OXFORD Audio T 01865 765961	SEVENOAKS Richer Sounds 01792 456573	TAUNTON Mike Manning Audio 01823 326688
ACCINGTON Cryers 01254 391440	BRACKNELL B&B Hi-Fi 01344 424556	CHELTENHAM Audio T 01242 553960	HULL The Audio Room 01482 896166	HULL Audio Concept 0181 567 8703	MANCHESTER Central Radio 0161 834 6700	OXFORD Oxford Audio 01865 790879	SEVENOAKS Sevensoks Hi-Fi 01865 241773	TAUNTON Thames Audio 0114 273 7893	TEWKESBURY Sight & Sound 01684 298109
AYLESBURY Northwood Audio 01296 428790	BRADFORD Ericks 01274 309266	CHESTER Audio Excellence 0181 367 3132	IPSWICH Eastern Audio 01473 217217	IPSWICH Francis of Statham 0181 769 0466	MANCHESTER Practical Hi-Fi 0161 839 8869	OXFORD Sevensoks Hi-Fi 01865 241773	SEVENOAKS Sheffield Audio Images 0114 273 7893	THAME Thames Audio 0114 273 7893	THORNTON HEATH AWE 0181 653 3657
BANBURY Blinkhorns 01295 259859	BRENTWOOD Audio T 01277 264730	CHIPPENHAM JD Stereo Center 01249 664357	KETERING Classic Hi-Fi 01536 310855	KETERING Garland Electronics 0181 200 7676	MANCHESTER Superfi 0161 835 1156	OXFORD Penzance E.T.S. 01736 64274	SEVENOAKS Moorgate Acoustics 0114 275 6048	TORQUAY Upton Electronics 01803 551329	TRURO E.T.S. 01872 79809
BARKING Hyper-Fi 0181 591 6961	BRIGHTON Hill's Sound & Vision 01273 418006	CHORLEY Monitor Sound 01257 271935	KIDDERMINSTER MAX 01562 822236	KIDDERMINSTER Kamla Electronics 0181 349 1166	MANCHESTER Techniques 01623 26315	OXFORD W.M. Coupar 01738 634809	SEVENOAKS Richer Sounds 0114 266 1616	TORQUAY Superfi 0114 272 3768	TUNBRIDGE WELLS Sevensoks Hi-Fi 01777 870372
BARNSTAPLE J & A Video Centre 01271 324384	BRISTOL Audio Excellence 0117 926 4975	COVENTRY Frank Harvey Hi-Fi 01203 525200	KINGSLYNN Martins Hi-Fi 01533 761683	KINGSLYNN KJ West One 0171 486 8262	MANCHESTER The Auditorium 01858 461460	OXFORD Peterborough Audiovision 01733 352752	SEVENOAKS Richer Sounds 01733 897697	TUNBRIDGE WELLS Sevensoks Hi-Fi 01743 219224	TUNBRIDGE WELLS Sevensoks Hi-Fi 01743 219224
BASINGSTOKE Audio T 01256 324311	BRISTOL Paul Roberts Hi-Fi 0117 942 9370	CROYDON Audio Tech 0181 680 1177	KINGSTON UPON THAMES Infidelity 0181 943 3530	KINGSTON UPON THAMES Martin-Kleiser 0181 400 5555	MIDDLESBOROUGH Gibson Audio 01642 248793	OXFORD The Hi-Fi Company 01733 341755	SEVENOAKS Richer Sounds 01752 222256	TUNBRIDGE WELLS Sounds of Music 01892 547003	TUNBRIDGE WELLS Sounds of Music 01892 547003
BATH Moss of Bath 01225 465085	BRISTOL Cloughs A.V. 01270 257030	CROYDON Richer Sounds 0181 667 1100	KINGSTON UPON THAMES Richer Sounds 0181 549 9999	KINGSTON UPON THAMES Myers Audio 0181 547 0717	MIDDLESBOROUGH Hi-Fi Care 0171 637 8911	OXFORD The Hi-Fi Attic 01752 669511	SEVENOAKS Richer Sounds 01752 222256	TUNBRIDGE WELLS Fraser's Hi-Fi 01753 520244	TUNBRIDGE WELLS Fraser's Hi-Fi 01753 520244
BECKENHAM Musical Images 0181 663 3777	BRISTOL Peter's Hi-Fi 0151 344 1874	CROYDON Richer Sounds 0181 667 1100	KINGSTON UPON THAMES Richer Sounds 0181 549 9999	KINGSTON UPON THAMES Richer Sounds 0181 547 0717	MILTON KEYNES Technosound 01908 604949	OXFORD Movement Audio 01202 730865	SEVENOAKS Richer Sounds 01703 231311	TUNBRIDGE WELLS Richer Sounds 01703 231311	TUNBRIDGE WELLS Richer Sounds 01703 231311
BEDFORD Richard's A.V. 01234 365165	BROMSBOROUGH E.T.S. 01209 712344	CROYDON Richer Sounds 0181 667 1100	KINGSTON UPON THAMES Richer Sounds 0181 549 9999	KINGSTON UPON THAMES Richer Sounds 0181 547 0717	MILTON KEYNES Technosound 01908 604949	OXFORD Portsmouth 01202 730865	SEVENOAKS Richer Sounds 01703 231311	TUNBRIDGE WELLS Richer Sounds 01703 231311	TUNBRIDGE WELLS Richer Sounds 01703 231311
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AMPS IN YOUR PANTS

Itching to upgrade your first amplifier? Look no further than this review of 11 hot models priced £480-£900. By **Alvin Gold** (listening) and **Paul Miller** (lab test).

You can't beat the thrill of owning your first serious hi-fi amplifier and the initial rush of adrenaline on hearing music rendered to the full. But sooner or later, even the best budget amp's design compromises become a serious shortcoming. When that occurs, it's time to start getting friendly with the bank manager once again. Because £500 is the jumping-off point into the realm of serious amps, which are equal to the task of playing dynamic music at enthusiastic listening levels.

This month we've assembled a selection of designs priced from around £500 upwards, representing a broad cross-section of design approaches. Some are stripped-down minimalists, where the pay-off is supposed to be superior sound... it isn't always. Others pander to users who need the flexibility of remote handsets, tone controls and fancy tape-switching circuits. Prejudiced audiophiles would dismiss these as makeweights but in fact, one of the most powerful amps in this test is feature-rich.

Represented are both mainstream manufacturers such as Marantz and Denon, and stalwart British specialists like Arcam, CR Developments, Musical Fidelity and Orelle. Scandinavia is represented by Holfi and Primare, while from elsewhere in Europe we have Audio Analogue and Micromega. All of this month's candidates are self-contained designs, except for the Musical Fidelity, which has an external power supply, and the Crimson pre/power combo with its plug-top transformer.

A word on power outputs. For most serious listeners, high power output (measured in Watts) and low distortion are the only specs that matter. This comes as no surprise, since most hi-fi fans are in the game to play music loudly and cleanly. As a con-

sequence, manufacturers down the ages have devised numerous creative accountancy techniques that make amps look more powerful and less distorted on paper than they are in practice, when responding to the demands of real music and the iniquities of real loudspeakers. Rest assured that *Hi-Fi Choice's* lab tests tell you the true capability of each amp — most of this month's offerings are rated between 50 and 100 Watts into a nominal eight-Ohm load, but many exceed their specs considerably.

But a good measured performance is not an end in itself, merely a pillar supporting the overall structure of advanced music making. About which, now read on!

THE CAST LIST

MODEL.....	PRICE	PAGE
Arcam Alpha 10	£799.90	p74
Audio Analogue Puccini Special Edition	£595.00	p67
CR Developments Orpheus CD324SE	£569.00	p69
Crimson 610C/620C pre/power	£875.00	p79
Denon PMA-1500R	£499.99	p70
Holfi Audis Signature	£750.00	p75
Marantz PM-17	£899.90	p80
Micromega Tempo 2	£900.00	p81
Musical Fidelity X-A1	£480.00	p73
Orelle SA-100RX	£649.00	p76
Primare A-20mkII	£799.00	p77

HOW THE TESTS WERE DONE

Our 11 amplifiers were subject to a full battery of tests, including a close physical examination, unsighted panel-based listening tests in a high-grade system, hands-on listening using a range of speakers and source components, and a computerised measurement test programme performed by Technical Editor Paul Miller. Each amplifier was run in and warmed up prior to being auditioned. The *Hi-Fi Choice* test programme is by far the most searching battery of tests that any magazine employs to judge high-fidelity equipment.

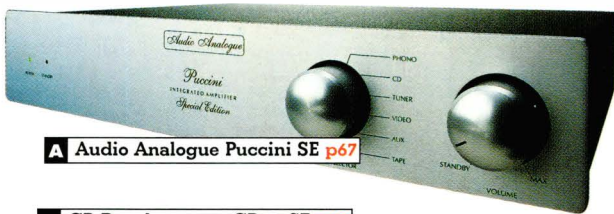
Panel testing was conducted over a period of two days, and included a number of unannounced repeats, with no panel member knowing the identity of the equipment on test, and with listening levels carefully equalised between test runs. The system used for these tests included a Krell KAV-300cd CD player, and Definitive Technology BP8 floorstanding speakers. Cables included Red Dawn from Nordost. The hands-on listening was broadened to include a number of other loudspeakers, including the Castle Severn 2, GLL Imagio IC348TL, and Musical Technology Harrier SE. Other source components on hand included an Arcam Alpha 7 CD player.

WHAT MUSIC DID WE USE?

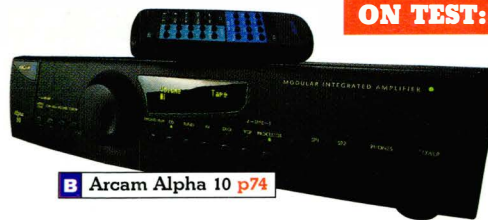
Buena Vista Social Club (with Ry Cooder): *Chan Chan* on World Circuit WCD 050
 Handel: *Allegro [Fugue]* from *Suite No 2 in F Major*, HWV 427: Murray Perahia (piano) on Sony SK 62785
 Mozart: *Finale* from *Serenade in B flat for 13 Wind Instruments*: Wind Soloists of the Orchestra of the Age of Enlightenment on BBC Music Magazine M62 No 2 (cover mount).
 Allison Krauss: *I Will* from *Now That I've Found You* on Rounder CD0325

THE LISTENING PANEL

Our usual sincere thanks extend to those who contributed their skills and time to make up our unsighted listening panel. This month they were: Abbas Hussein (Orelle Hi-Fi), Steve Cross (Ruark Loudspeakers), Mark Hockey (Kenwood UK), Robin Marshall (Mission Electronics), Roger Bachelor (Hayden Laboratories), Russell Kauffman (Cable Talk), John Bamford (Pioneer Electronics) and Charlotte Ricca (*Hi-Fi Choice*).



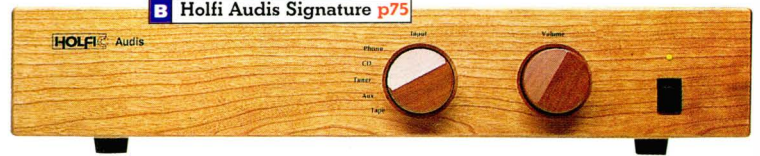
A Audio Analogue Puccini SE p67



B Arcam Alpha 10 p74



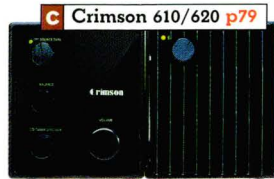
A CR Developments CR324SE p69



B Holfi Audis Signature p75



A Denon PMA-1500R p70



C Crimson 610/620 p79



B Orelle SA-100RX p76



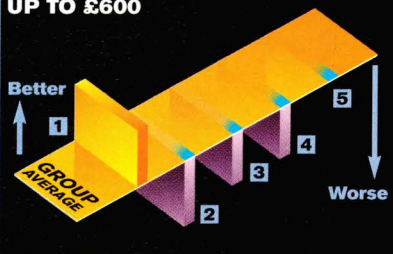
A Musical Fidelity X-A1 p73

UNDERSTANDING OUR BAR-GRAPHS AND GROUP AVERAGES

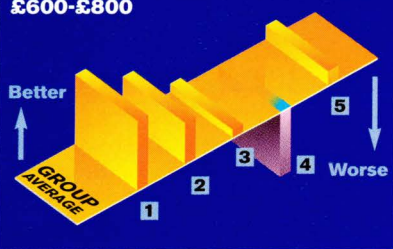
There will be significant differences between the cheapest product in our test and the most expensive. For this reason we always segregate our test candidates into two or more categories based on price. Our aim is to assess every product's performance in the context of its closest rivals.

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

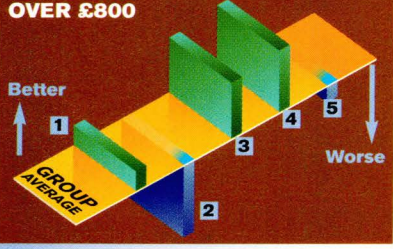
GROUP A EXAMPLE UP TO £600



GROUP B EXAMPLE £600-£800



GROUP C EXAMPLE OVER £800



UNDERSTANDING OUR BAR-GRAPH MEASUREMENTS

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

1 Dynamic Power Output

A measure of power up to one per cent distortion under realistic, music-like conditions, using a brief (20msec) transient signal and a model eight-Ohm speaker load.

2 Speaker Load Tolerance

This indicates how ably the amplifier maintains a given level of performance into progressively lower-impedance and difficult speaker loads.

3 Audible Distortion

Rather than quote a single figure for distortion at one frequency and level, this bar value represents a measure of distortion and its consistency across both the whole audio band and the amplifier's entire dynamic range.

4 Noise

This is a direct representation of the amplifier's A-weighted Signal-to-Noise (S/N) ratio at one Watt output into a model eight Ohm load.

5 Overall Compatibility

This new category measures the amplifier's ability to drive different loudspeakers, its susceptibility to radio-frequency interference (RFI) and its ability to handle today's high-output CD players.



C Marantz PM-17 p80



B Primare A-20mkII p77



C Micromega Tempo 2 p81

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*.

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Hi-Fi Choice July 1995

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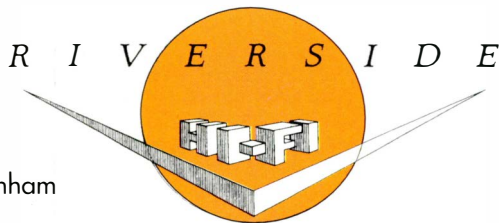
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AUDIOLAB 8000 S



COPLAND CDA 266



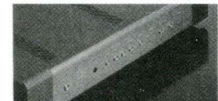
COPLAND CSA 28



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Balance £1500

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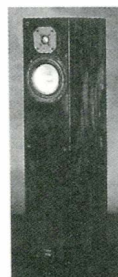
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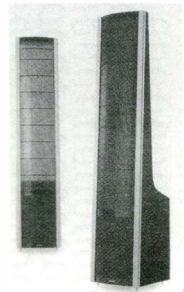
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Audio Analogue Puccini SE

We tested the base specification Puccini model in *HFC* 175 with good results. Apart from the Special Edition logo displayed on this month's test candidate, there's no obvious visible difference between the two units. The rotary controls, all two of them, have that special feel which implies super-duper components under the hood.

The source selector accesses six inputs, including phono (MM or MC, internally selectable) and one tape circuit. The input positions are well separated and clearly signposted, and the control action is as light as a feather. The volume control is equally impressive — when turned fully anticlockwise, the amplifier discreetly reverts to standby mode.

An enhanced power supply section is responsible for the increase in power output measured below (see Lab Report), and this is mirrored by an increased current yield. According to the makers the output stage has been beefed up with an extra pair of output transistors per channel, to help the Puccini SE cope better with different types of

loud-speaker loads. Audio Analogue suggests a burn-in period of around 100 hours must elapse until the Puccini SE is fully on song, and that this must be supplemented by 40 minutes' warm up before each listening session.

Sound quality

The test score was low, reflecting a general dissatisfaction with the sound. However, in retrospect, perhaps the low score overstates the case against this amp. Comments such as "the sound plods as though the musicians can't be bothered" (Allison Krauss) and "small, very laid-back presentation" (the Handel piano recording) rub shoulders with more upbeat opinions like: "transparent midrange and a very audible acoustic; there appears to be plenty going on". There were several complaints of blandness, and others which implied sluggish timing and blunt leading edges resulting in a loss of fine detail.

In the subsequent hands-on listening, I approached this amplifier with more than the usual interest, to attempt a reconciliation between this test and the unsatisfactory results from our review of the base level player earlier this year.

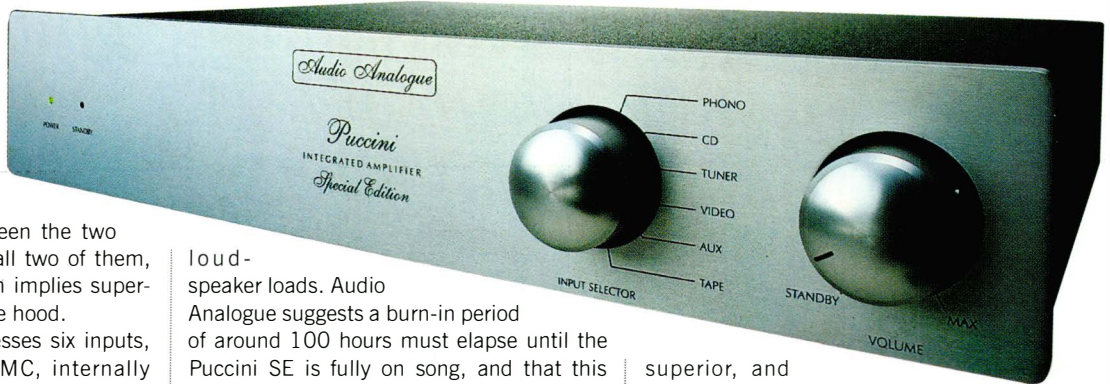
Regrettably the Special Edition simply isn't as attractive as the ordinary Puccini. The standards of this test group are clearly

superior, and the higher price of the SE brings it within striking distance of stiffer competition. Another part of the reason may be that the 'SE' improvements have been responsible for unbalancing the design in some crucial fashion — although this would be hard to confirm objectively.

The ploddy bass character was a significant limitation with some of the larger test loudspeakers — notably the Castle Avon 2. The sound held together well at quite high volume levels, so the 'weedy' effect noted on audition is probably a function of tonal balance rather than any real-world inability to control the speaker load.

Conclusion

This is a beautifully-built amplifier, with impressively-fashioned controls and purist leanings. However, we cannot escape the fact that it gave musical results which were less than wholly satisfactory. Following the very promising showing of the standard 40 Watt Puccini, this beefed-up version comes as a disappointment, since the Puccini SE suffers a rather amorphous bass and significant losses of clarity and insight. AG



VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £595.00 (SATIN SILVER OR SATIN BLACK FINISH)
TWO YEARS' GUARANTEE

Works with some material, but a trace of one-note bass and unbalanced sound leave the basic Puccini looking like the better choice.

UK Distribution, 23 Richings Way, Iver, Bucks SLO 9DA (01753) 652669

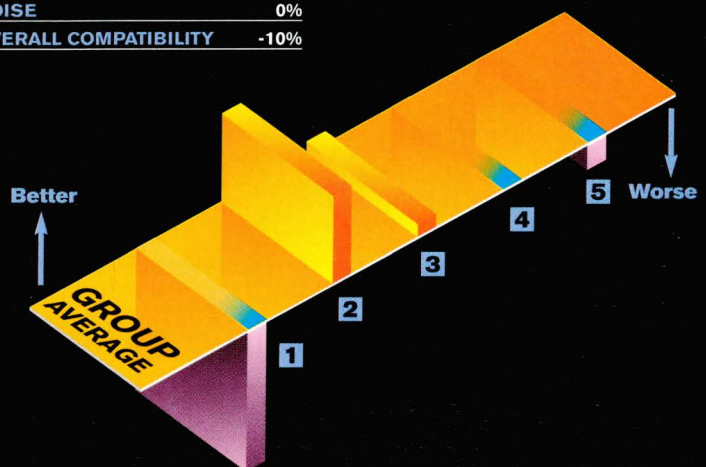
THE LAB REPORT

So what, exactly, are the advantages of the 'SE' over Audio Analogue's standard Puccini amplifier reviewed in *HFC* 175? The amplifier is certainly beautifully constructed, its precision volume control betrayed by the minimal 0.1dB channel balance error over a full 60dB range (many amplifiers would be lucky to get within 10x of this figure). Equally, the amplifier's response remains utterly flat and its distortion still impressively low at typically <0.01 per cent throughout the audioband and over most of its dynamic range.

And it's here that the Puccini SE reveals its advantage with entirely independent and very tightly-regulated L/R power supplies (including two toroidal transformers) feeding two pairs of chunky output devices per channel. Dynamic power is up from 49W/74W/91W/84W to 60W/100W/167W/215W into 8/4/2/1 Ohm loads respectively, while the maximum current delivery has risen from 10A to 15.1A. Compared with a powerhouse like the Denon or CR3245SE, the Puccini might seem meek (hence the negative bargraph). Nevertheless, bearing in mind the mere 50W rating, its practical tolerance of difficult speakers remains very good. This really is an amp worthy of that over-used 'SE' postscript. *PM*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	-55%
2	SPEAKER LOAD TOLERANCE	35%
3	AUDIBLE DISTORTION	5%
4	NOISE	0%
5	OVERALL COMPATIBILITY	-10%



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CR Developments

Orpheus CR324SE

CR Developments started life as a manufacturer of emergency standby and telecommunications systems. About five years ago, the company embarked on the manufacture of audio amplifiers, using its own transformers to produce tube designs. Since then it has expanded to include a wide variety of valve amps, and the range has recently been broadened to include a number of solid-state designs. Most of the production is exported, mainly to the Far East, which helps account for the bright, shiny polished stainless steel finish and equally shiny controls.

The CR324 (basis for the '324SE) is a domestic version of a high-power, compact studio amplifier designed for high power yields into eight Ohm loudspeakers. The 'SE' version marks the company's response to a requirement for an integrated amplifier which can drive four-Ohm loads to high volume levels. On paper the CR324SE has a four-Ohm

power rating of 150 Watts (the eight Ohms rating is 100 Watts), and claims to incorporate a high-current power supply. According to CR Developments these enhanced specs derive from a larger transformer, plus beefed-up components in reservoir and power supply areas.

Output devices are said to be bi-polar and user controls are limited to volume, balance and input selection. There is no integral phono step-up amp, but the company

track), by the time we'd reached the Mozart the same listeners were describing it as "sounding like the band is rushing through this to get home for tea" and "sounding shut-in" respectively. The following sum-up comment is typical: "The sound is compressed, the mid is nasal, guitars sound clangy, timing is poor, and for some reason it is difficult to locate the stereo image."

I find myself in full agreement with the panel. This amplifier is decidedly opaque and compressed in feel. Its flat stereo imagery means that it fails to open out convincingly, with the result that music seemed monochromatic and lacking any real interest.

I can't help harking back to a memorable phrase coined by one of my colleagues, who once described a completely different (and now defunct) amplifier as sounding like "a bag of transistors".



makes several standalone products of this ilk in both tube and solid state guises. Build quality and finish are top notch.

Sound quality

The Orpheus CR324SE didn't light a fire under the listening panel. Yes, it is attractively priced; and yes, this month's test candidates were stronger than usual. But most of the other similarly-equipped amplifiers carried greater favour with the panel, and individual listeners became disenchanted with it as time went by. Where it was initially described as offering "quite good levels of clarity" and "strong vocals, with an easy-to-follow bass line" (following the Ry Cooder

Conclusion

The lacklustre sound quality is a disappointment, and precludes *Hi-Fi Choice* recommendation on the usual criteria. However, we shouldn't lose sight of the fact that the Orpheus CR324SE was conceived as a sturdy powerhouse, designed to encapsulate the virtues of the company's studio amplifiers. No doubt the maker would suggest that if you want the very highest fidelity, you should look to its extensive and accomplished valve-amp designs. *AG*

VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £569.00

TWO YEARS' GUARANTEE

- Robust, powerful and well built, but musically this solid state amp sounds lacklustre, especially from a marque mainly associated with tube power.
- CR Developments Ltd, 8 Craftsman Square, Temple Farm Industrial Estate, Sutton Road, Southend-on-Sea, Essex SS2 5RH
- (01702) 469055

THE LAB REPORT

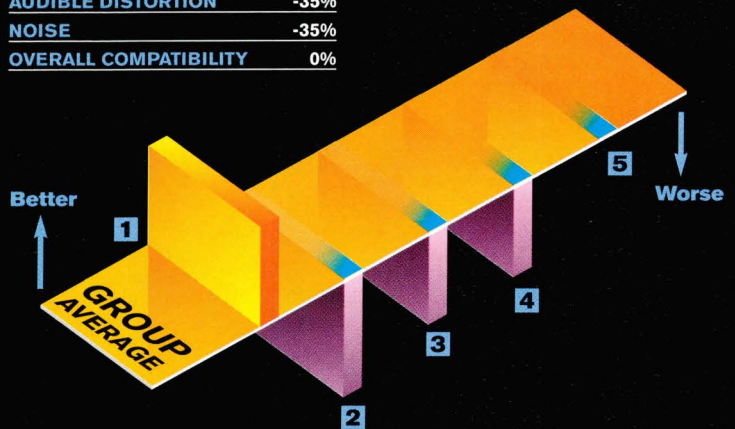
Though perhaps better known for its valve amplifiers, CR Developments has nonetheless succeeded in crafting a very powerful solid-state alternative. It could never be described as a 'soft-clip' amplifier because when it reaches its end stops, it does so very abruptly indeed. All is forgiven, however, when the manufacturer's 100W/170W 8/4 Ohm rating is compared against its practical capacity to deliver 150W/240W into 8/4 Ohm loads. Under dynamic conditions this increases to 185W/321W/483W into 8/4/2 Ohm loads respectively, where its maximum 15.5A current reserve is realised. Into very low 1 Ohm loads, protection limits its power to just 26W.

In most other respects, the CR324SE fares well enough with +0.0/-0.6dB response limits over 20Hz-20kHz, sensible input loading and overload margins, good channel balance and separation figures, but a slightly below-average noise performance of -80.6dB, re 1W/8 Ohms. The pattern of distortion, however, looks a little unusual — even though it only amounts to 0.1-0.2 per cent, it comprises an extended spray of odd-order harmonics, possibly bringing an added edge or rasp to its dynamic performance.

A powerful alternative to valves, no doubt! *PMi*

HOW IT COMPARES

- | | | |
|---|------------------------|------|
| 1 | DYNAMIC POWER OUTPUT | 40% |
| 2 | SPEAKER LOAD TOLERANCE | -45% |
| 3 | AUDIBLE DISTORTION | -35% |
| 4 | NOISE | -35% |
| 5 | OVERALL COMPATIBILITY | 0% |



Denon PMA-1500R

The heart of Denon's new 1500 Series of hi-fi separates, the PMA-1500R, is a massive and well-equipped battleship amp designed to control a large and complex system. Its power output is rated at 70 Watts into eight Ohms and double that into four Ohms, though our measurements show that these are remarkably conservative specifications — peak output current is massive. It has tone controls, a loudness switch, plus a manual record-output selector which allows either tape circuit to be monitored and permits bi-directional tape copying. 'Source Direct' bypasses tone and balance controls to give clear improvements in transparency.

The remote handset can operate a complete Denon system with CD, tape and tuner, but in the case of the amplifier it only addresses the motorised volume control, mute and power. Three line inputs, a phono (MM/MC switchable) input and two tape circuits are available, while a preamp-level output allows bi-amping, power-amp upgrading or multiroom functionality.

Interesting technical features include: twin transformers in a flux-leakage-cancelling configuration which is designed



to lower internal electrical noise; so-called Ultra High Current MOS output devices; and a dual-mono circuit topology in which the low- and high-level signal areas are allocated to separate PC boards, to minimise mutual interference. Suppression of vibration and feedback were major design priorities, but the dark fascia and high control count lends the PMA-1500R a rather traditional look.

Sound quality

Some difference in scoring was experienced on the three occasions when it was wheeled out for the panel. However, although its high-tech circuits offer plenty of power and load independence — not to mention tremendous consistency throughout the frequency band — the overall score reveals that when the chips are down, the PMA-1500R loses out to more audiophile designs.

Each test recording was chosen for its amp-challenging properties, but this Denon presented a rather literal and even mechanical account of music, short-changing musical articulation and purity of tone. The Allison Krauss track, which really needs an amplifier with a silken touch, was variously

described as "clangy, in yer face", "lacking a front-back perspective to the soundstage" and "unclear". Other test tracks elicited similar comments, although there were more positive comments to balance the picture. The Handel piano piece, for example, offered "good differentiation of touch and tone", as well as being "clear and forward in a detailed acoustic". In hands-on listening the lack of simplicity and transparency were all too obvious

Conclusion

Let's not miss the key point about the PMA-1500R, which is to go outrageously loud into pretty much every loudspeaker you can lay your hands on. In our tests it managed this with the utmost in consistency and no noticeable loss of dynamics or detail. For those who need grunt and the option of adjusting tone and balance, the Denon is Recommended. *AG*

VERDICT

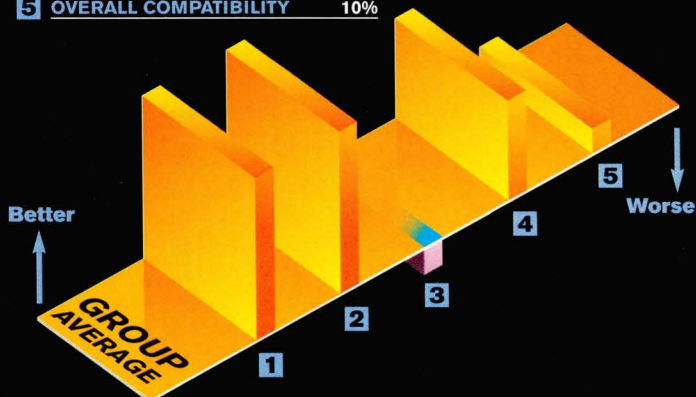
SOUND ★★★★★
VALUE ★★★★★
PRICE £499.99

TWO YEAR'S GUARANTEE

- 📄 A battleship amplifier that works harder than a piledriver — an amp for big spaces and sustained high volume levels, but subtleties take a back seat.
- ✉ Hayden Laboratories Ltd, Hayden House, Chiltern Hill, Chalfont St Peter, Bucks SL9 9UG.
- ☎ (01753) 888447

HOW IT COMPARES

- | | | |
|---|------------------------|------|
| 1 | DYNAMIC POWER OUTPUT | 65% |
| 2 | SPEAKER LOAD TOLERANCE | 65% |
| 3 | AUDIBLE DISTORTION | -10% |
| 4 | NOISE | 40% |
| 5 | OVERALL COMPATIBILITY | 10% |



THE LAB REPORT

Anyone seeking to thrash the voice-coils from a difficult loudspeaker need look no further than Denon's mighty PMA-1500R. This amplifier matches the CR Developments CR324SE's continuous power output almost Watt for Watt, but soars ahead under dynamic 'real-life' conditions with figures of 205W, 362W and 587W into 8, 4 and 2 Ohm loads respectively, before sustaining a mammoth 796W into 1 Ohm. This requires a huge 33.5A reserve of current without the amplifier's protection circuits spoiling the show (see Marantz PM-17 lab report on p80). Not bad for an amp rated at 70W into 8 Ohms and 140W into 4 Ohms!

Nor does this power come at the expense of control, noise or distortion. Indeed, the Denon PMA-1500R enjoys a low 0.04 Ohm output impedance, a minimal 0.6dB channel balance error over a full 60dB, minimal susceptibility to RFI and a full 86dB S/N ratio re 1W/8 Ohms. Input loading and overload margins are designed to cope with modern CD players, while distortion is typically <0.004 per cent right through the midband, increasing to 0.03 per cent at very high frequencies. Sure enough, there's a suggestion of crossover distortion at low power, but in other respects this amp appears to offer fine value and a generous Watt-per-pound ratio. *PMi*

DON'T BUY IT JUST BECAUSE IT'S BEAUTIFUL



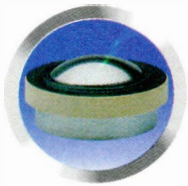
These may be the best looking speakers ever made - but our engineers hope you'll ignore their stunning appearance.

They admit that the extruded aluminium cabinets are undeniably elegant. But they want you to appreciate how their shape and rigidity reduces internal resonance.

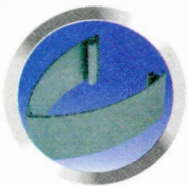
And they can understand how you might be seduced by the gorgeous titanium dome tweeter. But they'll ask you to close your eyes and enjoy its remarkable clarity instead. After all, it's thanks to their pioneering work in Finite Element Analysis that the HF response is so uncannily accurate and smooth.

Of course, they acknowledge that people are impressed by the sight of dual sets of gold plated binding posts and massive bus bar connections between the terminals and the crossover. But they respectfully point out that uncompromised signal transfer is what really counts.

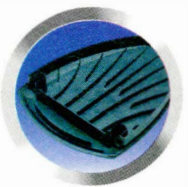
At Celestion, we've always been quietly proud of our loudspeaker technology. But sometimes, design genius is just impossible to hide.



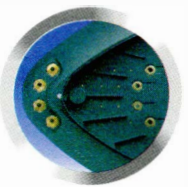
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Musical Fidelity X-A1

This is a low-gadget amplifier, boasting just six line inputs and a single tape circuit with tape-monitor switching. Claimed vital statistics are 50 Watts per channel into eight Ohms, although it tends to sound louder (and measures louder, too, as you'll see in the Lab Report). A single set of speaker terminals decorates the rear panel and a simple three-control interface graces the front — an outboard power supply is connected with a long umbilical wire. A pre-amplifier output can be used to drive external power amps such as the MF X-A50 or X-A200, to permit bi-amplification with bi-wirable loudspeakers.

Some may regret the absence of remote control and a headphone feed, but Musical Fidelity's philosophy has always been to use the minimum components in the shortest and simplest signal path. Rather than convenience features you get first-rate build quality, not least due to the solid case extrusion which is surely strong enough to stop a tank. A version of the X-PSU power supply, which is also built into the X-series casing, could well be a popular addition if it enhances sound quality further.

The oval-section case is a close match to other MF 'X-Ponents', which now include a



number of compatible add-on products, including the X-Cans and the X-LP for headphones and phono step-up respectively.

Sound quality

This amplifier was auditioned twice during the panel tests, with some spread of marking which can be attributed to the amplifiers auditioned just before and after. On one of its outings, the X-A1 was described by one listener as "a bit lifeless", and by another as "lacking spaciousness and inner clarity", both instances referring to the Mozart. One of the listeners also felt that the bass of the Ry Cooder was a little soft, but this was the only clear reference to a quality that has been levelled against several Musical Fidelity amps on test — a criticism that the company unapologetically defends on the grounds that other amplifiers sound too much the other way. We'll leave that particular point hanging.

Principal findings are that the X-A1 is "open, spacious and easy to follow" (in the Handel piano recording), and that "this is the first amplifier to make the voice sound sexy" (Allison Krauss). Another panelist wrote of

the Mozart (which he described as "this nasty Austrian drinking music", though I can't tell you how deeply his tongue was planted in his cheek), that it was "tonally, dynamically and spatially just fine". Meanwhile the Handel piano was felt to be "easy to locate in space (with) a real dimensionality and excellent timing".

Another panelist, commenting on the same piece, noted that the piano sounded "bright and clean without sounding clangy", and that the Allison Krauss voice was "well-focused with a strong presence". Over an extended period, I also found the X-A1 to be consistent, open and articulate, with wide dynamics, strong detail and above all, real expressive ability.

Conclusion

The X-A1 helps to reinforce mounting evidence from the test group that simpler amplifier circuits result in more musically transparent and expressive products. It was of the most pleasant and most informative amps on test, is also powerful beyond its price — and just check out the length of the guarantee. Best Buy material and no mistake. *AG*

VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £480.00

TWO YEARS' GUARANTEE

This amplifier has star quality. The styling is fun, it offers real insight without pulling the music apart, and it's well built too.

Musical Fidelity Ltd, 15/16 Olympic Trading Estate, Fulton Road, Wembley HA9 0TF
(0181) 900 2866

THE LAB REPORT

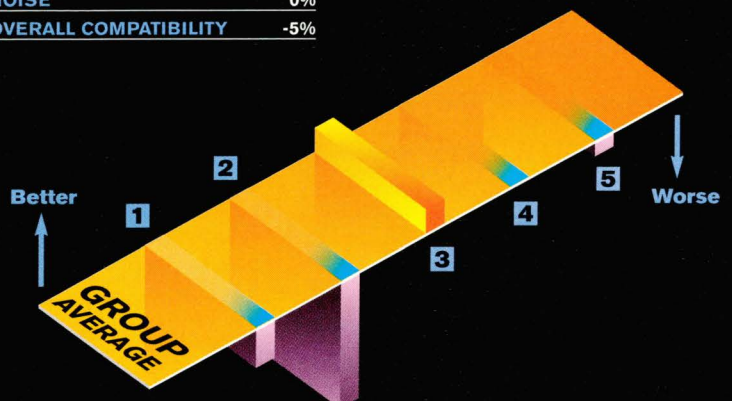
Not a lot of people know this, but the X-A1 uses specialised five-leg Sanken power devices that employ the same integrated biasing technology as Kenwood's 'TRAITR' semiconductors. The amplifier is also more compatible than earlier MF models with its sensible 47 kOhm input loading, generous >16V overload margins and reduced susceptibility to RFI. Furthermore, although the X-A1 is cautiously rated at 50W/8 Ohms, it will actually manage an 85W continuous specification with dynamic outputs of 105W, 185W and 220W into 8, 4 and 2 Ohms respectively.

There is some restriction into 1 Ohm loads, suggesting the X-A1 is better suited to 8-4 Ohm speakers rather than those speaker boxes that dip into the hellfire of ultra-low impedance. I would have preferred to see a lower output impedance than 0.1 Ohms, but its 12A reserve of current is nevertheless more than sufficient to prevent the X-A1 from wilting unless it's driven exceptionally hard.

Channel balance is excellent, the 83dB A-wtd S/N ratio (re 1W/8 Ohms) is a perfectly 'average' figure while distortion shifts from a low 0.0015 per cent in the midband to around 0.015 per cent at the highest frequencies. In short, the X-A1 is almost as novel as it looks! *PMi*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	-15%
2	SPEAKER LOAD TOLERANCE	-50%
3	AUDIBLE DISTORTION	10%
4	NOISE	0%
5	OVERALL COMPATIBILITY	-5%



Arcam Alpha 10

The long-awaited, high-tech, modular, upgradable Alpha 10 has finally arrived. Regardless of the technical innovations it embodies, there are no real changes in its styling from previous Arcam amps so it is still compatible with existing Arcam Alpha tuners and CD players. Under the skin, however, this is a very different animal, controlled by a microprocessor and embodying a tremendous amount of hidden intelligence and flexibility.

The Alpha 10 is equipped with an informative, two-line, dot-matrix display, which shows operating status, volume level ('thermometer' display), and the input selected. It can also show channel balance and the source selected for recording, which can be chosen independently of the input to which you are listening.

Two pairs of speakers can be connected and used in parallel or independently, controlled from the front panel by relay switches. A control key toggles the main rotary control between volume and balance operation, and the standard set of inputs includes five line and two tape circuits.

Other options include a £60 MM/MC phono stage which usurps one line input, and the choice of a four-zone, four-source



multiroom controller, which should be available in early '99. Due this autumn, meanwhile, is an all-singing, all-dancing AV module with S-Video routing, on-screen menus, plus Dolby Digital and DTS decoders. To further enhance its home cinema operation the Alpha 10 can team up with the Alpha 10P stereo power amp (£599.90), which itself can accommodate an additional power amp module (around £230) to become a high-spec three-channel amp. Put this with the 10's two amp channels and you have a full-on, five-channel, two-box AV setup for under £1,700. Or, of course, four channels of audiophile stereo power for bi-amping.

Arcam made the switch to the BFA-approved speaker terminals (*Update*, HFC 164) some time ago. These, designed to comply with European safety standards, need special connectors, but hollow 4mm plugs as on the speaker cables in our test, will mate with the shrouded male sockets.

Sound quality

The Alpha 10 was marked up for its tidy, detailed balance, but criticised for sounding "cold and uninvolved" (Allison Krauss) and "a little forward in the presence band" (Ry Cooder). One listener identified some back-

ground noise and another pointed to the presence of hum, but I didn't hear these. Only one listener described the Arcam as "compressed, nasal and with poor timing".

It could sound bright, and when pressed with complex orchestral music I believe its resolving power decreases. Some 'cupped hands' coloration crept in, too, with vocals. Judged by the highest standards it is not the most subtle performer with regard to instrumental separation and image depth, but the hands-on listening depicted an amplifier with strong power yield and plenty of detail.

Conclusion

We will not pretend that the Arcam Alpha 10 is the best-sounding amp one can buy for £800. Other more minimalist designs take those honours. But how many hair-shirt amps offer such remote-controlled user-flexibility and upgradability? How many have such a straightforward upgrade path, which itself may be enhanced for AV or stereo operation? The Alpha 10 offers plenty of power, the ability to form the basis of a multi-room system, and sound quality which is more than adequate. Recommended. *AG*

VERDICT

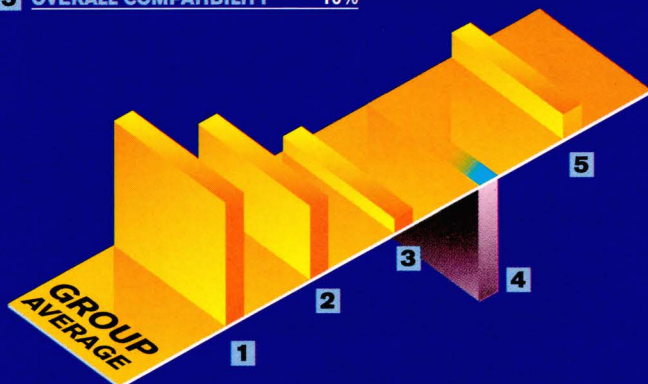
SOUND ★★★★★
VALUE ★★★★★
PRICE ★★★★★

£799.90
 2 YEAR'S GUARANTEE

- ☐ Offers detailed though unrefined sound quality, but more important is its building-block approach which allows the amp to follow upgrade paths into multi-room and AV applications.
- ✉ A&R Cambridge Ltd, Pembroke Avenue, Denny Industrial Centre, Waterbeach, Cambridge CB5 9PB (01223) 203203

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	50%
2	SPEAKER LOAD TOLERANCE	30%
3	AUDIBLE DISTORTION	5%
4	NOISE	-45%
5	OVERALL COMPATIBILITY	10%



THE LAB REPORT

Arcam rates its new Alpha 10 very conservatively at 110W and 170W, one channel driven into 8 and 4 Ohms respectively. In practice 125W and 205W are nearer the mark, with a maximum 425W dynamic power output occurring into 2 Ohms and a maximum current of 20.3A available into 1 Ohm (10msec or 23.5A for 5msec). As a result, the Alpha 10 has the highest output of the four amplifiers in this sub-group, despite being just slightly less tolerant of difficult speakers than the Primare.

Its performance is assisted by a low 0.029 Ohm output impedance and a more CD player-friendly 19kOhm loading. The jump in distortion from 0.006 per cent through the midrange to 0.06 per cent at 20kHz remains to haunt the Alpha 10, but at least the trend is wholly consistent with changes in power output.

Meanwhile, Arcam's rotary-encoded volume control (see Primare A-20) offers fine 1dB steps over the top 50dB of its range, followed by coarser 2dB steps from -50dB to -76dB, below which the Alpha 10 drops into mute. Sadly, however, this system limits the 10's S/N ratio to a poor 76.4dB re. 1W/8 Ohms despite it picking up to 94dB re. two-thirds output. This makes the Alpha 10 about 8-10dB noisier than its group competitors. *PMi*

Holfi Audis Signature

The Audis Signature from Denmark is a minimalist amplifier, cast in the mould of similar offerings from Copland, Densen and Primare. Like the Pre 8/Power 8 combo reviewed in HFC 179, this is a brutally-stripped-down design whose fascia bears only a mains on/off switch, volume control and input selector. There is no channel balance pot, headphone socket, remote control, nor tape monitor switch.

Minimalism extends to the circuit boards, if the manufacturers' design notes are to be believed: no feedback, or so they say. But from past experience it is not practical to draw sound quality inferences on the basis of this fact alone.

All of the electronics, including the input and output sockets, have been assembled on a single circuit board, and signal lengths appear to have been minimised. (The dearth of facilities is similarly intended to maintain signal purity.) The maker claims that component quality is the best available, and although there is (non-intrusive) protection against overheating and DC offset faults, nothing guards against output short circuits.



The real head-turner, and the Holfi's unique selling point, is the striking fascia made from solid Finnish cherry wood. There is no claim from Holfi as to whether this ligneous extravagance improves sound, and in any case there are plenty of metal panels elsewhere in the casework. But perhaps they're aiming for a psychological effect. If you see real wood on the outside, maybe this sends out a subliminal message that the insides are made from lovingly-crafted cogs and springs which are driven by flowing rivers and cool sea breezes... Or not.

Sound quality

Our listening panel gave this amp a warm accolade. "A big sound — punchy and strong. I like this sound," was a typically enthusiastic remark following the Ry Cooder track. From experience this music counts for nothing if the system lacks grace and transparency. Another listener, whose views are closer to my own, described the Mozart recording as "technically spot on, very sweet without being slow, and the best resolution and definition so far, but not as musical as the previous amplifier". (In fact the forerunner was the Orelle.) Another took a similar view, remarking also that the Holfi was "clearly a good match for the Definitive

Technology test speakers".

As it turns out, this was a particularly prescient comment, as the positive, outgoing and detailed quality of the sound during the test was never quite matched when the amplifier was used in other combinations. I noticed that different cables had an inordinate influence on the sound. Thick, stranded cables, for example, make the Audis Signature sound even muzzier and more lacking in detail than usual. Different speakers had a similar effect, with most big box alternatives sounding rather slow and 'woofy'. The lab test results show a high output impedance, higher even than most valve amps, and this surely goes a long way to explaining our listening-test observations.

Conclusion

Clearly there is a case to be made in favour of this bizarre-looking amplifier, which exhibits a certain sweetness and a degree of naturalness and resolving power which are unusual at this price level. The problem is its untoward load dependency, which means very careful system optimisation is required prior to purchase. AG

VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £750.00

TWO YEAR GUARANTEE

This is a very articulate and together sounding amplifier, but the high output impedance is responsible for unpredictable tonal balances, especially in the bass.

Kiakaha UK Ltd, 28a Selbourne Rd, Ilford, Essex IG1 3AJ
 (07050) 050911

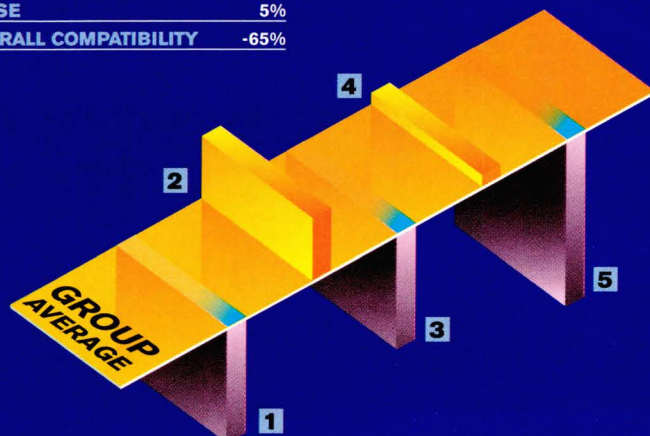
THE LAB REPORT

The Audis Signature is set by default so that its CD input has an exceedingly low 800 Ohm input impedance. CD players with low (circa 50 Ohms) output impedances and sufficient current drive may fare well enough but others (and there are still many players with several hundred Ohms' output impedances) will most certainly not. A reduced output, and restricted and distorted treble performance will surely result from such a mis-match. The best advice is to have your dealer change the setting internally to match the 16kHz loading of the tuner/aux line inputs.

I would also take issue with Holfi's precarious power specification of 2x65W and 2x100W into 8/4 Ohms respectively. In practice, the amplifier suffers from a 'creeping' distortion that reaches 1 per cent at 49W/4 Ohms, for example. The true clip point is exactly 100W/4 Ohms, one channel driven. Similarly, Holfi specifies an 18A maximum current over 10msec but with no reference to how distorted this current may be. In practice, it's able to sustain 13.4A over 10msec up to 2 per cent THD, with lower current outputs almost invariably >1 per cent THD. This is not assisted by the amplifier's very high 0.7 Ohm output impedance which will result in a modification of the overall system response in line with the loudspeaker's impedance curve (see *Oasis*, HFC 177). PM

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	-45%
2	SPEAKER LOAD TOLERANCE	25%
3	AUDIBLE DISTORTION	-45%
4	NOISE	5%
5	OVERALL COMPATIBILITY	-65%



Orelle SA-100RX

Suffering déjà vu? Don't worry. Indeed we did review Orelle's SA-100RX in HFC 178 and awarded it a cautious Recommendation. Some weeks later, I was

approached by Orelle with news that the company had revisited its design in the light of our review findings. It claims to have identified a problem with the mains transformer that had been specified for the RX version of the amplifier, which, allegedly, had been built incorrectly. It had the wrong number of windings on primary and secondary alike, preserving the turns ratio, but altering the way flux was generated in the transformer core. While solving this problem, Orelle took the opportunity to specify Dennis 'DNM' Morecroft's slit-foil power-supply capacitors.

The SA-100RX is rated at 75 Watts per channel, and claims to be based upon a passive preamplifier, with a motorised Alps potentiometer and a single gain stage in the power amplifier. Physically it is a little smaller than most designs of comparable power rating, but it feels heavy and solid, and its black, brushed fascia is neat and practical. Controls are limited to volume, input selection and a tape monitor switch;



there are seven inputs in total. A preamplifier output allows biamplification, or upgrading with a larger power amp. The RX version of the amplifier may be remote controlled but the handset costs an additional £29 over the base price.

Sound quality

The listening panel was more comfortable with the amp and less equivocal about its performance this time round. So much so, they awarded it the highest average score for any amplifier tested this month. Scoring was consistent from listener to listener, and between presentations. "This is an exciting, fast and dynamic amp," went one of the sum-up comments, "with lots of space and detail. It sounds wide open and very clear, as well as being very ambitious... and very transparent".

Another panellist felt that the Allison Krauss track was rendered in more detail than through the previous amplifiers. "I'm hearing much more," he wrote. "At last I can really differentiate between the various instruments, and distinguish the layers of the music." Another described the SA-100RX as "very musical, with excellent (tonal) colour changes on the guitar/banjo". There was an ease and fluidity about the way the Orelle performed with virtually all kinds of music, and it was very transparent.

When deployed in another review involving several large loudspeakers, the Orelle proved itself very even-tempered, though with the most extended designs it does exhibit a slight but noticeable loss of low frequency control and evenness through the lowest octave. This might be caused by the quite large measured output impedance causing response changes around the speaker's LF electrical resonance. One listener identified this phenomenon as a "plodding" upper bass and "some coloration". There was occasional sibilance on female vocals, and treble detail was sometimes rounded and muted, which again corresponds to the measured high frequency rolloff.

Conclusion

The SA-100RX has been transmogrified from a good if somewhat inconsistent amplifier, into a star performer which can portray music with a limpid, elegant transparency which lift it clear of the field. It performs most consistently with middle-size, medium bandwidth loudspeakers; those with four-Ohm impedance, and especially models presenting a reactive load, should be avoided. Otherwise, clear Best Buy material! AG

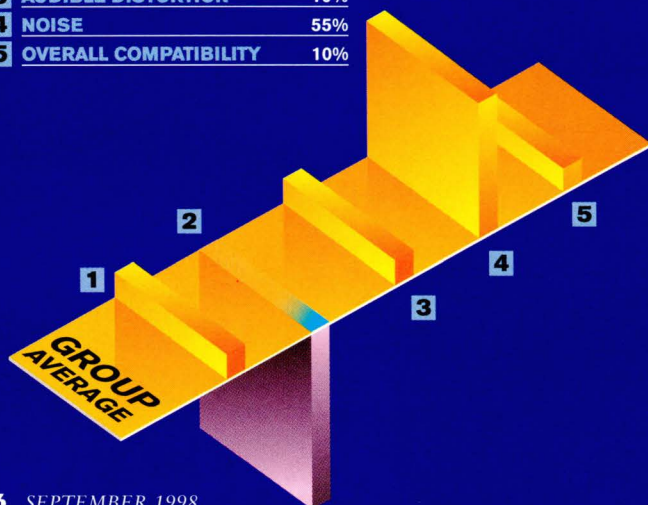
VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £649.00, £678.00 WITH REMOTE
ONE YEAR'S GUARANTEE

- ☐ Superb all-rounder, improved in its current form, but check that you are getting the latest version, and stick to unproblematic eight Ohm speakers.
- ✉ Orelle Hi-Fi, Unit 12 IMEX House, 6 Wadsworth Road, Perivale, Middlesex UB6 7JJ
- ☎ (0181) 810 9388

HOW IT COMPARES

- 1 DYNAMIC POWER OUTPUT 10%
- 2 SPEAKER LOAD TOLERANCE -70%
- 3 AUDIBLE DISTORTION 10%
- 4 NOISE 55%
- 5 OVERALL COMPATIBILITY 10%



THE LAB REPORT

This amplifier's *continuous* power output just exceeds 80W across the entire audio band into 8 Ohms but witnesses no appreciable increase into 4 Ohms. Under *dynamic* (music-like) conditions, however, its midband performance does lift from 118W into 8 Ohms to 148W into 4 Ohms, before dropping back to 97W/51W into 2/1 Ohms respectively. A maximum current rating of 7.1A (10msec) and 7.9A (5msec) is acceptable but hardly generous when compared to the 20A+ of the Arcam and Primare amplifiers.

This, together with its moderate 0.23 Ohm output impedance, suggests the SA-100RX would be ideally partnered with easy-going loudspeaker loads. The amplifier's response, meanwhile, extends well into the sub-bass but rolls off slightly early in the high treble (-0.9dB @ 20kHz).

Distortion settles around 0.01-0.02 per cent through the midband but escalates to 0.3 per cent at higher frequencies with a very extended harmonic spectrum. Fortunately, and like Arcam's amplifier, this pattern of THD tracks changes in power output very faithfully indeed. Furthermore, the SA-100RX's noise is impressively low at just -89dB re. 1W/8 Ohms, improving still further to -102dB re. two-thirds output. A good result. PM

Primare A-20mkII

Without doubt it's the most elegant amplifier among this month's crop of amplifiers.

The A-20mkII is compact and heavy, and immediately distinguished by its stand-off fascia, a unique visual feature, which is also exploited internally to provide an enclosed and fully-screened space occupied by the display logic board. Thereby Primare hopes to minimise interference from the latter with sensitive audio signal circuits elsewhere in the amp.

The volume control is a digital attenuator with fine one-dB operating steps and excellent channel balance at all settings, plus there are four line-level inputs and a tape loop. The supplied system remote handset is the only way of switching off the display and adjusting channel balance.

This amplifier is not absolutely new to the UK, but recently it has been extensively revised, though its price remains unaltered. Reportedly, the one-time J-FET impedance matching circuit has been rendered redundant by changing the op-amp to a higher quality Burr Brown OPA2604. This, says Primare, offers much lower distortion and improved sound, claiming further that the power supplies also have been improved



with higher voltage rails. And despite the cost penalty, Primare has started to use its own transformers (two are needed in this dual-mono design) made in the factory the company shares with Copland in Växjö, Sweden.

The main circuit board is also new, and the signal path has been shortened. Finally, the amp now comes with a full system handset in anticipation of a complete Primare branded system — the CD player is already available. Rated power output is 70 Watts per channel, which is up from 60 Watts in the original.

Sound quality

While the now defunct A-20 amp was open and transparent but rather cool and distant, this new mkII is palpably more communicative and outgoing. If memory serves, string tone is now more vivid and better separated than before, and performance criteria such as space, rhythm and timing seem more on the ball. The effect is altogether tauter and more muscular, and for the most part the panel agreed with my personal assessment. This is an amplifier with a wide dynamic range and a strong consistency, and it is also a detailed, refined design, these being qualities inherited from the original version.

The panel test score would have been higher had not one listener marked down what he perceived as a "diffuse, hazy delivery" (Murray Perahia) and a "plodding, shut-in" sound (Allison Krauss). The rest of the panel was unanimous in its praises. "A nice, big, open and natural sound; I can hear the percussion reflecting off the walls, and the bass is deep and very detailed", said one, referring to the Ry Cooder test track. Another panellist wrote of the Allison Krauss song that the Primare sounded 'tight, with good control', and of Allison's "sexy voice".

Conclusion

The Primare has emerged from its extensive makeover smelling of roses, and on current form it is a very competitive amplifier indeed, with a combination of refinement and authority that few can match at or near the price. Existing owners should know that Primare has kept faith with them — early versions of the A-20 can be upgraded for a moderate charge, which had not been set in stone at the time of writing. AG

VERDICT

SOUND ★★★★★
VALUE ★★★★★☆
PRICE £799.00

ONE YEAR GUARANTEE

⊞ This was always a refined, capable amplifier, and finally it has discovered how to rock and roll. Stir in stunning good looks and you have a virtually unmissable product.
✉ MDC, PO Box 4146, Epping, Essex CM16 6HJ
☎ (01992) 573030

THE LAB REPORT

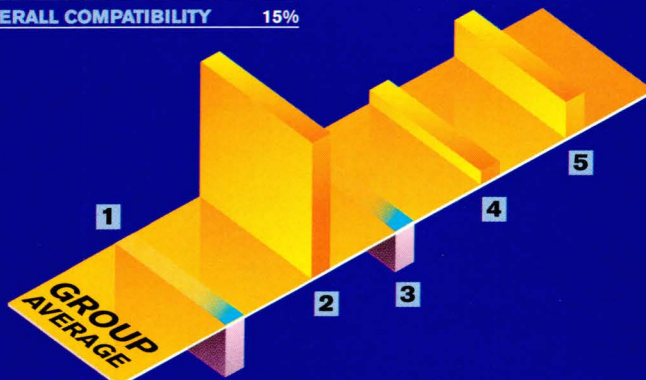
Primare's 80-step digital attenuator remains accurate within 1dB over the top 60dB of its range, with a maximum effective range of 76dB (steps 1-79). As this is a digital control its channel balance remains accurate to 0.01dB over this same 60dB's range — a feat unmatched by conventional analogue volume pots. Logic-controlled input switching does limit the amplifier's input overload to around 4.8V, which is just about sufficient to handle the daftest of today's high-output CD players, for example.

Otherwise, the amplifier also boasts a pretty 'stiff' power supply, elevating its 80W/8 Ohm output by +2.1dB to 129W/4 Ohms. Under dynamic conditions, you'll squeeze some 88W, 166W, 274W and 324W into 8/4/2/1 Ohms respectively, which is equivalent to a maximum current delivery of 18A over 10msec and 20.9A over 5msec through a usefully low 0.05 Ohm source impedance.

So difficult speakers are handled with confidence even if the amplifier's native distortion (harmonic and intermodulation) does start to become a little hairy at high power and high frequencies. In this case, the mid-power, mid-frequency THD of 0.018 per cent jumps to a full 0.35 per cent at HF — a fact that must surely impact on the cut-and-thrust of the amplifier's treble. Otherwise, the A20mkII measures up as neatly as it looks. *PMI*

HOW IT COMPARES

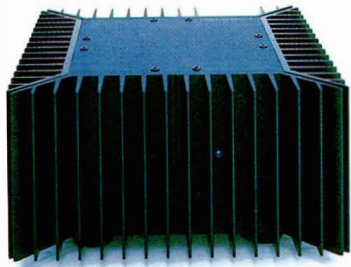
1	DYNAMIC POWER OUTPUT	-20%
2	SPEAKER LOAD TOLERANCE	55%
3	AUDIBLE DISTORTION	-15%
4	NOISE	5%
5	OVERALL COMPATIBILITY	15%



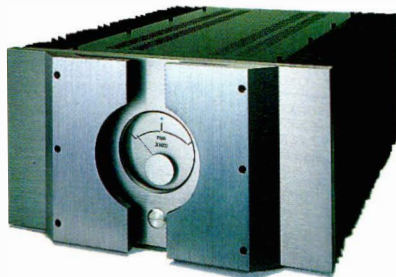
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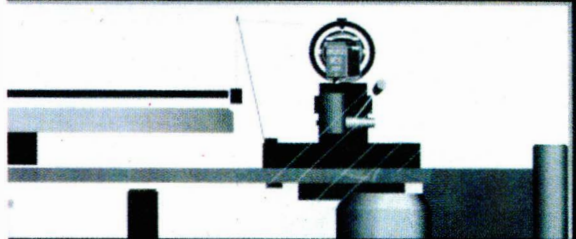
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Crimson 610C/620C

Crimson Elektrik enjoyed a brief moment of fame in the '70s as a manufacturer of kit amps, and later fully-built examples, that looked, well, very similar to the 610C preamplifier and 620C power amplifier you see here. The only external difference is that the maker's name has now been shortened to Crimson. Also, somewhere along the line Crimson Elektrik came together with DNM and now shares its distribution. Consequently Crimson now specifies DNM-type, single-conductor, solid-core cables internally, as well as recommending DNM's interconnects and speaker cables. Within the Crimson amps you'll also find Morecroft slit-foil capacitors originally developed for DNM.

Both pre and power amps are built into long, narrow extrusions; rather sharp-edged heatsink fins grace the power amp's front panel. Mains-switch operation is thus a little hairy! The

preamplifier, powered at 18.5V from a plug-top transformer, has four controls: for volume, channel balance, three-way tape monitoring (tape/source/off), and input selection (CD, tuner, disc and auxiliary). The phono input has a DIN-type input plug, another

tors and relatively small conductor cross-section. In a philosophical sense, the DNM and Nordost cables aren't a world apart.) There was a trace of glare with the Nordost not apparent with the DNM cables, also noticed when Nordost is used with other amplifiers.

Extending the power ceiling in the hands-on tests showed the limits of the Crimson amps' abilities, although the first sign of overload wasn't the catastrophic distortion, but an apparent narrowing of bandwidth. If anything this means a punchier and more dynamic sound as the volume increases, but by this stage there is also a loss of inner detail and subtlety.

In the panel tests, relating to the Allison Krauss song, one listener described the amp as "big and punchy", but it was also felt to be "muffled and aggressive". Another participant liked the way it reproduced Ry Cooder, but was less impressed by the Mozart, drawing attention to poor leading-edge definition.

Conclusion

This venerable and well-liked amplifier, reinvented for the Millennium, showcases the strengths of the original especially in dynamics and tunefulness. It also reminds us of its ancestor's limitations, however: lack of power and consistency with level, and a loss of definition, especially at higher volume settings. Last but not least, we would be derelicting our duties not to point out this combo's decidedly fragile build quality. AG



feature from the DNM stable. The controls themselves are small and poorly signposted; source selectors are very crude and stiff.

Sound quality

Those slit-foil capacitors and solid-core unscreened cables (plus fast, triple-diffusion bi-polar output devices) invest the Crimson with what the manufacturer correctly sums up as a 'fairly fast, tangy' output. The panel certainly liked this amplifier, as the very consistent high score testified. Although the supplied DNM interconnects were used throughout the hands-on tests, it proved logistically impractical to use the DNM speaker cables at the same time: Nordost speaker cables were drafted in instead. (In this instance flat twin-core with a limited number of conduc-

VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £450.00 PRE, £450.00 POWER COMBINATION £875.00 INC DNM MAINS LEAD AND INTERCONNECT (£35.00, £30.00 RESPECTIVELY) THREE-YEAR GUARANTEE

This disinterred '70s Crimson combo has strengths many modern amps lack, but its alarmingly uneven performance and modest build quality make it less than entirely convincing.

Virtual Reality Audio Systems Ltd, PO Box 383
 Brentwood, Essex SM14 4GB
 (01277) 227355

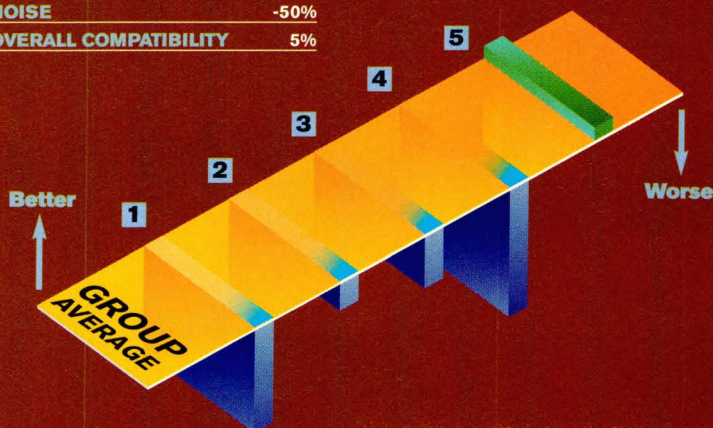
THE LAB REPORT

Based on the original and highly successful Crimson combination of yester-year (should that be yesterdecade?), this 610/620 duet just manages its 50W specification at 54W into 8 Ohms. Under *dynamic* conditions, it's possible to realise 74W, 125W, 146W and 47W into 8, 4, 2 and 1 Ohm loads, respectively. However, there are signs of VI-limiting, possibly via the mains transformer, into 2 and 1 Ohm loads. Indeed, the amplifier's *maximum* current delivery occurs into 2 Ohms at 8.5A, before falling to 6.9A for 10msec (or 7.5A for 5msec) into 1 Ohm loads. With the 0.12 Ohm output impedance also taken into consideration, I'd advise sticking with moderately sensitive 8 Ohm speaker designs.

Meanwhile, although the Crimson's balance control has no centre detent, it still achieves a decent sub-1dB channel match over a full 60dB if twisted into the 12 o'clock position. Distortion barely increases from 0.005 to 0.014 per cent with increasing power through the midrange, but it does jump up as far as 0.2 per cent at high frequencies with a strong third harmonic dominating the spectrum. This will undoubtedly add to the Crimson's 'colour', as will its moderate susceptibility to RFI. Otherwise its input loading and generous >16V overload margin enhances the 610's compatibility with modern sources. *PMI*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	-40%
2	SPEAKER LOAD TOLERANCE	-10%
3	AUDIBLE DISTORTION	-20%
4	NOISE	-50%
5	OVERALL COMPATIBILITY	5%



Marantz PM-17

Fabricated on a lavish scale and dressed to kill in stunning champagne gold, the Marantz PM-17 has enough inputs, outputs and raw grunt potential to deal with virtually any speaker system — but minimalist it ain't. It has tone controls which, like the balance control, can be bypassed using the source-direct switch; while the WBT speaker terminals look butch enough to jump-start a 747. Other features include a four-gang active volume control and Marantz's proprietary 'HDAM' op-amps.

Six line inputs are available, including two tape circuits, either of which can be selected for monitoring. Comprehensive tape switching routes the selected source to the tape outputs, allows tape-to-tape dubbing in either direction, or enables the recording signal chain to be switched off entirely. A phono input with switchable MM and MC settings is also provided. Further socketry provides a preamplifier level output, typically for bi-amp or multi-room applications; while a pair of standard Marantz bus-type sockets permit the PM-17 to be fully integrated into a Marantz-branded system. This, in turn, may be operated via the supplied system remote handset.



Included is a small 'warm up' meter to show when the amplifier has reached operating temperature. Until now, for warm-up duties I've just dug out *Summertime* by Satchmo & Ella; but at least here's living proof that amplifiers need warming up. Why would Marantz have fitted a meter otherwise?

Sound quality

The panel knew nothing of the PM-17's superb build quality — blind panel tests are a great leveller — and although listeners reacted with some admiration, there was less outright enthusiasm than expected. The most enthusiastic of our tame blind panel members described the Allison Krauss as "full and warm" and noted that it "has a real energy and personality that draws you in", concluding that the vocal reproduction was "very pure and easy on the ear". This wasn't the consensus view, however, and nor was it my view in the subsequent hands-on listening. The latter was more fairly represented by the following comment on the same piece of music: "particularly dry sounding... the tonality of the instrument is heavily masked, leaving a cold piercing sound." The panellist also felt that the Ry Cooder sounded "bold and clear, but rather harsh at the top end", and complained of loss of control in the bass. Loss of detail was also noted in the

Murray Perahia recording of Handel, which led another to conclude that the PM-17 was "not very subtle" and that it "doesn't track the dynamic swings of the music".

The independent sighted listening tests, which used a wider range of partnering equipment, also painted a picture of a controlled and powerful design, with a solid, tuneful bass and an even mid/treble. However, while this meant realistic tonal colours, most of the test music failed to 'breathe' convincingly, and there were clear losses of low-level detail and diminished separation between similar instruments in complex recordings.

Conclusion

Though it is fabulously built, well specified, and offers enormous power reserves for a mere 60-Watter, the PM-17's music-making never quite lived up to expectations in our test. Its sound never shrugged off a mechanical edge and an overriding lack of transparency that ultimately detract from the music, even when the best (CD) inputs were used and all tone controls were bypassed. *AC*

VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £899.90

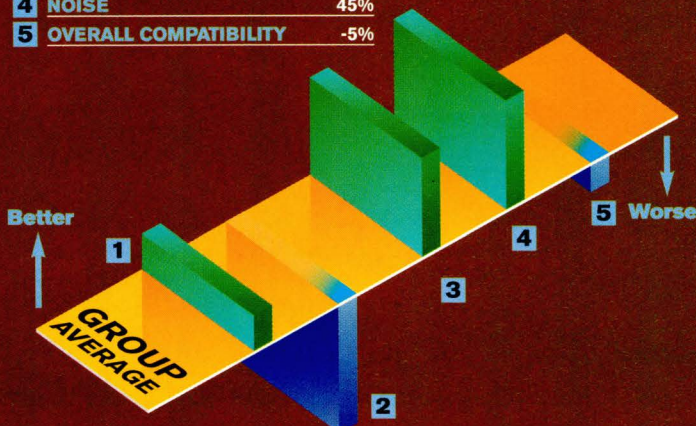
TWO-YEAR GUARANTEE

Superb build and a full range of features that includes tone bypass, but the end result is a bit opaque and lacking in resolving power by the best standards.

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

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	15%
2	SPEAKER LOAD TOLERANCE	-50%
3	AUDIBLE DISTORTION	40%
4	NOISE	45%
5	OVERALL COMPATIBILITY	-5%



THE LAB REPORT

Rated at 60W into 8 Ohms and 100W into 4 Ohms, the PM-17 is considerably more powerful and will actually sustain 97W/170W under dynamic conditions into 8/4 Ohm loads. Nevertheless, Marantz has erred on the side of caution when it comes to protecting the amp from potential abuse. Into 2 Ohm loads there's some obvious VI-limiting that causes distortion to creep up and restrict the PM-17 to 139W (8.3A). In contrast with Denon's Far Eastern behemoth (p70), if the PM-17 is driven momentarily into just 1 Ohm, on-board protection shuts the amplifier down when more than 40W or 6.3A is drawn. Despite its *latent* power, I'd still recommend that the PM-17 be partnered with 8 Ohm-rated speakers.

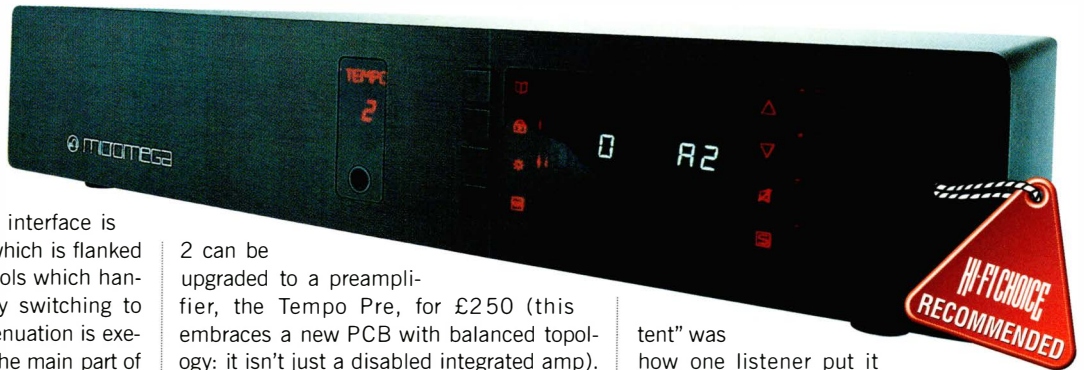
Otherwise, the PM-17 is a model of technical excellence. Distortion, for example, actually breaks the 0.001 per cent barrier (-100dB) through the midrange and only increases to 0.03-0.006 as the amplifier is pushed harder and harder at 20kHz. The 93.5dB A-wtd S/N ratio (re 1W into 8 Ohms) also ensures the PM-17 is the 'quietest' amplifier in this month's survey, improving to a fabulous 100.6dB re. two-thirds output. Fortunately, any susceptibility to RFI is equally low, ensuring a very clean-sounding performance. *PMI*

Micromega Tempo 2

Although Micromega has recently expanded its product range and just appointed a new distributor, the Tempo 2 is drawn from the company's existing full-width series which remains unchanged.

The logic-controlled user interface is centred on an LED display, which is flanked by two columns of four controls which handle everything from standby switching to source selection. Volume attenuation is executed in very fine steps over the main part of the output range. In addition, various set-up functions (accessed via two of the command keys) allow the numbered inputs to be renamed as CD, DVD, tuner and so on. Maximum volumes can be set, while input sensitivity and balance defaults can be adjusted individually for each input. Finally, a 'loop' function enables unused inputs to be skipped when using the source selectors. Although this function is often seen on TVs and VCRs, in my experience this is its first appearance on a hi-fi amp.

Existing Tempo 1 owners can upgrade to this amplifier for £200, while the Tempo



2 can be upgraded to a preamplifier, the Tempo Pre, for £250 (this embraces a new PCB with balanced topology: it isn't just a disabled integrated amp). MM and MC input cards are available for £80 and £145 respectively. Power output is 70 Watts per channel, and the amplifier is well endowed internally, although the attractive brushed-aluminium casework seems rather lightweight. A full system remote handset is included.

Sound quality

"Crystal clear, very neutral, excellent dynamics and very involving" (Murray Perahia) and "excellent 'reach out and grab' sound... very moreish and engaging" (Allison Krauss) were among the more enthusiastic reactions to this French design, which was greeted with impressive scores from our panel of golden ears. It attracted very few adverse comments, and even at its worst was never felt to be less than highly competent. On various occasions and by various listeners, the Tempo 2 was praised for its sweetness, clarity and openness. There was, however, a feeling that it was also rather lean and forward, with a couple of remarks about a "forced" and "Technicolor" feel. "A bit matter-of-fact — not as emotive, although still very compe-

tent" was how one listener put it after the same Allison Krauss track.

In the separate sighted listening sessions, the Micromega was a little less even-handed than some of the competition, and it did indeed sound perceptibly lean in tonal balance in the various test combinations. But this is more an indication of character than a criticism per se, and there was no noticeable glare or opacity. As a result, the Tempo 2 has a very direct and expressive feel, and the treble and bass both sound well-integrated and attractive in character, although the Tempo 2 failed to offer the almost architectural stability and consistency of amplifiers like the Denon PMA-1500R (tested on p70).

Conclusion

Recommended. This wonderfully idiosyncratic amplifier gives a forward and lean, but undeniably expressive and clear-headed account of the music. The unusual control system offers some benefits, and the icing on the cake is the way the Tempo 2 can be transformed into a component preamplifier. Finally, there's also the upgrade route offered from the Tempo 1. *AG*

VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £900.00

TWO-YEAR GUARANTEE

- ☐ Embodies a good, clean, expressive sound, and offers some useful user benefits, including a high degree of user customisation. Upgradable, too!
- ✉ Surrey Sounds, Enterprise House, 44-46 Terrace Road, Walton-on-Thames, Surrey KT12 2SD
- ☎ (01932) 254297

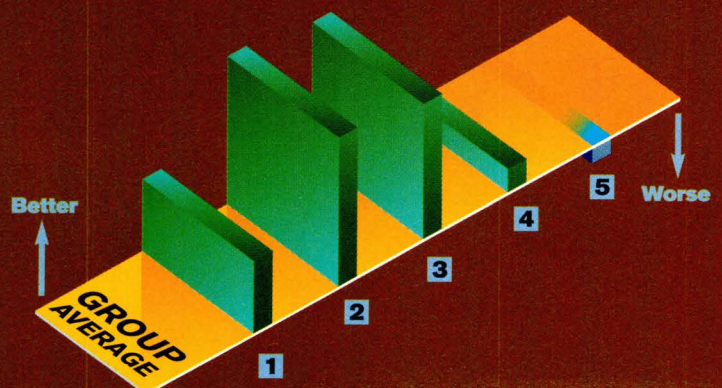
THE LAB REPORT

Micromega's 100-step digital volume control offers fine 0.5dB steps over the top 37dB of the Tempo's range, and then 1.5dB steps from -38dB to -72dB, below which the amplifier drops into mute. So although there are 100 increments, its range is 72dB with an excellent interchannel accuracy of 0.01dB over the top 60dB. In this respect, there are obvious parallels with the Arcam and Primare, though the Tempo's line stage will clip with inputs over 3.2V, causing massive distortion regardless of the final power output. Sure enough, few CD players stray over 2.8V or so at 0dBFs, but 3.2V is sailing very close to the wind in my book (typical overload margins for other amps in this test are >16V).

This aside, the Tempo 2 ranks as one of the more impressive products to have emerged from Micromega in recent years. Its response is ruler-flat and its output impedance moderately low at 0.07 Ohms. In stark contrast with Arcam's logic-controlled Alpha 10, the Tempo's noise performance is truly excellent at just -90dB for 1W/8 Ohms, while distortion remains broadly constant at 0.02-0.05 per cent across the audioband. A dynamic power output of 106W, 170W, 217W and 188W (13.7A) into 8, 4, 2 and 1 Ohm loads also stands the Tempo in good stead. *PM*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	30%
2	SPEAKER LOAD TOLERANCE	60%
3	AUDIBLE DISTORTION	55%
4	NOISE	10%
5	OVERALL COMPATIBILITY	-5%



Conclusions

As we suggested in the introduction to this month's test, £500 buys an amplifier significantly more capable than the average budget workhorse. Straightaway, though, potential buyers must decide which is the most important purchasing criterion: user convenience and features, high power output or the best possible sound quality. By no means do the three go hand in hand.

This test has reinforced a theory we have often promulgated in the past: more

comprehensively equipped amplifiers are not necessarily those with the best sound. There is a simple reason for this. No amount of clever design and efficient manufacturing can outbalance the sonic advantage of a short, simple and gimmick-free signal path, as found in the minimalist amps. However the heavy hitters in this month's test were often the loudest, and their build-quality was impeccable. Most were from major manufacturers, and exhibit respectable power both on paper

and when driving real-life loudspeakers.

For audiophiles, an amplifier's power output is key to its success, if your intention is to play consistently loud, or if you have a large, well-furnished room. Unless used in exceptionally small rooms or with unusually efficient speakers, an amplifier needs plenty of power on tap to make music sound lifelike. In this test, there was not a vast range of power outputs on paper, yet in real life these amps demonstrated a surprising degree of variation in loudness.

GROUP A (BELOW £600)

Audio Analogue Puccini SE	£595.00
CR Developments Orpheus CR324SE	£569.00
Denon PMA-1500R	£499.99
Musical Fidelity X-A1	£480.00

Amps in this price band vary from the svelte, anachronistic **Musical Fidelity X-A1** to the **Denon PMA-1500R**. The former is a real winner in small and medium-size systems, while the latter is a battleship amplifier with the highest dynamic power into eight Ohms of any amp tested this month.

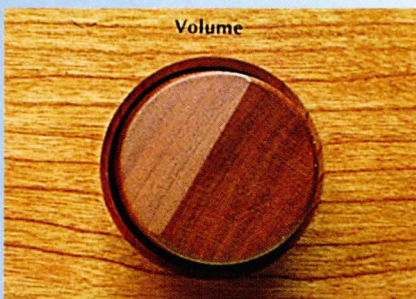
By X-A1 standards, though, it offers a rather grey, earthbound sound quality. Between these two extremes, priced a little more expensively than either, the **CR Developments Orpheus CR324SE** has a mirror-finish front panel which may or may not suit your tastes; musically it was not to our panel's taste, being grainy and opaque. The **Audio Analogue Puccini Special Edition** is an enhanced version of the much-liked original, which has more Watts on tap, but regrettably has failed to inherit its progenitor's musical magic.



GROUP B (£601-£800)

Arcam Alpha 10	£799.90
Holfi Audis Signature	£750.00
Orelle SA-100RX	£649.00
Primare A-20 mkII	£799.00

Arcam's new **Alpha 10** is another upgradeable, versatile amp from this famous British brand. On audition it proved not the most subtle performer but without doubt it is the most flexible. The **Holfi Audis Signature** frustrated us with its



clear evidence of talent but unacceptable variations in performance with different loudspeakers. The **Primare A-20mkII** and the **Orelle SA-100RX**, both recently revamped, are more typical of middle-price, low-feature-count amplifiers, but the Primare assumes a more high-tech mantle and is the more interesting design in many ways. Both are unobtrusively excellent designs which are appropriate for use in a wide range of systems.

GROUP C (OVER £800)

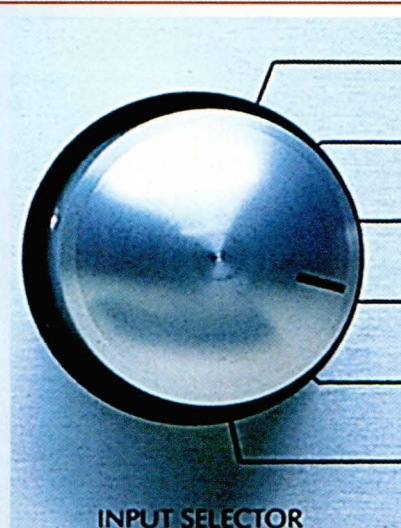
Crimson 610C/620C pre-power	£875.00
Marantz PM-17	£899.90
Micromega Tempo 2	£900.00

The **Crimson 610C/620C** is a blast from the past, modernised to an extent with solid-core cables and slit-foil capacitors, but ultimately recognisably like the original: dynamic, contained and credible, but with limited power reserves before the sound changes in character. The pre/power format confers certain advantages, such as the possibility of placing the power amp close to the speakers, and ultimately an easier upgrade path, but we weren't convinced that the transition from the '70s has been achieved gracefully.

There were no such problems of style

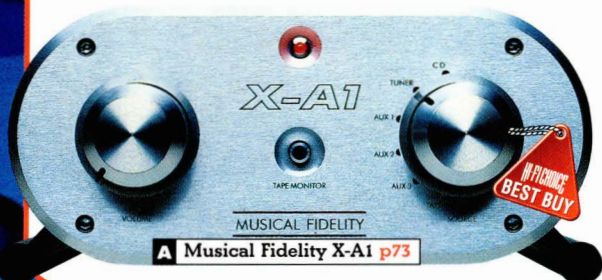
with the **Marantz PM-17**, which in some respects is similar to the Denon PMA-1500R in intent, if not specifically in technology. This is another high-spec amp which somehow lacked the subtlety and transparency of simpler, straight-line designs, but it remains magnificent in many other ways, and should be on any shortlist of amps up to £1,000.

The same applies to the **Micromega Tempo 2**, which is less powerfully equipped than the Marantz, and certainly doesn't offer Marantz CD-17 build quality. However it is one of those simpler, straight-line designs which have more subtlety and transparency than feature-rich alternatives. It is also part of a well-established system which can be upgraded in line with the user's evolving requirements.



BEST BUY

The first Best Buy in this month's group was until recently an *HFC* Recommended component. However, our comments in the first review



A Musical Fidelity X-A1 p73

of the product helped eliminate an obscure problem with a particular sub-component. Either the **Orelle SA-100RX**, which is a compact, attractive design with minimal features. It is powerful but no powerhouse, and can be used with most speakers, but preferably not those presenting a low impedance or very reactive load. Otherwise this is a thoroughly excellent musical choice which pushes

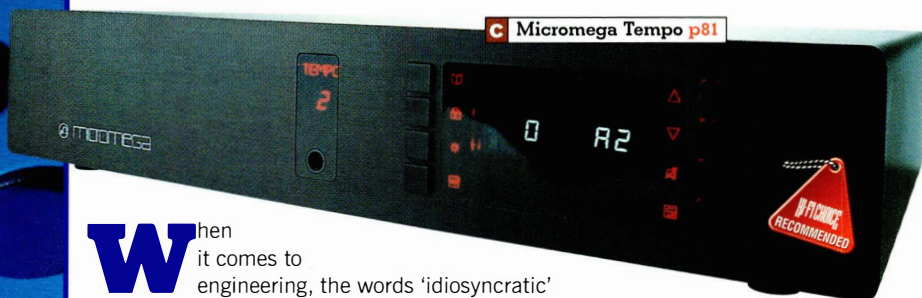
all the right buttons.

The other Best Buy, **Musical Fidelity's X-A1**, is priced very competitively given its engineering values and performance. It knocked the socks off the panel and the author alike. After a long wait, this model is perhaps the most worthy latter-day descendant of the legendary MF A1 from the '80s, and will almost certainly repeat its predecessor's success.



B Orelle SA-100RX p76

RECOMMENDED



C Micromega Tempo p81

When it comes to engineering, the words 'idiosyncratic' and 'French' are hard to separate, and the **Micromega Tempo 2** is nothing if not idiosyncratic. (Or French, for that matter.) It is attractively packaged and exhibits some interesting interface ideas, plus Micromega has an upgrade policy which allows Tempo 1 users to migrate up to the Tempo 2, or for Tempo 2 users to go the pre/power route. Most importantly, the Tempo 2 is a fluid, open and finely-detailed amplifier, if rather lean in balance.

The **Denon PMA-1500R** offered less musical finesse, but is Recommended nevertheless for its extraordinary value for money and high power yield. The **Primare A-20mkII**, which was not *HFC* reviewed in its original guise, gets the author's prize for styling and presentation, and is now a superb all-rounder, not the finely-detailed but rather restrained animal of yore. It came closer than most to full Best Buy status.

Finally, the **Arcam Alpha 10** came somewhere in the middle sonically. This is an extraordinary design in many ways, old hat aesthetics apart. It offers unrivalled flexibility, with multi-room, AV, phono, bi-amp and other options available as add-ins.



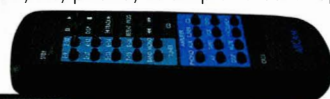
A Denon PMA-1500R p70

BEST OF THE REST

The **Arcam Alpha 9** (£500) is probably a close equal to the Alpha 10 reviewed in this test, but without the modularity and flexibility that is the hallmark of the newcomer. The £500 **Audiolab 8000A** is evergreen at the same price point, though the stripped-down £700 **8000S** is the more exciting and dynamic musical choice. Bear in mind that both of these will shortly be replaced by revamped TAG McLaren Audio alternatives. The glamorous £500 **Sony TA-F3000ES** is not massively powerful but a musical tour de force at this price. And don't forget the £575 **Naim Nait 3**, which demands careful system matching and is much less powerful than the others, but has unusual dynamic capabilities.

In the middle-price ground, the £600 **Myryad MI120** was recommended in our tests, and the innovative **Roksan Caspian** (£695) continues to be a key alternative to Primare, and enjoys more widespread distribution. The **Musical Fidelity A220** is a powerful midprice contender at £700, and the £650 **Densen Beat B-100mkII** is an interesting alternative which trades euphony for bottle.

At the top of our chosen price band, there are several extremely capable designs that demand to be shortlisted, namely the £945 **Copland CSA8**, which is sophisticated both in its sound and industrial design. The £995 **Electrocompaniet ECI-2** is rather more prosaically designed, but a compelling performer that should not be overlooked. Finally, the **AVI S2000MI** (£999) is a thoroughbred design with acknowledged reliability, minimalist aspect, rugged build and an unassumingly transparent musical performance.



B Arcam Alpha 10 p74



B Primare A20mkII p77



Roksan Caspian

Five Stars

Paul Messenger explains why you should visit an independent

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

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

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

Power of the Press

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

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

We hacks get paid to write words, often about components in isolation, because



individual product reviews are still the staple diet of the press. They can sometimes provide a useful guide to the way a product performs, but only under the particular circumstances in which the review was conducted.

The hi-fi reviewer attempts, with varying degrees of success, to evaluate a particular component, and find something interesting (and hopefully positive) to say about it. That's about the end of it, and it's on to the next product.

The magazine prints the review, and that very process magically confers a measure of authority. Experienced hi-fi

enthusiasts, who read reviews over a period of years and try out various products themselves, soon start to realise the limitations of that approach. Some reviews are better than others, but none can get to grips with the real heart of the problem - whether a given product will improve your musical satisfaction, in your system and your room.

The Role of the Dealer

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

His motivation is very different too.

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

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

If you go in and say you're looking for a CD player, and want his advice on what to choose, things are liable to become more interesting. The onus is now on the dealer to show what he can do. His first task is to ask the right questions to try and get some idea of what you might be after.

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

For Value

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

decision making process.

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



than any cute little mini system package. It might even rate a five star review. But it won't match the potential of a carefully balanced and properly installed system, and it certainly won't cater for your own particular preferences and personality.

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

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

You know full well that your music collection is as individual as your wardrobe, and just as precious too, so it's worth taking the time and trouble to search out the dealer and equipment that will make that collection come alive, and give you a new buzz every time you play your favourite discs.

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

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

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

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

The specialist Dealers listed here are professional and enthusiastic. Give your nearest a ring for a demonstration.

STAR QUALITIES

- value for money ★★★★★
- service ★★★★★
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- verdict ★★★★★

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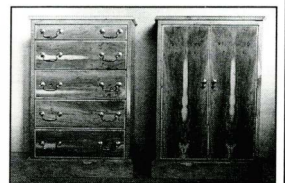
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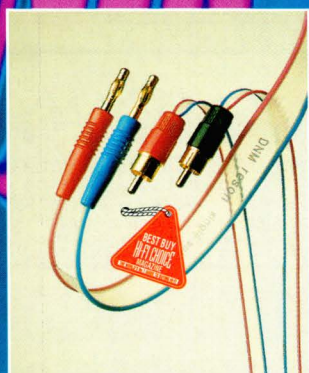
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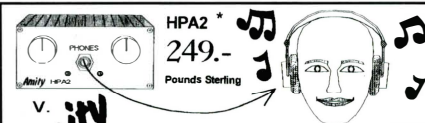
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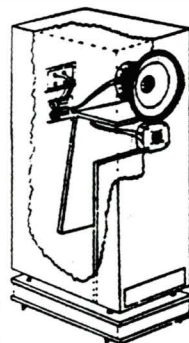
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STEP 1 Discover which products fall within your budget by using our Price Guide (starts on the next page). This listing is updated bi-monthly and includes all hi-fi products currently available in the UK. It is organised by product type, then by price band, and is sorted alphabetically. Products whose names are printed in **red** are those we have reviewed. That leads us to...

STEP 2 Read about the hi-fi equipment we have reviewed in the Directory (starts after the Price Guide). Here you will learn which items have been singled out for our famous Best Buy and Recommended awards that denote products of exceptional quality and value. The Directory is sorted by product type and listed alphabetically, and the beginning of each section provides essential information about each kind of hi-fi component.

STEP 3 Find your nearest hi-fi store in our Dealer Directory (at the end of the 'reviewed product' directory) to book a demonstration of the products you are interested in.

Best Buys and Recommendations

If you see a Best Buy (**red**) or Recommended (**blue**) flag at the beginning of an entry in our Directory of reviewed products, the item concerned is particularly deserving of your attention.

B **Red** signifies the Best Buy swing-tag, which indicates products of the best quality and superb value for money in their price category.

R **Blue** Recommended products offer excellent quality and value, but not the same cost-effectiveness as a Best Buy.

Please note that an expensive Recommended product will nearly always perform better than an inexpensive Best Buy.

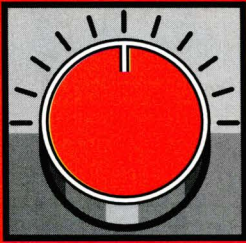
Using Best Buys and Recommendations to buy hi-fi

Do not commit the cardinal sin of dashing into your local dealer, magazine in hand, demanding to purchase Best Buy CD player A, Best Buy amplifier B and Best Buy speakers C. This is unlikely to result in your long-term satisfaction. Our belief at *Hi-Fi Choice* is that you must consider the hi-fi system as a complete entity, not as a collection of components. While a superb system might well contain Best Buy and Recommended components, one cannot lump together Best Buys and Recommendations in the hope that they will automatically perform superbly. These ratings make a useful guideline for short-listing components worth trying, but only by hearing them for yourself can you draw meaningful conclusions about what suits your taste. Furthermore, don't panic if the dealer offers you equipment that we have not tested. At the end of the day, what matters most is that your hi-fi system fits your tastes like a glove, and it is the dealer's challenge to ensure your satisfaction by any means – and components – necessary!



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NAD 312	Ⓢ	25W	200
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Pioneer A-204R	Ⓢ	25W	160
Pioneer A-300R	Ⓢ	50W	200
Pioneer A-305R	Ⓢ	50W	200
Pioneer A-405R	Ⓢ	45W	250
Rega Brio	Ⓢ	30W	229
Rotel RA921	Ⓢ	20W	100
Rotel RA-931	Ⓢ	35W	150
Rotel RA971	Ⓢ	70W	200
Sansui AUX-410R	Ⓢ	50W	150
Sansui AUX-510R	Ⓢ	70W	230
Sherwood AX 4050R	Ⓢ	50W	150
Sherwood AX-7030R	Ⓢ	95W	250
Sony TA-FE210	Ⓢ	45W	130
Sony TA-FE310R	Ⓢ	45W	150
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Sony TA-F448EB	Ⓢ	55W	250
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TEAC A-R500	Ⓢ	90W	250
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Musical Fidelity A2	Ⓢ	25W	500
Myryad T-40	Ⓢ	50W	400
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Shearpe 2.5	Ⓢ	35W	489
Sony TA-FA3ES	Ⓢ	70W	400
Sony TA-F3000ES	Ⓢ	35W	500
Talk Electronics Storm 1	Ⓢ	50W	500
TEAC A-H500	Ⓢ	50W	280
Technics SU-A8000 Mk2	Ⓢ	55W	300
Technics SU-A9000 Mk2	Ⓢ	70W	400
Yamaha AX-592	Ⓢ	100W	280

£501 to £700

Alchemist Kraken APDGA	Ⓢ	55W	600
Alchemist Nemesis	Ⓢ	80W	700
Audio Analogue Puccini SE	Ⓢ	50W	595
Audio Note Kanji Line SE	Ⓢ	9W	699
Audio Note First integrated	Ⓢ	40W	699
Audiogram MB2	Ⓢ	60W	599
Audiolab 8000S	Ⓢ	60W	700
CR Dev Kalypso	Ⓢ	15W	599
CR Dev CR325	Ⓢ	175W	699
Creek 5250R	Ⓢ	50W	575
Creek 5250SER	Ⓢ	60W	665
Densen Beat B-100 MkII	Ⓢ	60W	650
DPA Renaissance int.	Ⓢ	40W	595
Exposure XV Super	Ⓢ	55W	700
Fase Evoluzione Performance 2.0	Ⓢ	40W	570
Gamma Gemini	Ⓢ	12W	699
H/K HK660	Ⓢ	65W	700
Hi Q Sound MCI	Ⓢ	40W	565
JoLida 202	Ⓢ	30W	695
LFD Integrated 0	Ⓢ	50W	549
Linn Majik (Line)	Ⓢ	33W	650
Lynwood Opal	Ⓢ	80W	685
Magnum IA200	Ⓢ	100W	599
Magnum Class A	Ⓢ	85W	690
Mission Cyrus III	Ⓢ	50W	598
Musical Fidelity A220	Ⓢ	50W	700
Myryad MI 120	Ⓢ	60W	600
Naim Nait 3	Ⓢ	30W	575
Orelle SA-100RX	Ⓢ	75W	649
Prime Design A-100	Ⓢ	100W	650
Quad 77 Integrated	Ⓢ	85W	700
Roksan Caspian	Ⓢ	70W	695
Rose Scion	Ⓢ	65W	615
Shearpe Phase 2	Ⓢ	50W	649
Stemfoort SF60	Ⓢ	60W	549
Talk Electronics Storm 2	Ⓢ	50W	650
TEAC A-BX7R	Ⓢ	50W	700

£701 to £1000

Alchemist Forseti Integrated	Ⓢ	100W	1,000
Audio Note Oto Line PP	Ⓢ	12W	950
AVI S2000MI	Ⓢ	100W	999
Copland CSA8	Ⓢ	60W	945
Creolo IMP702	Ⓢ	70W	850
Creolo IMP703	Ⓢ	70W	1,000
Electrocompaniet ECI-2	Ⓢ	50W	995
Exposure XV Super	Ⓢ	55W	800
Fase Evoluzione Performance 1.1	Ⓢ	70W	790
Fase Evoluzione Performance 1.0	Ⓢ	60W	790
Golden Tube Audio SI-50	Ⓢ	50W	1,000
H/K HK680	Ⓢ	85W	1,000
LFD 0 LE Integrated	Ⓢ	60W	799
Linn Majik (Phono)	Ⓢ	33W	800
Magnum Class A SE	Ⓢ	80W	795
Marantz PM-17	Ⓢ	60W	900
Meridian 551	Ⓢ	55W	795
Micromega Tempo 1	Ⓢ	50W	750
Micromega Tempo 2	Ⓢ	75W	950
Naim Nait 3 R	Ⓢ	30W	760
Opera Aida	Ⓢ	60W	795
Pioneer A-07	Ⓢ	80W	999
Primare A20	Ⓢ	60W	799
Rega Elicit	Ⓢ	70W	730
Shearpe Phase 2 Reference	Ⓢ	50W	799
Sonneteer Alabaster	Ⓢ	50W	900
Stemfoort SF100	Ⓢ	100W	849
TEAC AB-X10	Ⓢ	100W	1,000

£1001 to £2000

Art Audio Integra	Ⓢ	30W	1,499
ATC SIA2-150	Ⓢ	150W	1,984
Audio Note Soro Line PP	Ⓢ	20W	1,200
Audio Note Oto Line SE	Ⓢ	12W	1,200

Audio Note Oto Phono SE	Ⓢ	12W	1,500
Audio Note Soro Line SE	Ⓢ	18W	1,699
Beam-Echo SA-50	Ⓢ	50W	1,950
Bow Technologies Wazoo	Ⓢ	50W	1,795
Bryston B-60	Ⓢ	60W	1,249
Copland CSA14	Ⓢ	70W	1,199
Copland CSA28	Ⓢ	1,299	
Copland CTA401	Ⓢ	25W	1,699
CR Dev Romulus V3	Ⓢ	35W	1,198
CR Dev Remus V3	Ⓢ	60W	1,989
Creolo LIM 702	Ⓢ	1,191	
Creolo LIM 703	Ⓢ	1,249	
EAR 834	Ⓢ	40W	1,999
Graaf Venticinque	Ⓢ	20W	1,695
LFD Integrated 1	Ⓢ	65W	1,099
Meracrus Intrare	Ⓢ	60W	1,095
Primare A301	Ⓢ	80W	1,699
Rogers E-20a	Ⓢ	20W	1,229
Rogers E-40a	Ⓢ	40W	1,900
Sonic Frontiers Anthem Integrated	Ⓢ	25W	1,299
T+A PA1200	Ⓢ	90W	1,350
T+A R1200R	Ⓢ	90W	1,495
T+A PA1500	Ⓢ	135W	1,650
T+A R1500R	Ⓢ	135W	1,895
Unison Simply Two	Ⓢ	12W	1,100
Unison Simply Four P	Ⓢ	24W	1,600
Unison Pentode 35	Ⓢ	35W	1,650
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

Aldyton Opera	Ⓢ	50W	2,595
Audio Note Meishu Line	Ⓢ	9W	2,750
Audio Note Ongaku	Ⓢ	26W	56,000
Audio Research CA50	Ⓢ	3,990	
Cary CAD-300SEI	Ⓢ	11W	3,995
Conrad-Johnson CAV-50	Ⓢ	50W	2,495
EAR V20	Ⓢ	24W	2,495
EAR 859	Ⓢ	13W	2,499
Electrocompaniet ECI-1	Ⓢ	100W	2,195
Gamma Rhythm	Ⓢ	18W	2,499
Gamma Rhythm Ref	Ⓢ	20W	3,499
Gamma Moment	Ⓢ	40W	19,999
Jadis DA30	Ⓢ	30W	3,490
Jadis DA60	Ⓢ	60W	5,750
Krell KAV300i	Ⓢ	150W	2,550
McIntosh MA6400E	Ⓢ	100W	3,999
McIntosh MA8800E	Ⓢ	150W	5,999
Meracrus Onesta	Ⓢ	75W	2,595
Musical Fidelity A1001	Ⓢ	200W	2,500
Pioneer A-09	Ⓢ	45W	4,000
Rowland Concentra	Ⓢ	100W	5,500
Tube Tech Unisis Sig. Int.	Ⓢ	30W	2,300
Tube Tech Synergy PPS	Ⓢ	150W	6,900
Unison Simply 845	Ⓢ	24W	3,195
Unison Performance One	Ⓢ	25W	4,500
Unison 845 Absolute	Ⓢ	40W	11,995

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

Art Audio Minuet	Ⓢ	499	
Audio Analogue Bellini	Ⓢ	475	
Audio Note The M	Ⓢ	350	
Beam-Echo PP-21	Ⓢ	499	
Bryston BP1	Ⓢ	438	
Carver CT-24	Ⓢ	499	
CR Dev Themis	Ⓢ	349	
Creek P43	Ⓢ	399	
Creek P52	Ⓢ	499	
Crimson CS610C	Ⓢ	450	
EAR 834P	Ⓢ	349	
EAR 834L	Ⓢ	449	
Electrocompaniet ECP-1	Ⓢ	495	
Fase Evoluzione Phondrive 1.0	Ⓢ	445	
Henley HMC50	Ⓢ	200	
Henley HMC100	Ⓢ	450	
Hi Q Sound LCP2	Ⓢ	149	
LFD Mistral Linestage	Ⓢ	449	
LFD LSO Linestage	Ⓢ	499	
Lumley PP70	Ⓢ	345	
Lumley PP1	Ⓢ	345	
Magnum MP120	Ⓢ	330	
Magnum MP660	Ⓢ	500	
Magnum MP330	Ⓢ	500	
Monrio ADN-N	Ⓢ	295	
Monrio Asty L	Ⓢ	500	
Monrio Asty P	Ⓢ	149	
Moth 30 Passive	Ⓢ	249	
Moth 30 Active	Ⓢ	349	
Musical Fidelity X10-D	Ⓢ	120	
Musical Fidelity X-LP	Ⓢ	130	
Musical Fidelity X-PR	Ⓢ	200	
Musical Fidelity E20	Ⓢ	400	
NAD 114	Ⓢ	270	
NAD 116	Ⓢ	430	

Naim Prefix	Ⓢ	350	
Naim NAC92	Ⓢ	470	
Parasound P/HP-100	Ⓢ	400	
Parasound P/HP-850	Ⓢ	130	
Rega EOS	Ⓢ	398	
Rega Cursa	Ⓢ	450	
Roksan Artaxerxes 10	Ⓢ	395	
Rose RV-23	Ⓢ	450	
Rotel RQ970BX	Ⓢ	130	
Rotel RC971	Ⓢ	150	
Rotel RC972	Ⓢ	225	
Talk Electronics Hurricane 1	Ⓢ	500	
Technics SU-C1000 Mk2	Ⓢ	300	
Trilogy 905	Ⓢ	375	
Trilogy 904	Ⓢ	375	

Lumley LV1	£	1,150	DNM 3C Six	£	5,050	75W	750	Tube Tech Unisis Sig. Pwr	30W	1,900
Lumley PV1.5	£	1,700	EAR 802MC	Ph	2,599	150W	1,160	Unison Power 35	35W	1,500
Lumley PV1	£	1,700	EAR G88	£	9,999	150W	1,160	Woodside SA240	40W	1,199
Matisse Atom	£	1,000	EAR P52	£	15,999	150W	1,262	Woodside MA100	100W	1,733
McIntosh C712	£	1,999	Gamma Era Ref	£	7,999	500W	1,545	Woodside STA50	50W	1,880
Meracrus Ingridi	£	925	Graaf GM13.5B	£	3,750	300W	1,756	XTC POW-2	150W	1,450
Meridian 501	£	695	Jadis DP60L	£	2,800	500W	1,815	Yamaha MX-2	150W	750
Meridian 562	£	765	Jadis DPL	£	3,190	300W	1,850	YBA 3 stereo		1,299
Meridian 562V	£	995	Jadis DPMC	£	3,190	500W	1,886	Over £2000		
Meridian 502	£	1,295	Jadis JPL	£	4,720	250W	949	Adyton Cordis 1.6	120W	3,495
Michell Argo	£	730	Jadis JPP200	£	4,998	380W	1,299	Adyton Cordis 3B	280W	12,995
Michi RHC-10	£	795	Jadis JP30MC	£	5,978	100W	1,325	Alchemist The Alchemist pwr	220W	3,995
Michi RHQ-10	£	1,150	Jadis JPS2	£	7,900	130W	1,720	Alchemist The Alchemist mono	55W	8,995
Michi RHA-10	£	1,150	Jadis JP80MC	£	11,989	50W	1,995	Art Audio Tempo	30W	2,499
Micromega Tempo P	£	1,250	Krell KRC3	£	3,250	30W	1,750	Art Audio Quintet SE	-W	2,500
Mission Cyrus Pre	£	648	Krell KRC-HR	£	6,949	12W	1,949	Art Audio Maestro	100W	3,524
Monrio Pluri-L II	£	900	LFD Disc Preamp	£	4,499	80W	1,876	ATC SPA2-200PRO	200W	2,056
Muse Model 3	£	1,990	Mark Levinson 25S	£	2,950	100W	599	ATC SPA2-150	200W	2,500
Musical Fidelity F25	£	1,500	Mark Levinson 380	£	3,995	100W	800	Audio Note P3	9W	2,150
NAD 118	£	1,000	Matisse Fantasy	£	6,495	100W	1,200	Audio Note Quest	9W	2,750
Naim NAC92R	£	630	Matisse Reference	£	3,500	45W	1,000	Audio Note Yubi	18W	3,850
Naim NAC72	£	725	McIntosh C22	£	1,050	45W	1,650	Audio Note Conquest	18W	4,450
Naim NAC102	£	1,850	McIntosh C40	Ph	850	100W	995	Audio Note Tomei	30W	8,500
Quad 77 Pre	£	998	McIntosh C39	Ph	998	25W	1,895	Audio Note Neiro	7W	11,360
Rega Hal	£	998	Meracrus Pretare	Ph	1,250	50W	880	Audio Note Ankoru	60W	14,500
Roksan ROK-L2.5	£	525	Naim NAC82	£	525	60W	1,095	Audio Research D130	130W	2,299
Rose RV-23S	£	525	Naim NAC52	£	899	60W	850	Audio Research VT60	35W	2,395
Rotel RC995	£	525	Naim NAC52	£	899	65W	850	Audio Research D300	300W	4,678
Shearpe Phase 6 Pre	£	899	Roksan ROK-L1.5	£	2,250	100W	860	Audio Research VT100	100W	4,995
Shearpe Phase 1 Pre Ref	£	1,399	Rowland Synergy	£	4,999	100W	1,670	Audio Research D400 MkII	400W	6,850
Siemal MC20	£	650	Tesslar Coherence	£	14,999	40W	1,100	Audio Research VT130 SE	130W	8,500
Siemal MM20	£	650	Sonic Frontiers Line 1	£	2,499	8W	1,490	Audio Research VT150 SE	150W	17,000
Siemal TU10	£	1,599	Sonic Frontiers Line 2	£	3,299	100W	1,995	Audio Synthesis Desire Decade	200W	2,495
Siemal TR20	£	1,599	Sonic Frontiers Line 3	£	4,999	25W	1,395	Beam-Echo DL7-35	30W	3,525
Sonic Frontiers Anthem Pre 1P	£	899	T+A Pre DA3000	£	2,800	120W	1,045	Border Patrol 300B SE	10W	3,495
Sonic Frontiers Phono 1	£	1,999	Tesserae TAP-A	£	5,300	70W	715	Boulder 102AE	100W	2,800
Sonographe SC26	£	995	Trilogy 918	£	2,775	40W	1,997	Boulder 102M	100W	3,100
Sumo Athena II Line	£	767	Unison Dream	£	1,995	120W	1,850	Boulder 500AE	150W	4,995
Sumo Athena IIB/II LS	£	987	Woodside SC26 Line & Phono	£	2,233	60W	999	Boulder 500M	150W	5,500
Sumo Athena III	£	987	YBA 1	£	3,500	75W	1,599	Boulder 2060	600W	19,000
Sumo Artemis uP	£	1,595				90W	1,999	Boulder 2050	999W	35,000
T+A P1200R	£	890				50W	650	Bryston THX8B	150W	2,385
Talk Electronics Hurricane 2	£	650				120W	750	Cary CAD-572SE	20W	2,495
Talk Electronics Hurricane 3	£	900				100W	1,200	Cary CAD-300SE	12W	3,995
Talk Electronics Hurricane 4	£	1,550				120W	985	Cary 300SE Sig	12W	4,795
Talk Electronics Hurricane 5	£	1,900				150W	685	Cary CAD-805	50W	8,995
Technics SU-C2000	£	700				125W	825	Chord SPM 800	160W	2,265
Tesserae TAADA	£	1,500				200W	1,485	Chord SPM 1000B	200W	2,785
Tesserae TALA	£	1,500				100W	1,595	Chord SPM 1200B	250W	3,525
Tesserae TAHA	£	1,800				60W	1,999	Chord SPM 1200C	315W	3,915
Thorens TTP-2000F	£	699				100W	1,095	Chord SPM 1600	200W	4,718
Trilogy 901	£	750				60W	750	Chord SPM 1400B mono	380W	7,830
Trilogy 906	£	995				100W	895	Chord SPM 5000	415W	13,544
Trilogy 902	£	1,595				160W	1,400	Conrad-Johnson MF-2300A	250W	2,990
Tron Retro	£	1,000				100W	1,590	Conrad-Johnson Premier 11A	70W	3,500
Tron Nucleus Phono	£	2,000				160W	1,150	Conrad-Johnson Premier 12	140W	6,900
Tron Nucleus	£	2,000				100W	1,989	Conrad-Johnson Premier 8X	150W	17,000
Tube Tech Seer Line	£	935				1,100	1,999	Conrad-Johnson Premier 8A	275W	17,000
Tube Tech Mac Phono	£	1,150				200W	2,000	CAT JLI	100W	18,000
Tube Tech Prophet	£	1,970				100W	1,250	Copland CTA505	67W	2,099
Unison Feather One	£	795				100W	950	CR Dev Artemis	35W	4,995
Unison Mystery Two	£	1,750				135W	1,495	Crede LP0 804		2,456
Unison Mystery One	£	1,750				135W	1,750	Crede PMP 155		2,676
Unison VPP One	£	1,995				60W	599	Crede LP0 455		4,975
Van Den Hul Pre-amp	£	1,700				100W	879	Crede LP0 155		6,983
Wilson Benesch Stage One	£	995				100W	1,490	DNM PA3	50W	2,500
Woodside SC27 Line	£	949				200W	1,000	DNM P3SS	23W	3,750
Woodside SC26 Line	£	1,557				200W	850	DPA DAP500S	250W	3,000
XTC PRE-1	£	1,250				45W	750	Dynavector HX7.5	75W	2,195
Yamaha CX-2	£	650				60W	1,060	Dynavector HX12	130W	3,995
YBA 3	£	1,199				75W	1,655	EAR 861	32W	3,299
YBA Integre	£	1,199				70W	1,655	EAR 509 Mk II	100W	3,699
YBA 2	£	1,999				50W	1,425	EAR S19	100W	4,699
						125W	600	EAR 549	200W	6,499
Over £2000										
Adyton Temper	£	2,495	Parasound HCA-750A	£	75W	450	1,000	Electrocompaniet AW100DMB	100W	2,095
Adyton Modus	£	2,695	Rega Maia	£	85W	450	1,000	Electrocompaniet AW120DMB	120W	2,695
Alchemist The Alchemist pre	£	4,995	Rotel RB971	£	70W	200	150W	Electrocompaniet AW250DMB	250W	3,995
ATC SCA2	£	2,499	Rotel RB981	£	130W	300	150W	Electrocompaniet AW180MB	180W	4,595
Audio Note M3Line	£	2,650	Rotel RB991	£	200W	500	80W	Exposure IV	80W	2,199
Audio Research LS15	£	3,399	Shearpe 3.5	£	35W	469	125W	Exposure XVI	125W	4,000
Audio Research LS22	£	4,391	Talk Electronics Tornado 1	£	50W	450	70W	Gamma Aeon	20W	4,999
Audio Research LS5 MkIII	£	6,435	Technics SE-A1000 Mk2	£	70W	350	100W	Gamma Space Ref	20W	7,999
Audio Research REF 1	£	9,900					75W	Gamma Aeon Ref	70W	49,999
Boulder L3AE	£	2,100	Alchemist Kraken pwr	£	60W	550	50W	Graaf 5050	50W	2,100
Boulder L5AE	£	3,400	Alchemist Forseti Pwr	£	150W	1,350	50W	Graaf GM20	60W	2,750
Boulder L5M	£	3,800	Art Audio Quintet	£	15W	1,393	100W	Graaf GM100	100W	4,250
Boulder 2010	£	19,995	Art Audio Quintet SE MB	£	-W	1,500	40W	Graaf GM200	200W	7,500
Cary SLP-98L	£	2,595	Art Audio Concerto	£	50W	1,669	125W	Jadis DA8	80W	3,333
Chord CPA 2200	£	2,355	Audio Analogue Donizetti	£	60W	575	220W	Jadis DA7	100W	5,290
Chord CPA 2800	£	3,246	Audio Note The P	£	40W	550	164W	Jadis JA30	30W	5,980
Chord CPA 3200	£	3,320	Audio Note P0	£	9W	599	60W	Jadis JA300B	10W	9,000
Chord CPA 4000	£	3,320	Audio Note P1	£	12W	750	240W	Jadis JA80	60W	9,912
Conrad-Johnson PF-R	£	6,210	Audio Note P1SE	£	12W	999	110W	Jadis JA200	160W	15,518
Conrad-Johnson PV-12A	£	2,490	Audio Note P2	£	20W	1,000	140W	Jadis JA500	400W	21,500
Conrad-Johnson Premier 15	£	3,995	Audio Note P2SE	£	18W	1,499	65W	Krell KAV500/2	100W	3,485
Conrad-Johnson Premier 14	£	4,495	Audio Note Conqueror	£	8W	1,599	100W	Krell FPB200	200W	6,490
Conrad-Johnson Art	£	14,995	Audiolab 8000SX	£	60W	550	110W	Krell FPB300	300W	9,500
CAT SL1 Sig. Mk3	£	4,995	Audiolab 8000PX	£	100W	850	100W	Krell FPB600	600W	12,900
CR Dev Kastor	£	2,995	Audiolab 8000MX	£	125W	1,800	30W	Krell KAS2	200W	20,000
Crede LPR 001	£	2,815	Aura PA-100	£	100W	700	50W	Lexicon 225	250W	2,500
DNM 3C Primus	£	2,550	Aura PA-200	£	110W	1,200	22W	Lexicon 501	500W	5,000
DNM 3C Twin	£	3,800	Aura PA-200 C	£	100W	1,250	45W	Linn Klout	80W	2,400
			AVI S2000MM	£	150W	1,399				

Power Amps

KEY

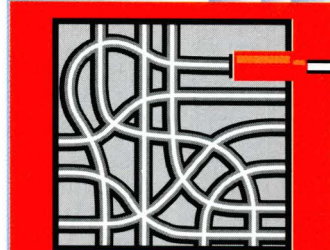
'20W' - output power per channel

into nominal load of 8 Ohms.

Up to £500

Arcam Alpha 8P	50W	250
Arcam Alpha 9P	70W	400
Arcam Delta 290P	75W	400
Creek A43	50W	399
Creek A52	70W	499
Crimson CS620C	50W	450
Earmax Headphone		

Lumley M125	120W	3,750
Lumley M250	250W	7,500
Magnum Class A mono	180W	2,450
Magnum A200SE	275W	3,750
Mark Levinson 331	100W	4,495
Mark Levinson 332	200W	6,495
Mark Levinson 333	300W	8,495
Mark Levinson 33H	150W	19,395
Matisse Ref Monoblocks	180W	8,000
McIntosh MC150	150W	3,499
McIntosh MC300	300W	3,999
McIntosh MC500	500W	8,999
McIntosh MC1000	999W	14,999
Meracus Tentare	75W	2,245
Meracus Cantare	-W	8,995
Muse Model 160 Ser. II	160W	2,290
Muse Model 150	125W	2,690
Muse Model 175 Ser. II	175W	3,490
Muse Model 300 Ser. II	300W	3,990
Musical Fidelity F16	200W	2,500
Musical Fidelity F19	300W	4,000
Papworth M100	100W	2,645
Papworth M200	200W	3,825
Roksan ROK-M1.5	160W	2,250
Rowland Model 2	75W	4,999
Rowland Model 6	150W	10,999
Rowland Model 8T	250W	12,499
Rowland Model 9T	350W	27,999
Shearne Phase 1 Pwr Ref	100W	2,199
Siemel TAZ2		2,350
Sonic Frontiers Power 1	55W	2,499
Sonic Frontiers Power 2	110W	4,999
Sonic Frontiers Power 3	220W	8,999
Sumo Model Ten/M	240W	4,200
Sunfire Sunfire	300W	2,170
T+A A3000	190W	3,000
Talk Electronics Tornado 5	200W	2,100
Tesserac TAMP-60	60W	7,350
Trilogy 958T	45W	3,395
Trilogy 958	100W	3,395
Tube Tech Genesis Sig.	100W	4,700
Tube Tech Synergy DMA	150W	6,400
Unison Smart 845	24W	3,500
Unison Smart 300B	24W	4,250
Unison Palladio	32W	11,995
Van Den Hul Power amp	65W	2,500
XTC POW-1	200W	2,250
YBA 2 stereo		2,200
YBA 1 HC stereo		4,999



CABLES
ANALOGUE INTERCONNECTS

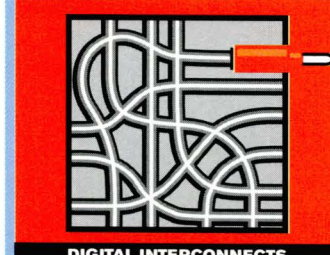
KEY
 ☉ - stranded construction.
 ● - solid-core construction.

Prices of interconnects are for a one-metre terminated pair.

Apertura Model B	☉	260.00
Apertura Model A	☉	469.00
Art Yam Church 5000	☉	515.00
Audio Note AN-A	☉	18.00
Audio Note AN-C	☉	35.00
Audio Note AN-S	☉	99.00
Audio Note AN-V	☉	179.00
Audio Note AN-Vx	☉	450.00
Audioquest Jade	☉	30.00
Audioquest Turquoise 2	☉	40.00
Audioquest Topaz 2	●	59.95
Audioquest Ruby 2	☉	80.00
Audioquest Quartz	☉	125.00
Audioquest Opal	☉	200.00
Audioquest Emerald	☉	260.00
Audioquest Lapis	☉	399.00
Audioquest Diamond	☉	549.00
Cable Talk Improved 2/CD	☉	26.00
Cable Talk Advanced 2	☉	34.95
Cable Talk Improved 2/Tape	☉	47.00
Cable Talk Monitor 2.1	☉	50.00
Cable Talk Studio 2	☉	65.00
Cable Talk Professional 2	☉	85.00
Cable Talk Broadcast 2	☉	100.00
Cable Talk Reference 2	☉	150.00
Cable Talk Signature 2 Gold	☉	300.00
Cambridge Atlantic	☉	10.00
Cambridge Arctic	☉	20.00

Cambridge Pacific	☉	30.00
Cambridge Studio Reference	☉	40.00
Cambridge Silver Spirit 40	☉	70.00
Cambridge Silver Spirit 60	☉	100.00
Cardas Audio 300B-Microtwin	☉	115.00
Cardas Audio Quadlink-Five	☉	200.00
Cardas Audio Cardas Cross	☉	360.00
Cardas Audio Hexlink-Five C	☉	530.00
Cardas Audio Hexlink Golden-5 C	☉	600.00
Cardas Audio Golden Cross	☉	700.00
ChordCo Chrysalis	☉	33.00
ChordCo Cobra 2	☉	50.00
ChordCo Siren	☉	65.00
ChordCo Chameleon	☉	85.00
ChordCo Solid	☉	99.00
ChordCo Chorus	☉	185.00
Connections UK Ultra	☉	28.00
Connections UK Midas	☉	39.00
Connections UK HD	☉	46.00
DBF Acoustics Black Velvet	☉	30.00
DBF Acoustics Black Velvet SE	☉	40.00
DBF Acoustics Azure SE	☉	75.00
DNM-Reson TCC75	●	34.00
DPA Slink	●	41.00
DPA White Slink	●	75.00
DPA Black Slink	●	245.00
Expressive Tech IC-1	☉	700.00
Gamma Wow Balance	☉	799.00
Goertz M1 Interconnect	●	145.00
GT Audio Intercon	●	130.00
Henley HSP10	☉	20.00
Henley HSP50	☉	35.00
Henley HSP100	☉	65.00
Henley HSP200	☉	95.00
Heybrook Black Flash	●	49.95
Insert Audio Focus 1.2	☉	21.50
Insert Audio IC100 Mk II	☉	46.95
Insert Audio Status 3.4	☉	160.00
Ixos 104	☉	20.00
Ixos 1003	☉	30.00
Ixos Gamma 1002	☉	39.95
Ixos 103	☉	45.00
Ixos 102	☉	60.00
Ixos 101	☉	100.00
Ixos 100.X03	☉	150.00
Kimber PBJ	☉	68.00
Kimber KC1	☉	96.00
Kimber Hero	☉	110.00
Kimber Silver Streak	☉	180.00
Kimber KCAG	☉	390.00
Kimber KCTG	☉	720.00
Kronos Konnekt 3	●	49.00
Kronos Konnekt 2	●	99.00
Kronos Konnekt 1	●	199.00
LAT International IC-50	☉	37.00
LAT International IC-80	☉	60.00
LAT International IC-100-D	☉	89.00
LAT International IC-200 Mk II	●	151.00
Lieder Chanson	☉	340.00
Lieder Lek	☉	420.00
Lieder Het Lied	☉	420.00
Lieder Song	☉	580.00
Lieder Maas	☉	620.00
Lieder Rijn	☉	1,000.00
Lieder Waal	☉	1,400.00
Lumley Silver 12/2	☉	115.00
Lumley Silver 14/4	☉	175.00
Moth Leyline Black	☉	100.00
Moth Leyline Grey	☉	200.00
Nordost Magic	☉	35.00
Nordost Black Knight	☉	60.00
Nordost Blue Angel	☉	98.00
Nordost Blue Heaven I/C	●	144.95
Nordost Red Dawn	☉	285.00
Nordost SPM	☉	825.00
Ortofon 7N interconnect	☉	250.00
Precious Metals Silver Signal 35	☉	40.00
Precious Metals Silver Signal 50	☉	50.00
Precious Metals Silver Signal 52	☉	70.00
Precious Metals Silver Signal 53	☉	90.00
Precious Metals Silver Signal 100	☉	100.00
Precious Metals Silver Signal 102	☉	130.00
Precious Metals Silver Signal 103	☉	160.00
Precious Metals Silver Signal 104	☉	190.00
Precious Metals Silver Signal 200	☉	220.00
Precious Metals Silver Signal 202	☉	290.00
Precious Metals Silver Signal 203	☉	360.00
Precious Metals Silver Signal 204	☉	430.00
Prowire Silver	☉	60.00
PAD Elementa	☉	145.00
QED Qnect 2	☉	825.00
QED Qnect 4	☉	60.00
Roksan ROK-Intercon	☉	75.00
Shiny Red Devil	☉	80.00
Shiny Red Star 2	☉	120.00
Shiny Black Star 2	☉	240.00
Shiny Pulsar 2	☉	495.00
Shiny Quasar 2	☉	850.00
Siltech MC2-12	☉	308.00
Siltech MC4-24S	☉	400.00
Siltech FTM-3S	☉	730.00
Silver Sounds SS2	☉	99.00
Silver Sounds SS1	☉	199.00

Silver Tone Ex-Static	☉	35.00
Silver Tone Sci-Fi	☉	95.00
SME S2LB-4	☉	46.18
SME S3LB-4	☉	52.06
SME 4900A	☉	76.83
SME 5900A	☉	102.57
Sonic Link Red	☉	25.00
Sonic Link Silver pink	☉	35.00
Sonic Link Black	☉	49.00
Sonic Link White	☉	65.00
Sonic Link Brown	☉	70.00
Sonic Link Violet	☉	85.00
Sonic Link Maroon	☉	125.00
Sonic Link Blue Nickel	☉	150.00
Sonic Link Vermillion	☉	195.00
Sonic Link Red earth	☉	300.00
Sonic Link Black earth	☉	450.00
Sonic Link Blue earth	☉	695.00
Sonic Link Black Rhodium	☉	995.00
Straightwire Chorus	☉	40.00
Supra DAC-X	☉	60.00
Supra EFF-ISL	☉	80.00
Supra EFF-XLR	☉	90.00
Transparent Cable Musichord Int	☉	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 AI/2	☉	259.00
Vampire Wire SL	☉	412.00
Van Den Hul Storm	●	25.00
Van Den Hul Source HB	●	50.00
Van Den Hul DI02 III	☉	69.99
Van Den Hul Thunderline HB	☉	130.00
Van Den Hul First	☉	210.00
Van Den Hul Second	☉	240.00
Van Den Hul MC Gold	☉	400.00
Van Den Hul MC Silver IT	☉	1,240.00
Van Den Hul MC Silver IT Bal	☉	1,560.00
Wireworld Orbit	☉	30.00
Wireworld Solstice II	☉	40.00
XLO Type 150	☉	50.00
XLO Type 0.1	●	180.00



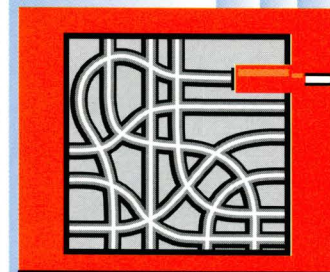
DIGITAL INTERCONNECTS

KEY
 ☉ - stranded construction.
 ● - solid-core construction.

Prices of interconnects are for a one-metre terminated pair.

Apertura Model B	☉	139.00
Apertura Model A	☉	255.00
Apogee Digital Wyde Eye	☉	20.00
Apogee Digital Wyde Eye Bal.	☉	30.00
Art Yam Church 5000	☉	275.00
Audioquest Digital/video 1	☉	30.00
Audioquest Digital/video 2	☉	60.00
Audioquest Optilink X	☉	90.00
Audioquest Digital PRO	☉	100.00
Audioquest Optilink Pro	☉	149.00
Audioquest Optilink Z	☉	179.00
Cable Talk Digital 2	☉	78.00
Cardas Audio Lightning	☉	190.00
ChordCo Codac	☉	36.00
ChordCo Prodac	☉	50.00
DNM-Reson DIG100	●	26.00
DPA Opti-link	☉	20.00
DPA Digi-link	☉	28.00
Insert Audio Dataline 500	☉	24.95
Insert Audio 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
Moth Leyline Datalink	☉	140.00
Nordost Moonjlo	☉	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
Shiny Digital	☉	265.00
Siltech HF-6	☉	145.00
Sonic Link Green	●	60.00
Supra EFF-ID	☉	45.00
Supra DAC-XLR	☉	45.00
Transparent Cable PDL	☉	199.00
Trichord Pulsewire 75D	●	75.00
Trichord Pulsewire 110D	●	145.00
Vampire Wire DI/1	●	150.00
Van Den Hul Source HB	☉	30.00
Van Den Hul Videolink	☉	60.00
Van Den Hul AES-EBU 110	☉	65.00
Van Den Hul First	☉	125.00
Van Den Hul Second	☉	130.00



SPEAKER CABLES

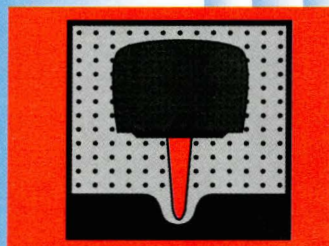
KEY
 ☉ - stranded construction.
 ● - solid-core construction.

Price per mono metre unterminated.

Acoustic Energy AESC-C3	☉	11.95
Apertura Silver	☉	82.50
Art Yam Church M2000	☉	470.00
Art Yam Church 5000	☉	795.00
Audio Note AN-D	☉	4.50
Audio Note AN-B	☉	16.50
Audio Note AN-L	☉	29.50
Audio Note AN-SP	☉	150.00
Audio Note AN-SPx	☉	450.00
Audioquest Type 2	☉	3.50
Audioquest F-18	☉	3.60
Audioquest Type 6+	☉	9.00
Audioquest Indigo +	☉	15.00
Audioquest Crystal +	☉	25.00
Audioquest Forest	☉	75.00
Audioquest Argent +	☉	125.00
Audioquest Clear 3	☉	200.00
Bandridge LC7409	☉	4.00
Bandridge LC4110	☉	28.00
Bandridge LC3410	☉	40.00
Bandridge LC3210	☉	75.00
Bandridge LC3219	☉	75.00
Bandridge LC3220	☉	90.00
Bandridge LC3310	☉	95.00
Bandridge LC3240	☉	125.00
Cable Talk Theatre 2	☉	1.50
Cable Talk The Flat One	☉	2.00
Cable Talk Talk 3.1	☉	2.25
Cable Talk Overture 2.1	☉	3.25
Cable Talk Talk 4.1	☉	4.25
Cable Talk Talk 3.1 Biwire	☉	4.50
Cable Talk Concert 2.1	☉	7.00
Cable Talk Talk 4.1 Biwire	☉	8.50
Cable Talk Symphony 3	☉	12.50
Cable Talk Concert 2.1 Biwire	☉	14.00
Cardas Audio 300B-Microtwin SC	☉	35.00
Cardas Audio Quadlink-Five SC	☉	59.00
Cardas Audio Cross SC	☉	99.00
Cardas Audio Hexlink-Five SC	☉	109.00
Cardas Audio Hexlink Golden5 SC	☉	175.00
Cardas Audio Golden Cross SC	☉	789.00
ChordCo Myth	●	6.00
ChordCo Legend	☉	15.00
DNM-Reson LSC	●	6.95
DNM-Reson LSCB	●	11.95
DPA Black Sixteen	●	100.00
Electrocompaniet EC-K2	☉	30.00
Gale XL105	☉	1.00
Gale XL189	☉	1.00
Gale XL315	☉	2.00
Gale XL160-2	☉	2.50
Gale XL315-2	☉	3.99
Gamma Wonder Line	☉	99.00
Goertz M1	●	16.00
Goertz M2	●	32.00
Goertz Big Boy	●	64.00
GT Audio Speaker	☉	50.00
Ixos 607	☉	2.00
Ixos 6004	☉	3.00
Ixos 6003	☉	3.00
Ixos 605	☉	3.00
Kimber 4PR	☉	3.90

Kimber 4VS	9.00
Kimber 4TC	19.60
Kimber 8TC	32.70
Kimber 4AG	394.00
Kimber 8AG	656.00
LAT International SS 800	21.00
LAT International BIWIRE	27.00
LAT International SS 1000	42.50
Lieder Pad	340.00
Lieder Bel Canto	450.00
Lieder Spoor	580.00
Lieder Straat	1,000.00
Lieder Weg	1,400.00
Linn K20	4.00
Linn K400	10.00
Linn K600	15.00
Lumley Silver 12/2	35.00
Lumley Silver 14/4	40.00
Mission Duet	1.90
Mission Quartet bi-wire	3.90
Naim NACA 5	5.50
Nordost Octava	3.00
Nordost 4-Flat	12.00
Nordost Blue Heaven Spkr	55.00
Nordost Red Dawn	110.00
Nordost SPM	325.00
Ortofon SPK100	3.00
Ortofon SPK200	5.00
Ortofon SPK300	8.00
Precious Metals Silver L'r 32	7.50
Precious Metals Silver L'r 102	10.00
Precious Metals Silver L'r 34	15.00
Precious Metals Silver L'r 104	20.00
Precious Metals Silver L'r 106	30.00
Precious Metals Silver L'r 108	40.00
Puresonic OFC 7892	1.20
Puresonic OFC 7844	1.65
Puresonic OFC 7845	1.95
Puresonic OFC 7891	2.85
Puresonic OFC 7816	3.75
Puresonic OFC 7832	3.75
Puresonic OFC 7812	3.75
Puresonic OFC 7825	6.95
Puresonic PSOCC 7801	9.50
Puresonic PSOCC 7802	18.00
Puresonic PSOCC 7803	27.00
QED Qudos Micro	1.25
QED Qudos micro 4 core	2.00
QED Qudos 4 core	4.50
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	39.00
Shinpy Red Star 2	30.00
Shinpy Black Star 2	62.00
Shinpy Pulsar 2	104.00
Shinpy Quasar 2	208.00
Siltech LS2-45	109.00
Siltech FT-12 MKI	240.00
Siltech LS4-120	549.00
Silver Sounds 12 Gauge	15.00
Silver Sounds 10 Gauge	35.00
Silver Sounds 8 Gauge	75.00
Silver Tone Silver-Sonic	10.00
Silver Tone Silver-Sonic HC	15.00
Silver Tone Silver-Voice	55.00
Silver Tone Silver-Voice Ultra	85.00
Sonic iLink AST50	1.95
Sonic Link AST75	2.75
Sonic Link AST200	5.95
Sonic iLink AST200x2	10.00
Sonic Link S300	18.00
Sonic Link S130x2	20.00
Sonic Link S300x2	35.00
Sonic Link S900	50.00
Sonic Link S600x2	70.00
Sonic Link RE3.1	90.00
Sonic Link RE3.4	330.00
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 Line 4.0 Flex	4.95
Supra Ply 3.4	6.95
Supra Quattro 4x4	8.95
Supra Classic 10	9.95
Tech + Link SPC 79	1.20
Transparent Cable Musichord Spkr	11.00
Transparent Cable The Wave	23.00
Transparent Cable Music Wave Spkr	25.00
Vampire Wire SC-384	11.00
Vampire Wire SC-554	15.00
Vampire Wire ST-I	30.00
Vampire Wire SC-1108	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 Clearwater	7.00
Van Den Hul Snowtrack	10.00
Van Den Hul CS122 HB	12.00
Van Den Hul Cleartrack	13.00
Van Den Hul D352 HB	20.00
Van Den Hul Teatrack HB	22.00
Van Den Hul SCS12	34.00
Van Den Hul Magnum HB	38.00
Van Den Hul The Wind HB	40.00
Van Den Hul Revolution HB	76.00
Van Den Hul Revelation HB	120.00
Van Den Hul The Third	900.00
XLO Pro 625	4.00
XLO Pro 600	16.60



CARTRIDGES

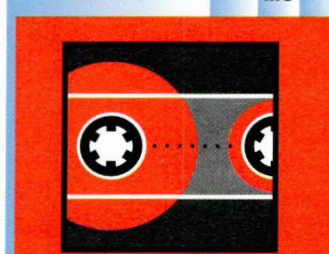
KEY
MM - moving-magnet type.
MC - moving-coil type.

Up to £100

Audio Note I01	MM	99
Audio Technica AT-91	MM	15
Audio Technica AT-95E	MM	20
Audio Technica AT-110E	MM	28
Audio Technica AT450E	MM	70
Audio Technica AT440ML	MM	90
Benz-Micro MC20EII	MC	70
Denon DL110	MC	70
Denon DL160	MC	70
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 ZFI +	MM	83
Grado Prestige Red	MM	99
N'ham Tracer I	MM	98
Ortofon VMS2	MM	15
Ortofon OM 5E	MM	20
Ortofon OM 10	MM	30
Ortofon 510	MM	40
Ortofon OM DJ	MM	50
Ortofon OM 20	MM	70
Ortofon 520	MM	70
Ortofon MC1 Turbo	MC	75
Ortofon Concorde DJ	MM	80
Ortofon OM 30	MM	90
Ortofon 530	MM	100
Pickering TE-15	MM	20
Pickering VE-15	MM	25
Pickering T-E	MM	25
Pickering V15-DJ	MM	28
Pickering TL-E	MM	35
Pickering TL-2E	MM	45
Pickering XV15-625E	MM	50
Pickering XV15-150-DJ	MM	50
Pickering TL-2-S	MM	55
Pickering XV15-757S	MM	60
Pickering XV15-625DJ	MM	60
Pickering XV15-1800S	MM	70
Pickering TL3S	MM	80
Pickering XEV-3001E	MM	95
Pickering XLZ-3500	MM	100
Pickering TL-4-S	MM	100
Rega iBias	MM	39
Rega RB78	MM	39
Rega Super Bias	MM	85
Rega Elys	MM	85
Shure M70BX	MM	21
Shure M92E	MM	22
Shure SC35C	MM	29
Shure M447X	MM	35
Shure M447X	MM	35
Stanton 500AL II	MM	35
Stanton 500EL	MM	44
Stanton 680AL/X	MM	59
Stanton 680EL/X	MM	74
Sumiko Oyster	MM	30
Sumiko Black Pearl	MM	50
Sumiko Pearl	MM	70

Sumiko Blue Point	MC	100
Over £100		
Audio Note I02	MM	139
Audio Note Soara	MC	795
Audio Note IO1V	MC	1,095
Audio Note I0LdI	MC	4,500
Audio Technica AT-OC9	MC	330
Benz-Micro The Glider	MC	650
Benz-Micro M090	MC	700
Benz-Micro L040	MC	700
Benz-Micro H200	MC	700
Benz-Micro Reference	MC	1,100
Benz-Micro Reference Ruby	MC	1,500
Benz-Micro Ruby Open Air	MC	1,600
Clearaudio Aurum-Alpha	MM	135
Clearaudio Aurum-Beta	MM	195
Clearaudio Aurum-Beta/S	MM	265
Clearaudio Gamma-S	MC	745
Clearaudio Signature	MC	1,495
Clearaudio Accurate	MC	2,500
Clearaudio Insider	MC	4,900
Denon DL304	MC	200
Dynavector 10X4II	MC	189
Dynavector 23RS	MC	375
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	275
Grado Signature MCZ	MM	350
Grado Signature TLZ	MM	650
Grado Signature XTZ	MM	975
Grado Reference	MM	995
Koetsu Red T	MC	1,550
Koetsu Red K Sig	MC	1,998
Koetsu Urushii	MC	2,297
Koetsu Signature	MC	3,218
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	649
Lyra Lydian	MC	999
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 MC2000II	MC	800
Ortofon MC Rohmann	MC	1,000
Ortofon MC3000 II	MC	1,200
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 Elite	MC	455
Reson Lexe	MC	1,300
Roksan Corus Black	MM	130
Roksan Shiraz	MC	970
Shure V15XMR	MM	295
Stanton 890AL/X	MM	120
Sumiko BPS	MC	250
Transfiguration Spirit	MC	1,000
Transfiguration Temper	MC	1,950
Van Den Hul MM-1	MM	250
Van Den Hul MM-2	MM	300
Van Den Hul DDT-II	MM	600
Van Den Hul MC-10	MC	750
Van Den Hul MC-One	MC	900
Van Den Hul MC-ONE Super	MC	1,050
Van Den Hul MC-Two	MC	1,200
Van Den Hul The Frog Low o/p	MC	1,500
Van Den Hul Grasshopper IIISLA	MC	2,000
Van Den Hul Grasshopper IIIGLN	MC	2,800

Van Den Hul Grasshopper IIIGLA	MC	2,800
Van Den Hul Grasshopper IIICMN	MC	2,800
Van Den Hul Grasshopper IIICHN	MC	2,900
Van Den Hul Grasshopper IVGLA	MC	3,000
Wilson Benesch Matrix	MC	785
Wilson Benesch Carbon	MC	1,573
Wilson Benesch Analog	MC	1,850



CASSETTE DECKS

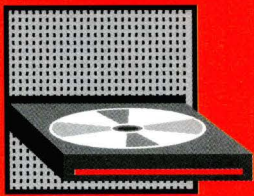
KEY
 ← → - Autoreverse - no need to remove and turn round the tape.
3-H - 3 heads, i.e. separate record and replay heads.

Up to £200

Aiwa AD-F460	120
Aiwa AD-S750	200
Akai DXW1100	200
Akai DX1200	200
Ariston WX-510	80
Denon DRM-550	160
Denon DRM-580	200
Denon DRS-640	200
Goodmans Delta 801	130
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	169
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-WE405	150
Sony TC-KE400S	180
Sony TC-WE505	180
TEAC W-416	100
TEAC V-610	100
TEAC W-780R	170
TEAC R-560	180
TEAC R-H500	200
Technics RS-BX501	170
Technics RS-TR373	180
Technics RS-TR474	200
Technics RS-AZ6	200
Yamaha KX-393	130
Yamaha KX-W321	170
Yamaha KX-493	180

Over £200	
Aiwa AD-F850	3-H 230
Aiwa AD-WX929	3-H 230
Carver TR-1550	629
Denon DRM-650S	230
Denon DRM-740	3-H 270
Denon DRS-810	3-H 310
H/K TD420	250
H/K TD450	3-H 350
JVC TD-V662BK	270
JVC TD-W718BK	3-H 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	3-H 460
iPioneer CT-S550S	3-H 250
Pioneer CT-W806DR	300
Pioneer CT-S550S Precision	3-H 340
Pioneer CT-S830S	3-H 500
Pioneer CT-95	3-H 1,000
Rotel RC960BX	250
Sony TC-WE805S	250
Sony TC-KA6ES	3-H 550
T+A CC1200R	990
TEAC W-850R	250

TEAC V-1030	3-H	250
TEAC W-6000R	↔	450
TEAC V-6030S	3-H	550
TEAC V-8030S	3-H	650
Technics RS-AZ7	3-H	270
Technics RS-TR575	↔	280
Yamaha KX-580SE	↔	250
Yamaha KX-W592	↔	280



CD PLAYERS

KEY
 ↳ - multiplay: 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
AMC CD9/DAC8	[10]	200
Ariston CDX700		60
Ariston CDX710		100
Ariston CDX910		120
Ariston CD6C10	↳	140
Cambridge CD4	[10]	150
Cambridge CD4SE	[10]	200
Cambridge CD6	[10]	250
Denon DCD-635		180
Denon DCD-625	[10]	200
Denon DCD-715	[10]	235
Denon DCD-825	[10]	240
H/K HD710	[10]	200
JVC XL-V120BK		110
JVC XL-V130BK		120
JVC XL-V230BK		140
JVC XL-F16BK	↳	180
JVC XL-F216BK	↳	200
JVC XL-Z574BK		250
Kenwood DP-1080		110
Kenwood DP-2080		130
Kenwood DP-R3090	↳	140
Kenwood DP-R4090	↳	160
Kenwood DP-3080		170
Kenwood DP-R6090	↳	200
Kenwood DP-4090	[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 CDC751	↳	180
Pioneer PD-106		130
Pioneer PD-206		150
Pioneer PD-F606	↳	200
Pioneer PD-M603	↳	200
Pioneer PD-S505	[10]	200
Pioneer PD-F706	↳	250
Rotel RCD-930AX		180
Rotel RCD950	[10]	250
Sansui CD220		100
Sherwood CD-4030R	↳	180
Sherwood CDC680	↳	180
Sherwood CDC6050R	↳	180
Sony CDP-M205		110
Sony CDP-XE210		120
Sony CDP-M305		130
Sony CDP-XE310		140
Sony CDP-CE105	↳	150
Sony CDP-XE510		180
Sony CDP-CE315	↳	200
Sony CDP-C325M	↳	200
Synergy CD1120		120
TEAC CD-P1800		130
TEAC CD-P3450SE		200
TEAC PD-H500	[10]	240
TEAC PD-D2200	↳	250
Technics SL-PG390A		90

Technics SL-PG490A		100
Technics SL-PG590A		120
Technics SL-PD688	↳	140
Technics SL-PD888	↳	160
Technics SL-PS670D	↳	200
Technics SL-MC410	↳	250
Technics SL-PS770D	[10]	250
Yamaha CDX-393		130
Yamaha CDC-565		170
Yamaha CDX-493		180
Yamaha CDX-9		200
Yamaha CDC-665	↳	220
Yamaha CDX-593	[10]	230

£251 to £500

Arcam Alpha 7	[10]	330
Arcam Alpha MCD	↳	450
Aura CD100	[10]	400
Carver MV-5	↳	469
Denon DCM-260		300
Denon DCD-1550AR	[10]	350
Denon DCD-1015	[10]	350
H/K HD730	[10]	300
H/K FL8300	↳	300
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	[10]	350
Marantz CC-870	↳	400
Marantz CD-63IIKI	[10]	400
Musical Fidelity E60	[10]	300
Musical Fidelity A2 CD	[10]	500
Myrrad T-10	[10]	400
NAD 513	↳	290
NAD 515	[10]	350
NAD 514	[10]	370
NAD 517	↳	400
Onkyo DX 7210	[10]	260
Onkyo C721	[10]	290
Onkyo DXC 320		380
Onkyo DX 7510	[10]	400
Onkyo CM 716	↳	450
Parasound C/DP-1000	[10]	500
Pioneer PD-F805	↳	300
Pioneer PD-S705	[10]	300
Pioneer PD-F906	↳	350
Pioneer PD-S904	[10]	400
Pioneer PD-S505 Precision	[10]	460
Sony CDP-CX55	↳	280
Sony CDP-XE900E	↳	300
Sony CDP-CX200	↳	380
Sony CDP-XA20ES	[10]	450
Sony CDP-X3000ES	[10]	500
TEAC CD-5		350
Yamaha CDX-993	[10]	400

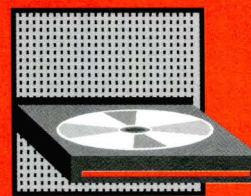
£501 to £1000

Acurus ACD11	[10]	899
Alchemist Nexus	[10]	600
Arcam Alpha 8	[10]	520
Arcam Alpha 8SE	[10]	600
Audio Analogue Paganini	[10]	695
Audiolab 8000CD	[10]	1,000
AVI S2000MC2	[10]	899
Creek CD42	[10]	599
Denon DCD-3000	[10]	1,000
DPA Renaissance int CD	[10]	950
Fase Evoluzione Laserdrive 1.0	[10]	995
Helios Model 3	[10]	650
Helios Model 2	[10]	950
Heybrook Signature II	[10]	989
Linn Mimik	[10]	875
Magnum CD2020	[10]	595
Marantz CD-17	[10]	800
Micromega Stage 4	[10]	600
Micromega Stage 5	[10]	750
Micromega Stage 6	[10]	950
Mission dAD3	[10]	598
Mission dAD3Q		898
Monrio Asty PL	[10]	675
Monrio Privilege	[10]	995
Myrrad T-20	[10]	600
Myrrad MC100	[10]	700
Naim CD3		1,000
Orelle CD100EA	[10]	649
Orelle CD-100EA	[10]	999
Pioneer PDS-06	[10]	550
Primare D20	[10]	799
Quad 77 Bus	[10]	700
Quad 77 Mains		900
Roksan Caspian	[10]	895
Sony CDP-XA50ES	[10]	1,000
Synergy CDJ1220	↳	600
T+A CD1200R	[10]	895
TEAC VRDS-7	[10]	599
TEAC VRDS-9	[10]	700
TEAC VRDS-10SE	[10]	850
Technics SL-P2000	[10]	1,000
Trichord Genesis	[10]	549
Trichord Digital Jukebox 25	↳	599
Trichord Digital Jukebox 50	↳	649
Trichord Digital J'box 100	↳	699

Trichord Revelation	[10]	799
YBA Special	[10]	625

Over £1000

Acoustic Precision Eikos	[10]	1,850
Alchemist Forseti	[10]	1,995
Audio Research CD1	[10]	3,290
Audio Research CD2	[10]	4,100
Audiomeca Talisman	[10]	2,150
Audiomeca Talisman SE	[10]	2,300
AVI S2000MC	[10]	1,399
Cary CD-301	[10]	2,495
Conrad-Johnson DF-2		1,695
Conrad-Johnson DV-2b		2,495
Copland CDA-266	[10]	1,199
Copland CD277	[10]	1,800
Copland CDA288	[10]	2,199
Cymbal CDP12	[10]	1,299
Helios Model 1	[10]	1,250
Helios Stargate	[10]	2,250
Krell KPS30i	[10]	5,490
Krell KPS-20i	[10]	9,990
Marantz CD-17KIS	[10]	1,100
Mark Levinson 39	[10]	4,995
McIntosh MCD7009	[10]	3,699
Meracus Tanto	[10]	1,395
Meracus Imago Player	[10]	4,495
Meridian 506	[10]	1,100
Meridian 508	[10]	1,995
Micromega Solo	[10]	2,750
Myrrad MCD500	[10]	1,300
Naim CD2		2,000
Naim CDX		2,200
Naim CDS		3,940
Oracle CD Player	[10]	7,300
Pink Triangle Numeral	[10]	1,049
Pink Triangle Litaural	[10]	2,200
Primare D302	[10]	1,799
Roksan Attezza-DP3P	[10]	1,495
Sherwood CD1	[10]	1,100
Sonic Frontiers Anthem CD1	↳	1,699
Sonic Frontiers SFCD-1	[10]	3,799
TEAC VRDS-25	[10]	1,300
Theta Digital Miles	[10]	2,495
XTC CDP-1	[10]	1,250
YBA Integre	[10]	1,250
YBA CD3	[10]	2,250
YBA CD2	[10]	3,350
YBA CD1	[10]	4,500



CD TRANSPORTS

KEY
 [10] - electrical (coaxial) digital output.
 Many players also include an optical (Toslink) output.

Alchemist Forseti Drive	[10]	1,100
Altis CDT III	[10]	4,995
Arcam Delta 250	[10]	800
Audio Research CDTI	[10]	3,290
Audio Synthesis Transcend Decade	[10]	2,995
Audiolab 8000CDM	[10]	1,400
Audiomeca Damnation	[10]	999
Audiomeca Damnation SE	[10]	1,100
Audiomeca Talisman	[10]	1,850
Audiomeca Talisman SE	[10]	1,999
Audiomeca Talisman DOB	[10]	2,250
Audiomeca Mephisto	[10]	2,350
Audiomeca Mephisto SE	[10]	2,500
Audiomeca Mephisto	[10]	2,750
Cambridge Discmagic One	[10]	300
Conrad-Johnson DR-1	[10]	1,795
DPA Enlightenment Drv	[10]	725
Jadis J03	[10]	4,850
Jadis J02	[10]	4,990
Jadis J01	[10]	12,500
Krell KPS-20t	[10]	8,490
Linn Karik	[10]	1,850
Mark Levinson 37	[10]	3,995
Mark Levinson 31.5	[10]	9,295
Meracus Imago	[10]	3,995
Meridian 500	[10]	1,245
Micromega Drive 3	[10]	750
Micromega Data	[10]	2,250
Monrio Bitmatch	[10]	950
Muse Model 5	[10]	1,800

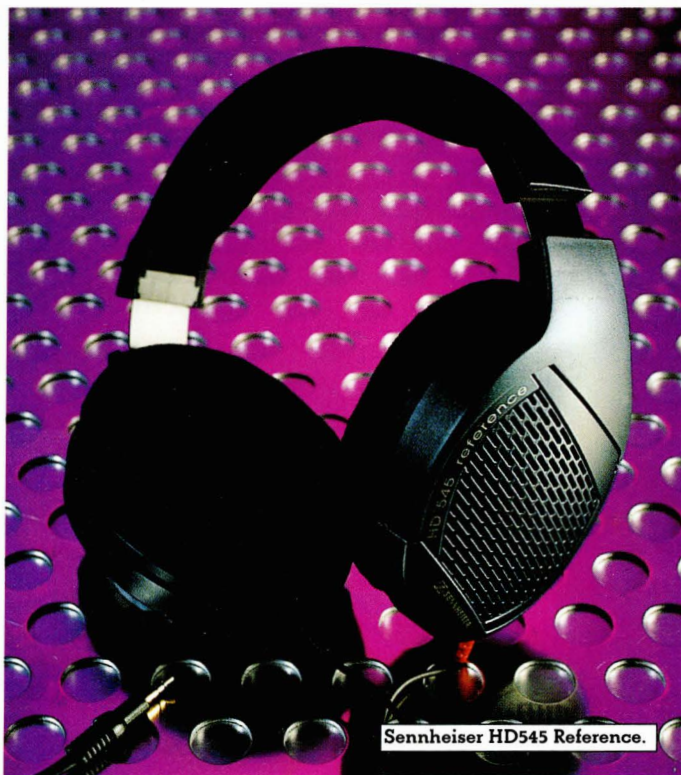
Oracle CD Drive	[10]	4,680
Pink Triangle Cardinal II	[10]	909
PS Audio Lambda TR	[10]	2,250
PS Audio Lambda AT&T	[10]	2,778
Rogers SC-8t	[10]	2,699
Roksan Attezza-DP3	[10]	1,295
Sonic Frontiers Transport 3	[10]	5,999
T+A CM1200R	[10]	990
TEAC VRDS-TI	[10]	550
TEAC P-30	[10]	2,500
Theta Digital Data Basic II	[10]	2,397
Theta Digital Data III NTSC/PAL	[10]	5,455
Thorens TCD-2000	[10]	999
Trichord Digital Turntable	[10]	699
Tube Tech Fulcrum	[10]	1,000
Wadia 8	[10]	3,195
Wadia 20	[10]	4,370



DIGITAL TO ANALOGUE CONVERTERS (DACs)

KEY
 4 - number of digital inputs

Alchemist Forseti DAC		1,100
Altis Reference	Ⓢ	4,995
AMC DAC8		130
Apogee Digital DA-1000	Ⓢ	3,395
Arcam Black Box 50		350
Arcam Black Box 500	7	500
Audio Note DAC1		675
Audio Note DAC2		1,099
Audio Note DAC3		1,750
Audio Research DAC5		2,148
Audio Research DAC5		2,335
Audio Research DAC3		4,195
Audio Research DAC3		4,555
Audio Synthesis DAX Decade	Ⓢ	2,795
Audiolab 8000DAX	7	1,000
Audiomeca Elixir	7	799
Audiomeca Ambrosia		1,850
Boulder 2020	Ⓢ	17,750
Cambridge Dacmagic 2 Mk II		150
Chord DSC1100	1	2,575
Chord DSC1500	Ⓢ	3,850
Conrad-Johnson D/A-3	1	1,195
Conrad-Johnson D/A-2b	1	1,990
dCS Elgar	Ⓢ	8,500
Denon DCD-425		150
DPA Little Bit 3	Ⓢ	325
DPA Renaissance DAC		570
DPA Enlightenment DAC		825
DPA SX128		2,000
DPA SX256		4,000
DPA SX512		8,000
Jadis JS3		2,129
Jadis JS1		8,068
LFD DAC2		1,950
LFD DAC3		3,000
Linn Numerik		1,500
Manley Professional DAC-20	7	6,950
Mark Levinson 36	Ⓢ	3,995
Mark Levinson 30.5		15,950
Meracus Auriga		1,295
Meracus Flagrante		2,495
Meridian 566	[10]	1,095
Micromega DAC 2		750
Micromega Dialog		2,000
Monrio 18B2		795
Muse Model 2		2,190
Muse Model 2 Plus	Ⓢ	2,500
Musical Fidelity X-ACT		200
Musical Fidelity X-DAC		300
Onkyo DX 7310		330
PS Audio DL3		777
PS Audio SL3		1,449
PS Audio UltraLink 2 HDCD		2,590
PS Audio Ref Link		4,550
Rogers SC-8m	4	1,899
Roksan Attezza-DAC2	4	595
Sonic Frontiers Processor 3	Ⓢ	5,999
Sumo Theorem II		945
Sumo Theorem IIB		1,155
Talk Electronics Thunder 3		1,000
TEAC D-TI	4	500
TEAC D-700		600
Theta Digital Chroma Std		849
Theta Digital Pro Geny		1,145
Theta Digital Pro Prime II		1,800



Sennheiser HD545 Reference.

Theta Digital Pro Basic III	2,990
Theta Digital Gen V SE	4,300
Theta Digital Casablanca LS	5,910
Thorens TDA-2000	700
Trichord Pulsar Ser One	1,395
Tube Tech Fulcrum	1,400
Wadia 12	1,530
Wadia 15	3,790
Wadia 64.4	4,750
Wadia 16	7,395
Wadia 7	9,995
Wadia 9	12,790
Woodside DVAC-18	1,499



HEADPHONES

KEY

'D' - dynamic type, compatible with virtually all normal headphone sockets.
'E' - electrostatic type; generally includes a separate power supply.
[Icon] - open-back construction.
[Icon] - closed-back construction.

Up to £40

Aiwa HP-X301	D	[Icon]	20
Aiwa HP-VX303	D	[Icon]	25
Aiwa HP-X705	D	[Icon]	40
AKG Rox	D	[Icon]	30
Aural Envelope DX200	D	[Icon]	20
Aural Envelope DX220	D	[Icon]	30
Beyer DT111	D	[Icon]	15
Beyer DT211	D	[Icon]	31
Beyer DT211TV	D	[Icon]	35
JVC HA-CD88	D	[Icon]	18
JVC HA-D525	D	[Icon]	20
JVC HA-F65	D	[Icon]	18
JVC HA-D626	D	[Icon]	25
Kenwood KPM-310	D	[Icon]	18
Kenwood KPM-410	D	[Icon]	25
KLH KHP-201TW	D	[Icon]	21
KLH KHP-300V	D	[Icon]	25
KLH KHP-420V	D	[Icon]	33
Maxell HP-2000	D	[Icon]	20
Pioneer SE-A40	D	[Icon]	20
Pioneer SE-A20V	D	[Icon]	23
Pioneer SE-M250	D	[Icon]	25
Pioneer SE-M350	D	[Icon]	30
Sennheiser HD56	D	[Icon]	18
Sennheiser HD433	D	[Icon]	20
Sennheiser HD400	D	[Icon]	25
Sennheiser HD470	D	[Icon]	35
Sennheiser HD60TV	D	[Icon]	40
Sony MDR-W20G	D	[Icon]	18
Sony MDR-E837	D	[Icon]	18
Sony MDR-P70	D	[Icon]	18
Sony MDR-ED238	D	[Icon]	20
Sony MDR-009TV	D	[Icon]	20
Sony MDR-A34L	D	[Icon]	20
Sony MDR-E848	D	[Icon]	20
Sony MDR-P1TV	D	[Icon]	25



DIGITAL RECORDERS

KEY

MD - MiniDisc
DAT - Digital Audio Tape
[Icon] - portable

Denon DMD-1000	MD	300
Denon DMD-1300	MD	500
Kenwood DM-7090	MD	500
Kenwood DM-9090	MD	550
Onkyo MD-121	MD	450
Onkyo MD 122	MD	700
Philips CDR870	MD	499
Pioneer PDR-04	MD	700
Pioneer D-05	DAT	900
Pioneer PDR-05	DAT	1,000
Pioneer D-C88	DAT	2,000
Sharp MD-R2	MD	300
Sharp MD-R1E	MD	300
Sharp MD-MS200H	MD	350
Sharp MDXV300H	MD	1,000
Sony MZ-E20	MD	180
Sony MDS-JE510	MD	250
Sony MZ-E30	MD	280
Sony MDS-S38	MD	300
Sony MZ-R30	MD	300
Sony MDS-JA30ES	MD	699
Sony MDS-JA50ES	MD	1,300
TEAC MD-H500	MD	650
TEAC MD-10	MD	950
Yamaha MDX-9	MD	300

Sony MDR-CD270	D	[Icon]	30
Sony MDR-E868	D	[Icon]	35
Sony MDR-V400	D	[Icon]	40
Sony MDR-D11	D	[Icon]	40
Stanton ST Pro	D	[Icon]	25
Technics RP-F200	D	[Icon]	30
Technics RP-HT300	D	[Icon]	40
Vivanco SR150	D	[Icon]	20
Vivanco SR200	D	[Icon]	25
Vivanco SR250	D	[Icon]	25
Vivanco SR300	D	[Icon]	30
Vivanco IR5700	D	[Icon]	40

Over £41

AKG K301	D	[Icon]	80
AKG K2221R	D	[Icon]	100
AKG K401	D	[Icon]	120
AKG K501	D	[Icon]	150
AKG K3331R	D	[Icon]	150
AKG K4441R	D	[Icon]	180
AKG K290S	D	[Icon]	250
AKG K1000	D	[Icon]	700
Audio Technica ATH910PRO	D	[Icon]	80
Audio Technica ATHD40FS	D	[Icon]	120
Audio Technica ATHM40FS	D	[Icon]	120
Audio Technica ATH911	D	[Icon]	120
Beyer DT311	D	[Icon]	50
Beyer DT411	D	[Icon]	63
Beyer DT511	D	[Icon]	106
Beyer DT801	D	[Icon]	125
Beyer DT811	D	[Icon]	145
Beyer DT100	D	[Icon]	160
Beyer DT901	D	[Icon]	160
Beyer DT911	D	[Icon]	170
Denon AH-D210	D	[Icon]	45
Denon AH-D350	D	[Icon]	65
Denon AH-D550	D	[Icon]	80
Denon AH-D650	D	[Icon]	95
Denon AH-D750	D	[Icon]	130
Denon AH-D950	D	[Icon]	150
Grado SR40	D	[Icon]	75
Grado SR60	D	[Icon]	49
Grado SR80	D	[Icon]	100
Grado SR125	D	[Icon]	150
Grado SR225	D	[Icon]	200
Grado SR325	D	[Icon]	300
Grado RS2	D	[Icon]	495
Grado RS1	D	[Icon]	695
Jacklin Float Model 1	D	[Icon]	79
Jacklin Float Model 2	D	[Icon]	99
Jacklin Float ELS	E	[Icon]	399
JVC HA-D727	D	[Icon]	43
JVC HA-W60	D	[Icon]	49
JVC HA-D910	D	[Icon]	65
JVC HA-D1000	D	[Icon]	250
JVC HA-F25	D	[Icon]	699
Philips SBC 3396	D	[Icon]	70
Philips SBC HP9000	D	[Icon]	90
Pioneer SE-M550	D	[Icon]	50
Pioneer SE-M750	D	[Icon]	60
Precide Ergo Model 1	D	[Icon]	120
Precide Ergo Model 2	D	[Icon]	140
Sennheiser IS 380	D	[Icon]	55
Sennheiser HD455	D	[Icon]	55
Sennheiser HD465	D	[Icon]	65
Sennheiser HD570	D	[Icon]	80
Sennheiser HD475	D	[Icon]	80
Sennheiser HD25 SP	D	[Icon]	90
Sennheiser IS450	D	[Icon]	110
Sennheiser HD545 Ref	D	[Icon]	125
Sennheiser HD265 Linear	D	[Icon]	125
Sennheiser HD250II	D	[Icon]	150
Sennheiser HDC 451-1	D	[Icon]	150
Sennheiser HD565 Ovati'n	D	[Icon]	150
Sennheiser HD25-13	D	[Icon]	160
Sennheiser HD25	D	[Icon]	160
Sennheiser HD 580 P'cision	D	[Icon]	200
Sennheiser HD600	D	[Icon]	250
Sennheiser Lucas	D	[Icon]	280
Sennheiser IS850	D	[Icon]	859
Sennheiser HE60/HEV70	E	[Icon]	998
Sennheiser Orpheus	E	[Icon]	9,652
Sony MDR-IF120K	D	[Icon]	50
Sony MDR-E888	D	[Icon]	55
Sony MDR-IF125RK	D	[Icon]	60
Sony MDR-V600	D	[Icon]	70
Sony MDR-F1	D	[Icon]	100
Sony MDR-NC5	D	[Icon]	100
Sony MDR-IF420RK	D	[Icon]	100
Sony MDR-CD770	D	[Icon]	100
Sony MDR-D77	D	[Icon]	130
Sony MDR-IF520RK	D	[Icon]	150
Sony MDR-CD1700	D	[Icon]	200
Stanton DJ Pro 101/HB	D	[Icon]	65
Stanton DJ Pro 1000	D	[Icon]	95
Stanton DJ Pro 1001	D	[Icon]	150
Stax SR-0001	E	[Icon]	280
Stax SR-Lambda Nova C	E	[Icon]	370
Stax SR-Lambda Nova Basic	E	[Icon]	449
Stax SR-Lambda Nova S	E	[Icon]	450
Technics RP-F800	D	[Icon]	50
Technics RP-HT600	D	[Icon]	60
Technics RP-D11200	D	[Icon]	130

Vivanco IR5800	D	[Icon]	50
Vivanco SR850	D	[Icon]	50
Vivanco SR650	D	[Icon]	50
Vivanco FMH 3000	D	[Icon]	60
Vivanco SR750	D	[Icon]	60
Vivanco IR6000	D	[Icon]	70
Vivanco SR909	D	[Icon]	70
Vivanco IR7600	D	[Icon]	100
Vivanco SR1000IFL	D	[Icon]	100
Vivanco SR2000IFL	D	[Icon]	120



SPEAKER STANDS

KEY

60 - height of stand in cm

Alphason NCI	60	47
Alphason Akros I	60	49
Alphason RS1	120	49
Alphason Akros II	60	59
Alphason NCIII	60	84
Alphason HDS-40/M	60	85
Alphason Titan S	60	125
Apollo AZ6	66	80
Arcici Q-1	30	299
Arcici Q-2	30	299
Atacama BD21	56	55
Atacama BD17		55
Atacama BD25		60
Atacama SE16		65
Atacama SE12		65
Atacama SX500		67
Atacama F2		70
Atacama F1		70
Atacama SX600		70
Atacama SL200		70
Atacama SE24	61	70
Atacama SE20		70
Atacama SX700		73
Atacama SL300		73
Atacama TP600		75
Atacama TP500		75
Atacama SE615		75
Atacama SE515		75
Atacama SE415		75
Atacama SL400		76
Atacama SE1000S		80
AVF tower P61448P	60	35
BCD Model 1010	60	595
Credo STD 001		284
Custom Design CD 500	50	35
Custom Design AS 130	25	35
Custom Design AS 630AV	65	40
Custom Design Tri 100	50	50
Custom Design R/S 200	50	50
Custom Design R/S300	60	70
Custom Design Tri 300	55	85
Custom Design SCS 24	60	85
Custom Design X24	61	109
Custom Design C 20	50	109
Custom Design H1	50	275
Deadrock 903	60	60
Deadrock 902	47	60
Deadrock 901	39	60
Dynaudio Trophy	60	120
Dynaudio Master	60	200
Dynaudio Ultima	60	290
Harbeth HL-Stands	21	249
Haybrook Stand-ULT	3	55
Haybrook Stand-S6	63	69
Haybrook Stand-S4	48	69
Haybrook Stand-S1	47	119
JPW MS2	45	45
JPW MS3	61	55
JPW MS1	46	80
JPW HS1	58	120
JPW HS2	45	120
Kudos Audio Arrow	60	50
Kudos Audio S-50	60	100
Kudos Audio S-100	63	270
Mission Micrometer	58	70
Mission Entasis	58	98
Opera S1	60	345
Pioneer CP-7	50	50
Pioneer CP-8	80	80
Projekt Signature	55	80
Revolver RS1	50	70
Royd Royd	55	99
SD Acoustics SD Alexandra	50	369
Silverado Silverado 1 Stand	60	350

Sonus Faber Ironwood	475
Sonus Faber Stonewood	497
Sound Org 2037	55
Sound Org 2027	55
Sound Org 2026	55
Sound Org Z518	45
Soundstyle X6118	42
Stands Unique Speaker support	59
Stands Unique Tuned Spkr Support	59
Stands Unique Tuned Carbon Fibre	59
Stands Unique Vivas CF Spkr Supp	60
Target TR60	60
Target R1	53

EQUIPMENT SUPPORTS
KEY
3 = number of shelves

Alphason SM17	1	49
Alphason VSM17	1	85
Alphason GSM17	1	85
Alphason GMV1P	1	110
Alphason R17/17	3	120
Alphason GMH1P	1	150
Alphason GR17/17	3	150
Alphason VR17/17	3	190
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 G3	3	130
Custom Design Aspect 650	4	240
Custom Design Aspect 500AV	3	270
Custom Design Aspect 850	5	270
Deadrock 701	1	60
Deadrock 802	2	90
Deadrock 703	3	130
Deadrock 704	4	190
Deadrock 705	5	230
Fi-Rax R4	6	399
Frameworks H175	1	130
Frameworks FS1	150	
Frameworks FT2	285	
Frameworks FT3	350	
Frameworks H700	355	
Frameworks H900	389	
Frameworks H500/H175	3	404
Heybrook Stand-Signature	4	249
Impulse Iso-plate	190	
JPW 3 Tier	3	80
JPW 5 Tier	5	100

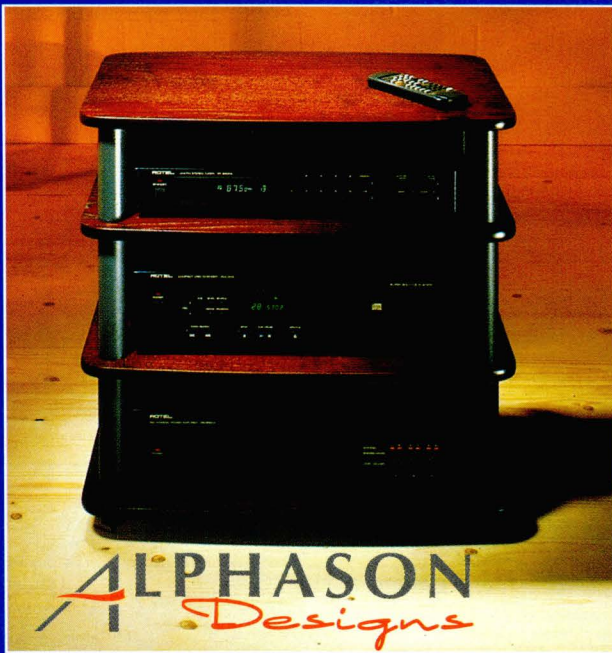
Kudos Audio Corinthian	5	600
Linn K3000		85
Mana Sound Frame		125
Mana Mini Table		150
Mana Power supply table		150
Mana Reference flat top		150
Mana Sound Shelf		175
Mana Sound Base		175
Mana Sound Stage		200
Mana Sound Table		235
Mana Ref Shelf		325
Mana Reference Table		350
Mana 2 Tier Amp stand		375
Mana 3 Tier Amp Stand		450
Mana 4 Tier Amp Stand		500
Mana 5 Tier Amp Stand		600
Mana 6 Tier Amp Stand		700
Mission Hark		298
Optimum G2	2	69
Optimum G2/Pedestal	2	99
Optimum G4/Pedestal	5	130
Optimum OPT 3406	3	149
Optimum G5/Pedestal	6	150
Optimum OPT 4906	4	199
Optimum OPT 6606	5	249
Optimum OPT 340	3	249
Optimum OPT 490	4	299
Optimum OPT 440	4	299
Optimum OPT 10206	6	299
Optimum AV 300	3	329
Optimum OPT 700	5	349
Optimum OPT 610	5	349
Optimum OPT 660	5	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	250
Quadraspire QAV table	3	350
Quadraspire QAVSP Table		400
Quadraspire QK Cabinet	4	450
Reson DOMOPS	1	195
Reson DOMOWS	1	195
Sound Org 2022	1	65
Sound Org 2020	2	78
Sound Org 2030	3	100
Sound Org 2060	4	120
Sound Org 2038	5	135
Sound Org 2540	4	140
Sound Org 2545	4	140
Sound Org 2560	5	160
Sound Org 2530	3	170
Soundstyle X300	3	180
Soundstyle X305	3	210
Soundstyle X053	4	210
Soundstyle X050	4	210
Soundstyle X6300	3	215
Soundstyle X100	4	220
Soundstyle X6110	4	230
Soundstyle X058	5	240
Soundstyle X310	3	250
Soundstyle X105	5	250
Soundstyle X6053	4	255
Soundstyle X6100	4	265
Soundstyle X6310	3	275
Soundstyle X6058	5	290
Soundstyle X6105	5	300
Soundstyle Finewoods W105	5	320
Stands Unique Isolation Platform	1	52
Stands Unique Sound Support	4	249
Stands Unique Sound Tower	5	289
Stands Unique Compact Sound Supp	4	315
Stands Unique Sound Support 10	4	315
Stands Unique Sound Twr Cabinet	5	369
Stands Unique Ref Wall Support	1	550
Stands Unique Ultimate Tower	10	689
Stands Unique Ref Floor Support	6	799
Target B5	5	175
Townshend Seismic Sink 1-CD		110
Townshend Seismic Sink 1-3D		400
Townshend S/Sink Stand 1-4	4	999
Townshend Seismic Sink 3-4	4	1,250
Vibraplane Passive	1	1,895
Vibraplane Active	1	3,600
Wilson Benesch Standard Shelf	1	130
Wilson Benesch Mono Block	1	265
Wilson Benesch Kevlar Shelf	1	270
Wilson Benesch Asside Basic		590
Wilson Benesch Asside	4	720
Wilson Benesch Triptych	1	990

Allison Micro Monitors		95
Allison Mini References		120
Ariston MS05		80
Celestion 12i		119
Denon SC-M2		80
Gale Mini Monitors		70
Gale Gold Monitors		90
Genexxa GX300		80
Genexxa GX330		80
GLL Arena		90
Goodmans Active 75		65
Interaudio XL1000		130
Jamo Studio-80		70
Jamo SAT-90		90
Jamo Cornet 25		100
Jamo D-110		100
Jamo SAT-170		110
Jamo Studio-110		110
Jamo Cornet 145		110
Jamo Cornet 35		120
Jamo Artina		120
Jamo D-115		120
Jamo 28		125
JBL TLX111		120
JPW Mini Monitor		60
JPW ML110		70
JPW Gold Monitor		80
JPW ML210		80
JPW ML310		90
JPW ML410		100
JPW ML510		130
JVC SX-SC1YBK		60
JVC SP-V50		80
JVC SP-X220TBK		100
JVC SP-X550BK		130
KEF Coda 7		129
Kenwood LS-90UK		130
Mission 700		130
Mission 731i		130
Mordaunt-Short VS-100		100
Mordaunt-Short MS05i		100
NAD 801		100
Paradigm Micro		100
Paradigm Atom		130
Pioneer CS-3030		120
Polk AB410		100
Realistic Minimus 26		56
Realistic Minimus Pro-77		100
Revolver Beretta		100
R Allen Minette 2		129
Solid HCM2		130
Sony SS-86E		100
Tangent Monitor 3		60
Tangent Monitor 5		80
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
Visonik 5202		129
W'dale Valdus 100		80
W'dale Diamond 7.1		100
W'dale Valdus 200		110
W'dale Modus Micro		110

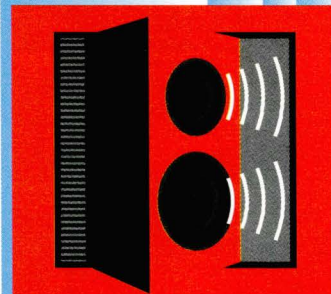
£131 to £200		
Acoustic Energy AE100		200
Allison Model 4A		170
B&W DM302		150
B&W CWM5		170
B&W DM601		199
Bose 201 IV		200
Boston CR6		149
Boston 325		149
Boston Micro 80 Sat		169
Boston Runabout		169
Boston 335		179
Boston 351		189
Boston CR7		199
Boston Runabout II		200
Celestion 15i		199
Carwin-Vega CT-165		200
Denon SC-E313		160
Gale 2i		140
Gale 4i		140
Gale 3i		200
Genexxa GX650		140
Genexxa Pro		160
GLL Imagio IC100		170
Heybrook Prima 2		159
Infinity SM65		150
Infinity Reference 1i		150
Infinity Reference 11i		200
Interaudio XL2000		200
Jamo Cornet 165		150
Jamo 38		150
Jamo 525		150
Jamo 560		150
Jamo 660		170
Jamo Cornet 65		170
Jamo Studio 180		180

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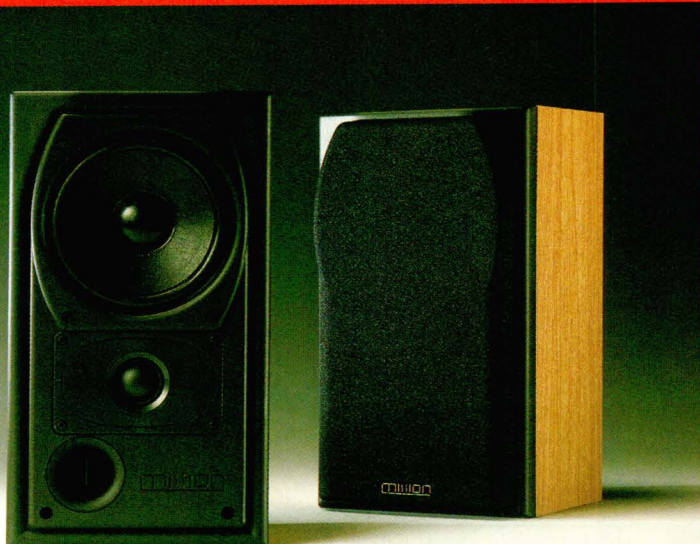


LOUDSPEAKERS

- KEY**
- ↓ - floorstander; larger models requiring no separate stand.
 - ⌘ - stand mount; smaller models designed to be raised above the floor.
 - - wall mount; designed to be hung on the wall or mounted in-wall.
 - ☐ - box type, including infinite baffle, reflex and transmission line types.
 - ▷ - horn type; mostly large and very efficient.
 - ◻ - panel type, including electrostatic and planar magnetic types.

Up to £130

Jamo D165	200	Boston 361	219	Polk M3 II	220	Dali 606	400
Jamo 68	200	Boston CR8	239	Polk RT5	250	Dali Royal	500
JBL TLX121	150	Boston 381	259	Polk RT7	300	Def Tech Celsius	395
JBL LX20	200	Boston CR9	279	Polk M5	300	Dynaudio Audience 5	400
JPW ML610	170	Boston Voyager	299	Promenade SP1	299	Epas ES12	499
JPW SSS51	200	Castle Isis	250	Rega EL8	298	Faraday SG	345
KEF Coda 8	189	Celestion 23i	299	Revolver The 250	250	Faraday Siren	445
KEF Q15	199	Cerwin-Vega VS-8	250	R Allen Dimension Five 1	239	GLL Imagio IC120	400
KEF Model 60S	199	Cerwin-Vega CT-330	300	R Allen RA8	249	GLL Imagio IC130	500
Kenwood LS-200G	200	Chario Syntar 100	249	R Allen RA8M	249	Heybrook Heylios	389
KLH Model 21	155	Chario Ref 100	299	R Allen Dimension Five 2	269	Heybrook Heylo	439
KLH Model 11	155	Chario Hiper 1000	299	Rogers db101	250	Infinity SM105	350
KLH Model 31	185	Dali 102B	300	Rogers GS3	279	Infinity SM115	400
Magnat Vector 22	179	Dali 150	260	Royd The Envoy	249	Infinity SM125	500
Mission 731i Pro	140	Eltax Linear Response	249	Royd Minstrel	275	Jamo Classic 6	330
Mission 732i	200	Faraday FS1	245	Ruark Epilogue	239	Jamo Cornet 75	330
Mordaunt-Short MS10i Pearl	150	Gale 5i	220	Sequence 300	249	Jamo Cornet 195	350
Mordaunt-Short VS-200	150	GLL Imagio IC110	260	Solid HCM1	250	Jamo BX-100A	350
Mordaunt-Short MS20i Pearl	200	GLL Imagio IC115	300	Sony SS-176EB	250	Jamo 98	350
Mordaunt-Short VS-300	200	Heybrook Optima	259	Tannoy Mercury M3	230	Jamo 407A	350
Paradigm Titan	150	Heybrook Heylette	269	Tannoy Precision P10	300	Jamo D365	400
Pioneer CS-5030	170	Heybrook HB1	269	Visonik 7003	203	Jamo Cornet 95	400
Polk M2	180	Infinity SM85	250	Visonik SUB5	259	Jamo Classic 8	400
Polk RT3	200	Interaudio XL3000	230	W'dale Modus Music Four	230	Jamo Graphic	400
Polk AB610	200	Interaudio XL4000	260	W'dale MFM1	250	Jamo 128	450
Rega Kyte	198	Jamo 892	220	W'dale Valdus 500	300	Jamo BX-150A	450
Revolver Colt	139	Jamo Cornet 175	230	Yamaha NS10M	300	Jamo Atmosphere	480
Revolver The 230	169	Jamo Classic 4	250	ZYP A1	219	Jamo 477A	500
Revolver Purdey MkII	199	Jamo Art	270	ZYP A2S	295	JBL LX60	350
R Allen Minette 3	159	Jamo D265	300			JBL LX6	350
R Allen Dim'n 5/1 Compact	179	Jamo 307A	300	£301 to £500		JBL TLX161	400
R Allen RA6	199	JBL LX2	250	Acoustic Energy AE109	350	JBL PS8	500
Rogers GS1	179	JBL TLX151	300	Acoustic Energy AE209	450	JBL TLX171	500
Royd A7X	155	JPW ML710	230	Acoustic Energy AE120	500	JM Lab Micron	395
Sequence 200	199	JPW ML810	260	Allison Model 2A	420	JM Lab Megane	495
Solid Monitor	200	JPW ML910	300	AVI Neutron	499	Jordan Watts JHFLG	380
Sony SS-126EB	150	JVC SX-SW10	300	B&O Beovox CX50	325	JPW SSS53	400
Sony SS-176E	200	KEF Coda 9	299	B&O Beovox CX100	425	JPW ML1010	400
Tangent Monitor 9	150	KEF Model 70S	299	B&W CWM8i	350	JPW Ruby 1	400
Tangent Monitor 11	180	KLH 83A	205	B&W DM305	400	JPW Ruby 2	500
Tannoy Mercury M2	140	KLH 183A	265	B&W CDM2	500	KEF Q35	349
TDL Nucleus 3	200	KLH Soundbites System	276	B&W DM603	500	KEF Q55	499
Technics SB-CS95	150	KLH Model 81	280	B&W Signature 7	500	KEF RDM One	499
Technics SB-M20	200	KLH Model 41	290	Bandor Pictures	352	Keswick Aria II	379
Visonik 6003	143	Mission 750LE	250	Blue Room Mini Pod	400	KLH 283A	310
Visonik 5001	170	M-A Monitor 1	250	Boston Micro 90 Sat	369	KLH 383A	335
W'dale Diamond 7.2	140	M-A Monitor 2	300	Boston Micro 80 Sys	369	KLH Model 51	375
W'dale Valdus 300	150	Mordaunt-Short MS30i	275	Boston VR20	380	KLH Model 71	420
W'dale Modus Music Two	200	Mordaunt-Short MS10i Classic	280	Castle Tay	350	KLH Model 62T	486
W'dale Valdus 400	200	Mus Tec Kestrel SE	300	Castle Eden	470	Linn Sekrit	395
W'dale Diamond 7.3	200	NAD 802	280	Castle Kendal	500	Magnat Vector 55	349
£201 to £300		NHT SuperZero	218	Celestion 25i	399	Magnat Vector 77	449
Acoustic Energy AE200	250	NHT SuperOne	220	Celestion 30i	449	Mission 733i	330
Audio Gem Opal	230	Paradigm Mini Monitor	220	Celestion 35i	499	Mission 734i	348
B&W CWM6i	280	Paradigm Monitor 5	250	Cerwin-Vega VS-10	350	Mission 734f	499
B&W DM602	300	Pioneer CS-7030	230	Chario Syntar 100T	399	M-A Monitor 3	400
Base 151	220	Pioneer CS-9030	280	Chario Ref 1000	499	M-A Monitor 4	500
Base 301 IV	300	Pioneer S-LC1	300	Clements 300si	395	Mordaunt-Short MS25i Pearl	330
		Polk AB505	220	Dali 104B	370	Mordaunt-Short MS40i	450
						Mus Tec Harrier	400
						NAD 804	400
						Neat Critique	385
						NHT SuperOne	338
						NHT Model 1.5	450
						Opera Duetto	395
						Origin Live OL-1AS	399
						Origin Live Monarch	399
						Paradigm Monitor 7	330
						Paradigm Studio/20	350
						Paradigm Monitor 9	400
						Pentachord A	469
						Pioneer S-LC2	450
						Polk AB705	330
						Polk RT8	400
						Polk RT10	500
						Polk AB805	500
						Prof Monitor Co TB1SM	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	359
						Sequence 400	329
						Solid Verticale	400
						Spendor S2	399
						Spendor 2020	399
						Spendor S1	499
						Tannoy Precision P20	400



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TDL RTL 2E	330	JBL LX70	550	Rogers C6/25	799	Bandor Mora	1,260
TDL RTL 3SE	450	JBL LX7	550	Roksan R0Kone 1	595	Bandor Bandora	1,340
TDL Chiltern CF100	450	JBL TLX181	600	Roksan Ojan 3	795	BKS Audio Hybrid 107	1,500
Technics SB-M300	350	JBL SWA1500	700	Royd The Sorcerer	595	Bose A'mass AM5	900
Technics SB-M500	450	JBL L20	700	Royd Abbot	695	Bose 701	1,000
Totem Mite	495	JBL PS12	750	Ruark Templar II	599	Boston VR40	1,000
Triangle Titus TZe	379	JM Lab Profil 55	625	Ruark Sceptre	599	Cabasse Farella 400	950
Triangle Lunn	500	JM Lab Opal 59 ti	750	Ruark Talisman II	749	Castle Harlech	880
Visonik TB1S	366	Jordan Watts JH200	510	Ruark Prologue One	799	Castle Howard S2	1,200
W'dale Modus Music Six	330	Jordan Watts JH400	565	SD Acoustics SD3R	649	Celestion A1	899
W'dale MFM3	350	JPW Ruby 3	800	Shinpy Polarys	595	Celestion A2	1,499
W'dale Modus Music Eight	430	KEF LS3/5a	649	Silverado Raider	695	Cerwin-Vega AL-1000	1,100
W'dale MFM5	450	KEF RDM Two	699	Sonus Faber Concertino	599	Cerwin-Vega 1515	1,300
W'dale Modus Music 1/6	500	KEF Q65	799	Spendor 2030	599	Chario Ref 1000T	999
£501 to £800		Kelly KT2	700	Spendor LS3/5A	630	Chario Academy 1	1,299
Acoustic Energy AE1-II	795	Keswick Volante	729	Spendor SP3/1P	795	Clements Reference 1	995
Acoustic Precision Eikos FR1	800	KLH Model 82Ta	690	T+A TB 100	690	Dali 850	1,100
Allison Model 3A	525	Linn Tukan Passive	550	Tannoy Precision P30	600	Def Tech BP8B	1,000
Audio Gem Emerald	540	Linn Keilidh Passive	750	Tannoy Definition D100	689	Def Tech BP10B	1,500
Audio Note AN-K/D	620	Magnat Vintage 710	799	Tannoy Precision P40	800	Diapason Prelude II	875
Audio Note AN-J/B	799	Manticore Minaret	690	TDL Catswood CF200	650	Diapason Karis	1,250
Audiovector M1	759	Meridian A500	750	TDL RTL 4	650	Dynaudio Contour 1.1	879
B&O Beolab 2500	750	M&K S-85	700	TDL T-Line 3	700	Dynaudio Contour 1.3	1,198
B&W CDM1 SE	600	Mission 752f	578	Totem Rokk	695	Electrocompaniet EC-Qube	1,195
B&W P4	675	Mission 735f	650	Triangle Comete TZe	525	Electrocompaniet EC-Qube SE	1,495
Bose 501	600	Mission 753f	798	Triangle Zephyr	799	Epos ES22	1,185
Bose A'mass AM3	650	M-A Studio 2SE	600	W'dale MFM7	650	Harbeth HL-K6	1,049
Boston VR30	600	M-A 700 PMC	600	£801 to £1500		Harbeth HL-Compact 7	1,499
Castle Severn 2	580	M-A 702PMC	700	Acoustic Energy AE505	850	Harbeth BBC LS3/5A	1,499
Castle Avon	730	M-A 703PMC	800	Acoustic Energy AE509	1,000	Heybrook Sextet	1,299
Celestion 45i	599	Mordant-Short MS50i	550	Acoustic Energy AE2-II	1,095	Impulse Kora	1,250
Cerwin-Vega VS-12	550	Mordant-Short MS30i Classic	600	Acoustic Energy AE520	1,200	Jamo Concert 8	1,300
Cerwin-Vega VS-15	700	Mus Tec Falcon	575	Acoustic Solutions Eight	1,200	JBL L40	1,000
Chario Ref 100T	599	Naim Intro	660	Alon I Mk II	1,500	JBL PS15	1,000
Chario Hiper 1000T	699	Neat Mystique 2	575	Ambience Mod. 4.0	1,185	JBL SWA 2100	1,250
Clements 600si	595	Neat Petite II	745	Apertura Prima	1,095	JBL L80	1,250
Dali 107	600	Opera Seconda	595	Apertura Nova	1,395	JBL L90	1,500
Dali 350	600	Opera Operetta II	770	ATC SCM10	999	JM Lab Profil 77	1,050
Dali 450	700	Opera Platea	795	Audio Note AN-J/SPx	930	JM Lab PS 5.1	1,250
Dali 109	800	Origin Live Resolution	732	Audio Note AN-K/SPx	1,060	JM Lab Spectral 909.1	1,375
Def Tech BP8B	750	Origin Live Victory	750	Audio Note AN-E/B	1,299	Jordan Watts JH1+1	995
Diapason Micra II	750	Paradigm Studio/60	650	Audio Note AN-J/SPx	1,415	JPW Ruby 4	1,000
Dynaudio Audience 50	577	Paradigm Studio/80	750	Audio Physic Step	1,299	KEF Q75	999
Epos ES14	675	Pentachord B	519	Audiovector M1 Super	999	KEF Ref. Model One	1,199
Faraday FS10	795	Pentachord Pentode	729	Audiovector M2	1,399	Kelly KT3	1,200
Harbeth BBC LS3/5A	699	Polk RT12	600	Audiovector M1 Sig	1,449	Keswick Torino	999
Harbeth HL-P3ES	799	Polk RT16	799	AVI Positron	899	Keswick Figaro Evolution	1,099
Heybrook Ultima	649	Polk LS50	800	B&O Beolab 4000	1,100	Keswick Milano	1,199
Heybrook Quartet	649	Proac Tablette 50	599	B&W P5	875	Keswick Legato	1,199
Infinity SM155	550	Proac Studio 100	699	B&W DM604	1,000	Keswick Amber	1,499
Jamo BX-200A	530	Promenade SP4	650	B&W DM604	1,000	Linn Tukan Aktiv	1,050
Jamo Classic 10	600	Quad 10L	600	B&W P6	1,095	Linn Keilidh Aktiv	1,250
Jamo 507A	700	Rogers GS9	579	B&W Matrix 805 V	1,095	L Voice Auditorium	1,500
Jamo 707i	800	Rogers LS3/5A	699	Bandor Trident	846	Lowther Accolade 2	1,199
						Lumley L/M3.5	1,050
						Magnat Vintage 720	1,199
						Magneplanar SMG-C SE	990
						Magneplanar MG-0.6 SE	1,370
						Meridian Argent 1	995
						M&K S-125	1,150
						Mission 754f	1,298
						M-A Studio 12	1,000
						M-A 705PMC	1,400
						Mordaunt-Short Perf 820	1,495
						Mus Tec Condor	1,000
						Mus Tec Hawk	1,250
						Mus Tec Eagle	1,500
						Naim Credo	1,060
						NHT VT-1.2	999
						NHT Model 2.5	1,299
						Opera Terza	999
						Opera Callas Gold	1,050
						Opera Divina II	1,500
						Origin Live Sovereign	975
						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 Eff	875
						Shahinian Compass	1,395
						Shinpy Micraphonica	1,099
						Silverado Ryder	1,395
						Sonus Faber Minuetto	898
						Sonus Faber Concerto	1,098
						Spendor 2040	899
						Spendor SP2/3E	1,050
						Spendor SP1/2E	1,390
						T+A TAS 1200E	990
						T+A TB 120	990
						Tannoy Definition D300	999
						TDL Cheviot CF300	850
						Technics SB-M1000	1,500

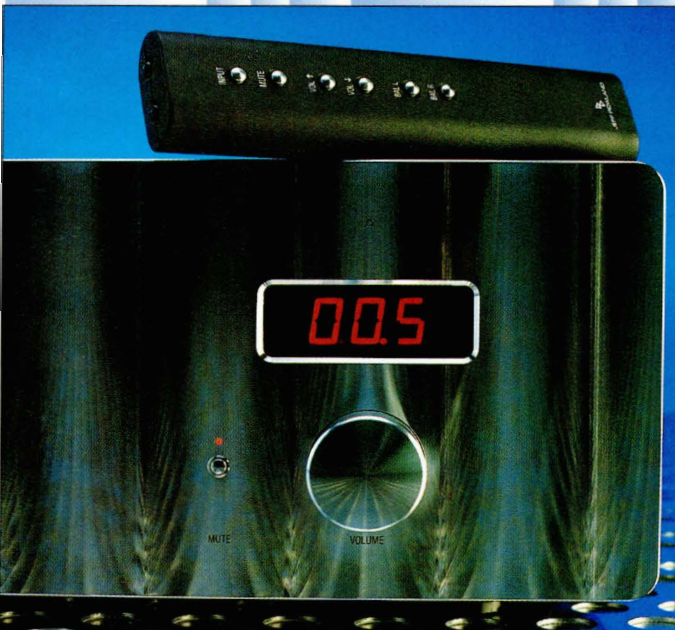
Totem Model One	£	1,195	Jordan Watts JH2K	£	2,820	Alon Adriana	£	8,500	Rockport Procyon	£	32,500
Triangle Antal	£	1,099	KEF Ref. Model Two	£	1,599	Alon Circe	£	9,995	Shahinian Hawk	£	4,995
Vandersteen 2Ce	£	1,395	KEF Ref. Model Three	£	1,999	Alon Phalanx	£	19,000	Shahinian Diapason	£	8,895
Visonik LB1	£	935	Linn Kasper Passive	£	2,000	Ambience Mod 5.0	£	9,550	Shinpy Enigma	£	3,995
£1501 to £3000			Linn Kasper Aktiv	£	2,640	Apertura Athena	£	6,995	Shinpy Euphonia	£	5,995
Acoustic Energy AE1 Sig	£	1,695	Lowther Fidelio	£	1,999	Apertura Atlante	£	8,995	Shinpy Magnifica Suprema	£	14,500
Acoustic Energy AE2 Sig	£	2,695	Lowther Academy	£	2,399	ATC SCM20A	£	3,049	Shun Mook Bella Voce	£	6,800
Alon II Mk II	£	2,300	Lowther Bel Canto	£	2,699	ATC SCM50	£	3,750	Sonus Faber Electa Amator	£	3,293
Ambience Mod 3.2	£	1,780	Lumley L/M2 Mk3	£	2,995	ATC SCM100	£	4,499	Sonus Faber Extrema	£	6,500
Apertura Agora Signature	£	2,295	Magnat Vintage 760	£	1,999	ATC SCM50A	£	5,250	Sound-Lab Dynastat	£	3,790
Apertura Tanagra	£	2,395	Magneplanar MG-10 SE	£	1,650	ATC SCM100A	£	5,999	Sound-Lab Aura	£	6,490
Apertura Tanagra Sig.	£	2,795	Magneplanar MG-1.5 SE	£	1,780	ATC SCM200A	£	12,999	Sound-Lab Pristine III+	£	7,990
ATC SCM20	£	1,599	Magneplanar MG-2.7 SE	£	2,650	ATC SCM300A	£	14,999	Sound-Lab A-3	£	11,990
ATC SCM20 Tower	£	2,099	Manticore Matisse	£	1,890	Audio Note AN-JSE Silver	£	7,900	Sound-Lab Ultimate II	£	13,950
Audio Note AN-E/D	£	1,520	Martin-Logan Aeriis i	£	2,299	Audio Note AN-ESE Silver	£	9,600	Sound-Lab A-1	£	13,990
Audio Note AN-E/SPx	£	2,250	Meridian M60	£	2,150	Audio Physic Virgo 2	£	3,399	Sound-Lab Ultimate III	£	18,950
Audio Physic Spark 2	£	1,749	M-A Studio 20SE	£	2,200	Audio Physic Avanti 2	£	6,699	Sound-Lab Ultimate I	£	23,950
Audio Physic Tempo	£	1,999	Mordaunt-Short Perf 860	£	1,895	Audio Physic Caldera	£	10,599	Spendor SP9/1	£	3,450
Audiovector M3	£	1,899	Mordaunt-Short Perf 880	£	2,795	Audio Physic Medea	£	24,999	T+A AD4	£	3,940
Audiovector M3 Sig	£	2,499	Naim SBL Active	£	1,830	Audiovector 5X	£	3,999	T+A AD3	£	4,660
Avalon Monitor	£	2,995	Naim SBL Passive	£	1,970	Audiovector 6X	£	5,699	T+A AD2	£	8,590
B&O Beolab 6000	£	1,550	Neolith NEO 1	£	2,999	Avalon Avatar	£	4,495	Tannoy Edinburgh TW	£	3,250
B&O Beolab 8000	£	2,100	NHT VT-2	£	1,600	Avalon Arcus	£	6,000	Tannoy Definition D900	£	3,999
B&O Beolab Penta 3	£	2,650	NHT Model 2.9	£	2,199	Avalon Eclipse	£	6,495	Tannoy GRF Memory TW	£	4,000
B&W Matrix 804	£	1,695	Opera Caruso II	£	2,350	Avalon Radian	£	10,995	Tannoy Westminster TW	£	6,600
B&W Matrix 803s2	£	2,495	Origin Live Conqueror	£	1,650	Avalon Osiris	£	72,000	Tannoy Canterbury 15 TW	£	7,720
B&W Matrix 802s3	£	2,995	Paragon Jubilee	£	1,995	B&W Matrix 801s3	£	3,995	Tannoy Westminster Royal	£	14,920
BKS Audio Hybrid 128	£	2,549	Pentachord P'column	£	1,649	B&W Silver Signature	£	5,500	TDL Ref Standard-m	£	6,000
Bose 301 VI	£	1,650	Poik L9S0	£	1,700	B&W Nautilus	£	35,000	Triangle Nemo Altair	£	6,250
Boston Lynfield 300L	£	2,000	Posselt Albatross	£	2,500	Bandor Bandoline	£	3,290	Wilson Audio Cub	£	5,495
Bravura Virtuoso Bronze	£	2,995	Proac Response 2S	£	2,000	Bandor Bandora/Mora	£	3,290	Wilson Audio WATT 5	£	8,750
Carver AL-111P	£	1,999	Proac Studio 250	£	2,249	BKS Audio Hybrid 175	£	3,995	Wilson Audio WITT	£	8,888
Cary SP-301	£	2,295	Proac Response 2.5	£	2,700	Boston Lynfield 500L	£	4,449	Wilson Benesch Actor	£	3,800
Celestion A3	£	2,399	Prof Monitor Co IB1S	£	2,099	Bravura Virtuoso Gold	£	3,395	Wilson Benesch ACT1 spkr	£	6,857
Celestion Kingston	£	2,500	Rehdeko RK115	£	1,700	Bravura Virtuoso Reference	£	3,995			
Chario Academy 2	£	1,649	Rogers LS5/9	£	1,549	Bravura Accelerando	£	6,600			
Chord LS5/12A	£	1,595	Ruark Crusader II	£	1,599	Chario Academy 3j	£	5,999			
Chord CEL 201	£	2,130	Ruark Equinox	£	1,849	Creo SPB 012	£	3,147			
Chord CEL 202	£	2,375	Ruark Accolade	£	2,699	Creo SDL 001	£	5,677			
Chord CEL 301	£	2,840	SD Acoustics SD5	£	1,549	Dali Grand	£	4,000			
Clements Reference 7	£	1,995	SD Acoustics SD1E	£	2,995	Def Tech BP2000	£	3,600			
Creo SPB 003	£	1,820	Shahinian Arc	£	1,875	Diapason Adamantes Ltd	£	3,995			
Creo SPB 009	£	2,453	Shahinian Obelisk	£	2,695	Dynaudio Contour 2.8	£	3,198			
Dali Grand Coupe	£	2,500	Shinpy Euritmica	£	1,995	Dynaudio Contour 3.3	£	4,815			
Def Tech BP2002	£	2,400	Shinpy Altair	£	2,895	Dynaudio Confidence 3	£	4,846			
Diapason Adamantes II	£	1,895	Silverado Silverado 1	£	1,995	Dynaudio Confidence 5	£	5,924			
Diapason Adamantes III	£	1,995	Sonus Faber Minima Amator	£	1,566	Dynaudio Consequence	£	14,566			
Dynaudio Contour 1.8	£	1,842	Sound-Lab Quantum	£	2,150	Electrofluidics Sonolith 2.2xi	£	5,999			
Dynaudio Crafft	£	2,598	Spendor SP7/1	£	1,990	ELS Res'ch Vista	£	3,900			
Dynaudio Contour 3.0	£	2,930	Spendor SP100	£	2,099	ELS Res'ch Illusion MkII	£	9,000			
ECA Servo A.2	£	2,450	T+A TB 140	£	1,680	Fase Evoluzione Aria	£	3,100			
ELS Res'ch Vision	£	2,800	Tannoy Definition D500	£	1,999	Horning Agathon	£	3,555			
Epos ES30	£	2,385	Tannoy Stirling TW	£	2,200	Impulse Taius	£	3,100			
Gamma Epoch Ref Five	£	2,999	Tannoy Definition D700	£	2,500	Infinity Sigma	£	5,995			
Harbeth HL-S8	£	1,999	TDL Studio Monitor-m	£	2,750	Infinity Epsilon	£	9,995			
Helius Syrius II	£	2,395	Totem Mann-2	£	2,795	Jamo Oriel	£	7,000			
Helius Syrius I	£	2,850	Triangle Zays	£	1,750	JBL S2600	£	3,500			
Heybrook Octet	£	1,800	Triangle Altinis	£	2,250	JBL S3100	£	4,000			
Hi Q Sound SM108	£	2,000	Triangle Extan	£	2,950	JM Lab Alcor	£	4,995			
Horning Aristophane	£	2,600	Wilson Benesch Orator	£	2,700	JM Lab Utopia	£	16,000			
Impulse Lali	£	1,850				JM Lab Grande Utopia	£	33,000			
Jamo Concert 11	£	2,000				Jordan Watts JH5K	£	3,950			
JBL L100	£	1,750	Acoustic Energy AE5	£	7,995	Jordan Watts JH10K	£	7,570			
JM Lab Spectral 913.1	£	1,850	Alon IV Mk II	£	3,495	KEF Ref. Model Four	£	3,299			
JM Lab Antea	£	2,850	Alon Lotus SE	£	3,495	Keswick Zero 2	£	7,000			
			Alon V Mk III	£	4,995	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 P	£	10,300			
						Magneplanar MG-20 SE A	£	11,000			
						Martin-Logan SL3	£	3,499			
						Martin-Logan CLS Ilz	£	4,555			
						Martin-Logan Re-Quest	£	5,875			
						Martin-Logan Monolith S	£	7,440			
						Martin-Logan Monolith IIP	£	8,550			
						Martin-Logan Monolith IIXPB	£	11,900			
						Meridian DSP5000	£	3,295			
						Meridian DSP5500	£	5,950			
						Meridian DSP6000	£	9,400			
						M-A Studio 50	£	4,000			
						M-A Studio 60	£	6,000			
						Naim DBL Active	£	7,414			
						Neolith NEO 2	£	3,499			
						Neolith NEO 3	£	4,999			
						NHT Model 3.3	£	3,500			
						Paragon Regent	£	3,490			
						Proac Response 3.5	£	4,250			
						Proac Response 5	£	9,000			
						Proac Response 4	£	12,000			
						Prof Monitor Co MB1P	£	4,370			
						Prof Monitor Co BB5 A	£	16,688			
						Quad ESL63	£	3,450			
						Rehdeko RK125	£	3,200			
						Rehdeko RK145	£	4,800			
						Rehdeko RK175	£	8,800			
						Revel Gem	£	5,295			
						Rockport Syzygy	£	15,000			



SUBWOOFERS

KEY
 (A) - active; includes a dedicated power amplifier.
 (THX) - THX approved by LucasFilm for use in Home THX installations.

Acoustic Energy AE108S	(A)	300
Allison Mini Ref Sub	(A)	210
Alon Poseidon	(A)	12,000
ATC SCM 0.1/15	(A)	2,750
Audio Physic Terra	(A)	3,499
B&W ASW1000	(A)	500
B&W AS6	(A)	500
B&W ASW2000	(A)	800
B&W ASW3000	(A)	1,000
B&W Matrix 800ASW	(THX)	1,500
B&W Matrix 800ASW	(THX)	1,500
Boston CR400	(A)	300
Boston VR500	(A)	450
Boston VR2000	(THX)	800
Celestion CS135	(A)	139
Celestion CSW MkII	(A)	329
Celestion S1i	(A)	349
Cerwin-Vega HT-100	(A)	200
Cerwin-Vega HT-120	(A)	250
Chario Syntar Bass	(A)	299
Chario Hiper Bass	(A)	499
Creo SDC 001	(A)	3,054
GLL LE Bass	(A)	350
H/K Citation 7.4	(THX)	875
Infinity SSW-10	(THX)	500
Jamo SW303E	(A)	220
Jamo SW400E	(A)	330
Jamo SW505E	(A)	400
Jamo Sub One	(A)	400
Jamo SW600e	(A)	530
JBL Contol Sub 6	(A)	200
JBL PSW800	(A)	275
JBL Sub 10	(A)	300
JBL PSW1000	(A)	325
JBL PSW1200	(A)	375
JPW Subwoofer	(A)	130
JPW SW40	(A)	199
JPW SW60	(A)	350
JPW SW-120	(A)	500
KEF Model 20B	(A)	349
KEF Model 30B	(A)	499



Take it to 11, Captain! The Jeff Rowland Concentra amp on idle.

KEF Model AV1	2,499
Kenwood SW500	250
Keswick Alto	1,299
KLH ASW10-100	350
KLH ASW12-120	380
Linn AV5150	2,850
L Voice RW24	11,500
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)	800
M&K MX-70	900
M&K MX-150 (THX)	1,500
M&K MX-200	1,800
M&K MX-300	2,500
M&K MX-5000 (THX)	2,900
Mission 73AS	450
Mission 75AS	548
Mordaunt-Short T2000	500
Mus Tec Sub	650
Muse Model 22	1,890
Muse Model 18	3,790
Neat Gravitas	1,095
NHT SW2PI	699
Paradigm PDR10	250
Poik PSW50	350
Poik PSW150	500
Poik PSW300	750
REL Q50	375
REL Q-100E	495
REL Strata II	575
REL Storm	695
REL Stadium II	995
REL Stentor II	1,800
REL Studio II	4,000
Revel Sub-15	2,195
Revolver The Recoil	100
R Allen Gold Sub	149
R Allen Dim'n Active	499
R Allen Magnum Active	699
Rogers AB1	549
Rogers Sub-bass	679
Roksan Ojan 3S	795
Sequence FW120	249
Solid PB100	350
Sony SA-W101	230
Sunfire True Sub	1,450
TDL Nucleus SBR	200
Triangle Sat III	650
Tsunami TS200	300
Tsunami TS210	400
Velodyne VA-68XII	399
Velodyne VA-810XII	599
Velodyne VA-1012XII	699
Velodyne VA-1215XII	999
Velodyne FSR-12	1,099
Velodyne FSR-15	1,299
Velodyne F-1800II	1,999
W'dale Modus Sub Bass	180
W'dale Modus Powered Sub	350
Wilson Audio Puppy 5.1	8,450
Wilson Audio Whow III	12,500
Yamaha YST-SW40	140
Yamaha YST-SW80	180
Yamaha YST-SW150	280
Yamaha YST-SW300	350

Helius Orion 4 Copper	549
Helius Cyalene 2	1,495
Kuzma Stogi	750
Kuzma Stogi Ref	1,250
Linn Akito	500
Linn Ekos	1,500
Manticore Musician II	595
Manticore Magician II	895
Manticore Magician 12	995
Moth Mk I	109
Moth MKIII Stainless	146
Moth Mk III Tungsten	174
Moth Moth 900	598
Naim ARO	1,040
N'h'am Space	450
N'h'am Paragon 3	550
N'h'am Paragon 2	800
N'h'am Mentor	800
N'h'am Foot	1,100
N'h'am Paragon 1	1,600
Rega RB250	109
Rega RB300	174
Rega RB900	598
Rockport Series 7000	6,000
Roksan Tabriz	320
Roksan Tabriz Zi	420
Roksan Artemiz	895
SME 3009 Ser II Imp	309
SME 3009 S2 Ser II Imp	338
SME Series II 3009-R	514
SME Series II 3010-R	526
SME Series II 3012-R	565
SME 309	689
SME 310	705
SME 312	802
SME Series IV	983
SME Series V	1,461
Wheaton Music Tri-Planar 4i	3,000
Wheaton Music Tri-Planar 5i	3,250
Wilson Benesch Act 0.5	795
Wilson Benesch ACT2	1,350
Zeta AS	469
Zeta VDH	549

Michi RHT-10	895
Micromega Minium FM Mk2	329
Kuzma Stogi	750
Mission Cyrus FM7	400
Musical Fidelity E50	300
NAD 412	190
NAD 414RDS	250
NAD 710	270
NAD 712	330
Naim NAT03	595
Naim NAT02	1,080
Naim NAT01	1,730
Onkyo T 4210RDS	P30 RDS
Onkyo T 409	P30
Onkyo T 411RDS	P30 RDS
Pioneer F-204RDS	P30 RDS
Pioneer F-504RDS	P40 RDS
Pioneer F-504RDS Precision	P40 RDS
Quad 777M	P25 RDS
Rega Radio	P24
Roksan Caspian	P50
Rotel RT-935AX	P20
Rotel RT940AX	P20
Sony ST-SE200	P30
Sony ST-SE300	P30 RDS
Sony ST-SE500	P30 RDS
Sony ST-SE700	P30 RDS
Sony ST-SA3ES	P30 RDS
T+A T1200R	P20 RDS
TEAC T-R400	P30 RDS
TEAC T-H500	P20
TEAC TB-X10	P30 RDS
Technics ST-GT350L	P30
Technics ST-GT550L	P39 RDS
Technics ST-GT650L	P39 RDS
Thorens TRT-2000	P59 RDS
Yamaha TX-480L	P40
Yamaha TX-10 II	P40 RDS
Yamaha TX-492RDS	P40 RDS
Yamaha TX-59 2RDS	P40 RDS
Yamaha RX-396RDS	P40 RDS

Thorens TD-166 VI/UK/RB	400
Thorens TD-318 III TP50	500
Over £500	
Audio Note AN-TT 2	995
Audio Note AN-TT 3	1,995
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	10,300
Chantry QT Level 2	705
Clearaudio Evolution	1,790
Clearaudio Reference	3,990
DNM-Reson Rota 1	3,900
DNM-Reson Rota 2	5,600
Impulse Moskito	695
Kuzma Stabi	1,950
Kuzma Stabi Reference	3,750
Linn LP12 Basik	1,100
Linn LP12 Lingo	1,750
Manticore Mantra	895
Manticore Magister	4,400
Michell Gyrodek	875
Michell Orbe	1,995
N'h'am Spacedeck	750
N'h'am Graphic	1,200
N'h'am HyperSpacedeck	1,500
N'h'am Mentor	2,600
N'h'am Anna Log	5,500
Oracle Paris	1,100
Oracle Delphi	3,370
Oracle Delphi 15th Anniv	3,800
Pink Triangle Tarantella	680
Rega Planar 9	1,598
Reson RS1M	600
Reson Rota 1	3,900
Rockport Capella II	7,000
Rockport Sirius III	50,000
Roksan Xerxes 10	1,295
Roksan TMS	2,750
SME Model 20/2	3,403
SME Model 20/2A	4,863
SME Model 30/2	10,675
SME Model 30/2A	12,135
Stratosphere ST1	6,500
Technics SL-1200LTD	700
Thorens TD-146 VI TP50	550
Thorens TD-2001 TP90	700
Thorens TD-520 SME	1,050
Well Tempered Record Player	1,850
Well Tempered Classic	2,980
Well Tempered Super	3,900
Well Tempered Reference	5,300
Wilson Benesch Circle	795
Wilson Benesch WB Turntable	1,775
Wilson Benesch Full Circle	1,995

TUNERS

KEY
 'P20' - (etc.) number of presets.
 RDS - Radio Data System; receives text information on station, programme type etc.

TURNTABLES

KEY
 ☉ arm included.
 ☑ cartridge included.
 Up to £500

TONEARMS

KEY
 ☉ - pivoted.
 # - parallel tracking.

Air Tangent IC	#	4,600
Air Tangent 10B	#	8,600
Air Tangent Reference	#	14,000
Audio Note AN-ARM 1	☉	169
Audio Note AN-0s	☉	795
Audio Note AN-1s	☉	995
Audiomeca SL5	#	2,500
Clearaudio TQ-1 Improved	#	1,950
Dynavector 507	☉	1,995
Graham 1.5 Basic	☉	1,695
Graham Mk 2.0	☉	2,650

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
Audiolab 8000T	P39	800
Aura TU80	P30	350
AVI S2000MT	P16	599
AVI S2000MT2	P99	899
Carver TX-8R	P20	469
Creek T43	P68	399
Day Sequerra FM Ref		5,937
Day Sequerra S B'dcast Mon		14,640
Denon TU-260L	P20	120
Denon TU-215RD	P40	150
Denon TU-425RD	P40	200
Fanlars FT1	P08	1,395
H/K TU930	P30	150
H/K TU950	P30	200
Kenwood KT-2080	P20	130
Kenwood KT-3080	P30	180
Linn Kudos	P50	775
Linn Kremlin	P80	2,600
Magnum Dynalab FT11		550
Magnum Dynalab FT-101A		825
Magnum Dynalab Etude		1,250
Magnum Dynalab 108		4,500
Marantz ST-48	P30	119
Marantz ST-17	P60	600
McIntosh MR7084	P50	2,499
McIntosh MX118	P50	4,999
McIntosh MX130	P50	6,999
Meridian 504	P30	695


Audio Note AN-TT 1	☉	349
Dual CS435-1	☉	150
Dual CS455	☉	190
Dual 505-4 UK	☉	250
Eclipse TT430	☉	70
Genexa Lab-710	☉	60
Genexa Lab-810	☉	70
Kenwood KD-492F	☉	100
Michell Mycro	☉	455
Moth Alamo	☉	199
Moth Kanoot Mk1 Arm	☉	279
Moth Kanoot Mk3 Arm	☉	329
NAD 533	☉	220
N'h'am Interspace	☉	500
Pioneer PL-J2500-C	☉	80
Pioneer PL-990	☉	130
Pro-Ject 0.5/OM10	☉	170
Pro-Ject 1/510	☉	210
Pro-Ject 2/520	☉	325
Pro-Ject 6/MC15	☉	500
Rega Planar 78	☉	214
Rega Planar 2	☉	214
Rega Planar 3	☉	274
Roksan Radius	☉	470
Sherwood PM8550	☉	130
Sony PS-LX150H	☉	90
Sony PS-LX300H	☉	150
Systemdek I/920	☉	136
Systemdek IIX/900	☉	230
Systemdek I/920/Moth	☉	235
Systemdek IIXE/900Ap	☉	388
Systemdek 960	☉	500
Systemdek 2X2	☉	500
Technics SL-J110D	☉	120
Technics SL-B020	☉	160
Technics SL-BD22	☉	180
Technics SL-1210MKII	☉	400
Technics SL-1200MKII	☉	400
Thorens TD-180 AT91	☉	190
Thorens TD-280 IV/UK	☉	210

Remember that all entries printed in **RED** refer to hi-fi products that we have reviewed. Turn to page 106 for a full summary of test results!



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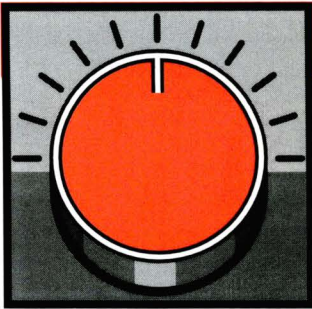
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Amplifiers



The amplifier sits at the heart of the system, processing the outputs from the various music sources as necessary and then driving the loudspeakers. These two (quite separate) functions are integrated into a single box at the low-to-middle price points, but are separated in preamps and power amplifiers. Even separate power supplies become increasingly common as one moves upmarket.

Bear in mind that output power and sound quality are not necessarily related. Some of the finest amplifiers available have outputs as low as

12 Watts, but team them with high-efficiency loudspeakers and you can achieve loudness aplenty.

Please note: monoblok power amps are those in which the left and right channels are handled by physically separate units.



KEY

LINE INPUTS: Number of input sockets for non-vinyl sources such as CD players, tuners and cassette decks.

MM PHONO INPUT: If an amp has an input for moving magnet (normal output) phono pickup cartridges.

MC PHONO INPUT: If an amp has an input for moving coil (low output) phono pickup cartridges.

REMOTE CONTROL: If an amp is couch-potato ready.

HEADPHONE SOCKET: If an amp is can friendly.

POWER OUTPUT (W): Lab-tested power output in Watts per channel.

RECEIVER: If an amp has a built-in radio tuner.

FACTSBACK NUMBER: The Factsback reference for ordering a fax

copy of the review. Use the contents page to find the Factsback information page elsewhere in this section.

ISSUE NUMBER: The issue of *Hi-Fi Choice* in which the original review appeared.

INTEGRATED AMPLIFIERS

Product	Price(£)	Comments	LINE INPUTS	MM PHONO INPUT	MC PHONO INPUT	REMOTE CONTROL	HEADPHONE SOCKET	POWER OUTPUT(W)	RECEIVER	FACTSBACK NUMBER	ISSUE NUMBER
Alchemist Maxim	319	Vivid and colourful-sounding amp that's just too bold and brassy	5	●				30		1737	154
Alchemist Kraken APD6A	579	Compact, with Darth Vader styling, yet sound quality is surprisingly meek and mild, despite strong midband dynamics	5	●				55		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 CVT3030a	400	Beer-budget valve amp, with quintessentially valve-like virtues (euphony with dynamics) and vices (system dependency, noise)	6	●			●	30		2001	168
Arcam Alpha 7	260	Decent, if slightly system-fussy amplifier that generally pulls all the right strings	5	●			●	40		1971	167
Arcam Alpha 8	360	Enjoyably soft-centred amp, won't frighten the animals. Upgradeable via preamp output, and optional remote control	5	●			●	50		1853	162
Arcam Alpha 9	500	Not quite a match for the Alpha 9/9P combo, the solo integrated is nevertheless colourful and explicitly detailed	7			●	●	70		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
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. Other than that...	4	●		●	●	40		2235	178
Audio Note Oto SE	1,200	Transparent, dynamic, clear and subtle, but offers limited power output	4					24			176
Audiolab 8000LX	470	Well built, minimalist entry level model ultimately lacks bottle and pizzazz	6				●	60		2148	175
Audiolab 8000A	500	The 8000A remains a highly disciplined and mature-sounding amp	5	●	●		●	60		1581	140
Audiolab 8000S	700	Informative in every sense, only a slight lack of bite detracts. Perhaps Audiolab's best yet!	6				●	60		1740	154
AVI S2000MI	999	Fine, detailed amplifier with excellent timing and strong control of a wide range of loudspeaker loads	5				●	100		2155	175
Bryston B60R	1,249	Build quality can't be faulted, but the lazy bass and opaque treble bracket an articulate midband. Comes with 20 year guarantee	5				●	60		2156	175
Cambridge Audio A3i	200	"Maximum information" design, with plenty of usable and reasonably refined power. A snip!	4	●				60		1972	167
Copland CSA8	945	Sophisticated yet transparent, this is one of those amplifiers that sounds good even when the gloss has worn off	5					60		2010	168
Copland CSA14	1,199	Great sound and looks, but watch out for high capacitance speaker cables	4	●				60		1416	148
CR Developments Orpheus	569	Solid and capable on paper, this is a bit of a blunt instrument when let loose on the music	5					150			181
Credo IMP702	850	Old-fashioned looking, but bags of clarity and precision, though it can sound brash in the wrong system	5					70		2157	175
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
Denon PMA-250SE	160	This amp can sound rough when extended, but within its limits it is open, detailed and likeable	5				●	30		2046	171
Denon PMA-350SE	200	Reinvented in the minimalist tradition, this SE model is a control freak, but can sound wonderful	5				●	50		1856	162
Denon PMA-425R	230	Well-equipped and generally enjoyable but slightly ragged performer	3	●			●	45		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, rather than for its ability to shake the emotions	5	●	●	●	●	70			181
Densen Beat B-100 MkII	650	High 'air guitar' factor, and can punch above its weight, but check to ensure it will complement the rest of your system	5					60		1855	175
DPA Renaissance	595	DPA's first integrated amp is typically innovative, but a little too 'crisp 'n dry' for our tastes	5	●			●	40		1582	140
EMF Audio Sequel	450	Relaxed and restrained design from Mike Creek	5	●			●	50			109
Exposure XX Super	700	Rather transistorised, unexciting sound. Good coherence and rhythm. Best played loud	6					55		1743	154
Electrocompaniet EC1-2	995	A 50 watt amplifier which sounds more powerful, and makes real sounding music in real sounding acoustic spaces	4					50		2158	175
Gamma Acoustics Gemini	699	Genuine single-ended triode design, but low power, mundane sound and poor build	3					12		1416	148
Goodmans Delta 900A	130	Coloured and raw sound offsets high power yield and remarkable pricing, but noisy fan cooling is a joy-killer	5	●			●	100		2228	178
Harman/Kardon HK610	180	Lively and friendly sound, but could prove too exciting for the faint hearted	6	●			●	30		1465	149
Harman/Kardon HK620	250	Capable and musical amplifier which is among the nicest available at the price. Optional add-in MM/MC board available	6				●	40		1858	162
Hofli Audis Signature	750	A no-feedback circuit giving outstanding resolution, but significant load dependency	4	●				65			181
JoLida 202	695	Well-built and technically accomplished, affordable valve integrated with subtle and refined, if not quite gripping sonic performance	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-3020SE	200	Not a brilliant phono stage, but this is a lively, exuberant-sounding amp via CD	5	●			●	50		1130	134
Kenwood KA-5090R	300	Large, well equipped and high tech integrated, but TRAITR output still gives a harsh, unsubtle performance	5	●	●	●	●	65		2053	171
LFD Integrated Zero	549	Lively and brisk, but at the same time cold and unsympathetic	6					50		1584	140
Linn Majik (phono)	800	The cornerstone of Linn's modular hi-fi system is innovative, but sounds vague and confused	5	●	●		●	33		1013	129
Magnum IA120	265	Mirror finish amplifier with a bold, colourful delivery, but needs careful system matching to avoid loss of focus and clarity	6				●	65		2054	171
Magnum IA170	330	Gives a realistic sense of instruments playing within a very believable acoustic, preserves colour and dynamics well	6				●	96		1260	142
Magnum IA-200	599	Sweet, valve-flavoured solid state amplifier flatters where it doesn't cast light	7					160		1860	162
Magnum Class A	690	Lashings of rich and compelling music, but the Class A circuits trade lushness for accuracy	4	●	●			60			116
Magnum Class A SE	795	A MOSFET amplifier drawing inspiration from the world of valves, this is an erratically refined, detailed amplifier	5	●				80		2159	175
Marantz PM-57	200	Well equipped but ultimately anodyne amplifier which lacks for nothing but star quality	5	●			●	50		2049	171

INTEGRATED AMPLIFIERS

ISSUE NUMBER
FACTSBACK NUMBER
RECEIVER
POWER OUTPUT(W)
HEADPHONE SOCKET
REMOTE CONTROL
MM PHONO INPUT
MC PHONO INPUT
LINE INPUTS

Product	Price(£)	Comments	5	4	3	2	1	0	50	1969	167
▶ Marantz PM-66SE	230	A bit lush, and power output is limited, but it communicates well and gives airy, large-scale music. An excellent budget buy	5	●	●	●	●	●	50	1969	167
▶ Marantz PM66 KI-Signature	400	An amplifier that knows how to rock and roll with holographic detail and stereo, but prefers small/medium scale acoustic material	5	●	●	●	●	●	50	2003	168
▶ Marantz CD-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
▶ Micromega Tempo 2	900	Idiosyncratic but flexible amplifier with an attractively forward and expressive sound quality	7	●	●	●	●	●	70		181
▶ Mission Cyrus IIIi	598	Beautifully presented, but mid-dominated balance and other anomalies were not liked. Upgradeable using PSX PSU unit	6	●	●	●	●	●	50	1854	162
▶ Mission Cyrus SL	398	Sharp, articulate amplifier, and superb, outgoing midband with lean though well-extended bass – and build quality to die for	6	●	●	●	●	●	50		168
▶ Monrio ASTY	400	Engaging, but ill-disciplined, even OTT amplifier that responds less than predictably to system changes	5	●	●	●	●	●	55	2237	178
▶ Musical Fidelity E1	199	Vivid, richly flavoured tonality and realistically scaled imagery distinguish this new 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, and some colorations are evident	6	●	●	●	●	●	60	2232	178
▶ Musical Fidelity X-A1	479	Idiosyncratic visuals is 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 and source components.	5	●	●	●	●	●	50	2012	168
▶ Myryad MI120	600	Well styled, well built and, well, a good, even tempered amplifier, though it can sound a bit brittle, and lacking in euphony	6	●	●	●	●	●	60	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 312	200	Another great budget price NAD, and a worthy all-round successor to the 302	6	●	●	●	●	●	25	2051	171
▶ NAD 314	260	Lively if coloured presentation that is musically engaging and easy on the ear	6	●	●	●	●	●	53	1807	157
▶ Naim Nait 3	575	Distinctive and highly musical sounding integrated amp. Perhaps too distinctive for some tastes	5	●	●	●	●	●	30	1748	154
▶ Orelle SA-100	499	A musically rewarding amplifier that grows on you. Trace of coarseness in treble	5	●	●	●	●	●	50	1749	154
▶ Orelle SA-100RX	649	In its latest guise, this is a fluid, articulate and transparent design, and excellent value	7	●	●	●	●	●	Opt	75	181
▶ Pioneer A-204R	160	The A-204R makes no special claims beyond being well equipped and cheap, but it displayed unexpected talent on test	5	●	●	●	●	●	25	2047	171
▶ Pioneer A-300R	200	Its bright and breezy sound is a natural tonic to those of us worn down by the ongoing stress of life	5	●	●	●	●	●	50	1469	149
▶ Pioneer A-405R	250	Fully featured, open and dynamic sounding, more than makes up in enthusiasm what it occasionally lacks in refinement	5	●	●	●	●	●	45	2230	178
▶ Pioneer A-400X	300	On second audition, this amp was tonally unchanged but less compelling	6	●	●	●	●	●	50	1545	138
▶ Pioneer A-300R Precision	400	Sophisticated, breathed-on variant of the A-300R. Not an obvious winner, but will slowly win you over with its subtle charms	5	●	●	●	●	●	35	1863	162
▶ Pioneer A-605R	400	Intriguing technology, but execution is certainly impeded by excessive gadget count	5	●	●	●	●	●	80	2005	168
▶ Pioneer A-07	999	Curious mix of high end attributes and inconsistent, though undeniably detailed sound	5	●	●	●	●	●	80	2160	175
▶ Primare A-20 Mk II	799	Fabulous packaging apart, everything has changed, leaving a much ballsier model that has lost none of its original refinement	5	●	●	●	●	●	70		181
▶ Pro-ject Model 7	300	A minimalist amplifier brimming with good intent, but too quirky for its own good. Either MM or MC	5	●	●	●	●	●	40	1264	142
▶ Quad 77 Integrated	700	Compact and sophisticated Quad system amp, limited range of inputs when used with 'foreign' components (optional system remote)	3	●	●	●	●	●	84	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
▶ 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
▶ Sony TA-F448BE	250	Classic minimalist interface is matched to carefully considered circuit to broadly satisfactory effect - but keep the volume in check	5	●	●	●	●	●	55	2055	171
▶ Sony TA-F3000ES	500	Champagne shoebox amp may lack power reserves, but is quick, polished and articulate. In every sense a knockout	5	●	●	●	●	●	35	2239	178
▶ Talk Electronics Storm 1	500	Good soundstaging and strong detail are provided by this unassuming and not especially powerful model	6	●	●	●	●	●	50	1868	162
▶ Talk Electronics Storm 2	650	Crisp, clean, well defined sound, arguably lacking warmth, but a good midrange purchase overall	6	●	●	●	●	●	50	2154	175
▶ TEAC A-8XR	700	Characterful balance mars an otherwise meticulously designed amplifier. Includes a balanced input, optional MM/MC stage	5	●	●	●	●	●	50	1869	162
▶ Technics SU-A700 Mk 3	250	Fully equipped, high-tech amplifier ultimately fails the authenticity test, and can sound messy and inarticulate	5	●	●	●	●	●	45	1870	162
▶ Technics SU-A800D Mk 2	300	Two-box amplifier looks great, has plenty of gadgets, and makes good, if slightly over-exuberant music	5	●	●	●	●	●	55	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
▶ Woodside ISA230 Disc	1,249	Smooth and inoffensive valve amplifier, though it lacks the sparkle and euphony required for a truly entertaining sound	3	●	●	●	●	●	30		116
▶ Yamaha AX-492	220	Powerful, well equipped amplifier at an attractive price, offers powerful and engaging music-making	5	●	●	●	●	●	85	2231	178
▶ Yamaha AX-592	280	Fine, middle ranking amplifier, with a detailed, dynamic midband but some performance falloff at the frequency extremes	5	●	●	●	●	●	100	2056	171
Preamplifiers											
▶ Audiolab 8000C	580	Distinctive, stark neutrality that will not appeal to all. Good value engineering	5	●	●	●	●	●			97
▶ Audiolab 8000Q	1,250	Tested with 8000M monoblock power amps	6	●	●	●	●	●			1301 145
▶ Copland CTA-301MkII	1,399	Sweet sounding – but never gets bogged down in audio treacle	4	●	●	●	●	●			1630 151
▶ Crimson 610C/620C	875	Not entirely satisfactory preamp which has dynamic strengths, but which underachieves when the volume is raised	4	●	●	●	●	●			181
▶ EAR 802MC	2,599	Tested with 509 Mk 2 power amp — see over leaf	4	●	●	●	●	●			63
▶ ECA Vista	760	Wind up the volume and blow a breath of fresh music into your system (tested with Lectern power amp — see over leaf)	5	●	●	●	●	●			1302 145
▶ Exposure XVII	850	Superbly rhythmical; maybe a bit overpowering in the midband. Tested in Sessions with XVIII Super	5	●	●	●	●	●			142
▶ Jadis JP-30MC	5,978	French tubes, JP-30MC has beautiful build, nostalgic styling and delightful midrange. (Tested with JA 30 power amp)	5	●	●	●	●	●			60
▶ LFD Mistral Linestage	449	Strong ergonomics, generally decent sound, but a little lacking in detail	6	●	●	●	●	●			1930 165
▶ Meridian 501	695	Tight, positive sound, but dispassionate; intense at high levels. Tested with 555 power amp	5	●	●	●	●	●			1303 145
▶ Meridian 562V	995	Transparent and capable preamp, also features six digital inputs	9	●	●	●	●	●			140
▶ Meridian 502	1,295	Extremely sophisticated analogue controller with tremendous flexibility and a fast and tidy presentation (Statements)	7	●	●	●	●	●			162
▶ Moth 30 Passive	149	Modular system gives cracking results. Passive preamp and power amp warrant Best Buy (tested with 30/Stereo 60)	4	●	●	●	●	●			109
▶ Moth 30 Active Line Stage	349	Excellent-sounding ultra-simple miniature preamp	4	●	●	●	●	●			1931 165
▶ Muse Model Three	1,990	Natural sounding tranny preamp with useful audiophile features. Works beautifully with 160 power amp (tested in Statements)	5	●	●	●	●	●			166
▶ Musical Fidelity X-PRE	200	Cleverly configured preamp with many upgrade options, and open, lively and engaging sound. (Teasted with X-A50 monoblocks)	4	●	●	●	●	●			2152 175
▶ NAD 114	270	Beer-budget preamp, sounds focused, detailed and consistent	6	●	●	●	●	●			1932 165
▶ Naim NAC92R	630	Upgradeable preamp uses proprietary socketry. (Tested with NAP90 power amp)	5	●	●	●	●	●			1936 165
▶ Quad 77 Pre	850	Sophisticated design with 2-way remote control console; open colourful sound and very flexible	4	●	●	●	●	●			1941 165
▶ Rega Hal	998	Dedicated to Exon power amps – passive line stages	6	●	●	●	●	●			1942 165
▶ Rose RV-23	450	You can pay more to get a more transparent sound, but it's hard to criticise at the price	3	●	●	●	●	●			77
▶ Rotel RC-971	150	Low price is offset by rather coarse sound quality with certain types of music. (Tested with RB-971)	5	●	●	●	●	●			178
▶ Sumo Athena IIB	767	Big, natural and tidy-sounding with very natural reproduction of acoustic and electric instruments. (Tested with Polaris III)	6	●	●	●	●	●			1305 145
▶ Talk Hurricane 2L	649	Design of integrity which gets to the heart, if not the soul, of the music	6	●	●	●	●	●			1937 165
▶ Thorens TTP2000F	699	Glamorous, shoebox-format, minimalist pre with fine detail and some granularity	3	●	●	●	●	●			1938 165
▶ Woodside SC26 Phono	2,233	Synergistic with STA35, with a cool, controlled sound, good focus and transparency. (Tested with STA35 power amp)	5	●	●	●	●	●			100

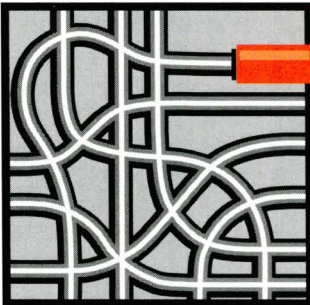
POWER AMPLIFIERS (CONTINUED)

ISSUE NUMBER
FACTSBACK NUMBER
RECEIVER
POWER OUTPUT(W)
HEADPHONE SOCKET
REMOTE CONTROL
MM PHONO INPUT
MC PHONO INPUT
LINE INPUTS

Product	Price(£)	Comments	1	2	3	4	5	6	7	8	9	10	11	12
Alchemist Kraken/Pwr	529	Hardly accurate, but entertaining nevertheless	1									60		124
Arcam Alpha 9P	400	Clear, colourful and well-disciplined, the Arcam is a strong all-rounder that can compete with conviction	1									60	1929	165
Art Audio Quintet	1,393	Switchable triode, ultralinear output stage. In triode mode, these are 15 of the sweetest Watts around. Surprisingly gutsy	1									15		109
Audiolab 8000M	1,600	Strong, controlled sound; confident bass, but colourless	1									125	1301	145
Copland CTA-505	2,099	Grown-up amplifier with a refined, yet never over-civilised air	1									67	1630	151
Crimson 620C	875	Not entirely satisfactory power amps which has dynamic strengths, but which underachieves when the volume is raised	1									50		181
EAR 509 Mk II	3,699	Combining sonic strengths of transistors and valves, this amp warrants attention. (Tested with 802 pre)	1									100		63
ECA Lectern	880	Tested with Vista. Wind up the volume and blow a breath of fresh music into your system	1									50	1302	145
LFD Mistral Power	449	Infectious upper band vitality, but LF dynamics lacking, and lacks 'grip' and transparency	1									60	1930	165
Meridian 555	750	By providing an open window on the music, this amp is wide open to RF and low level IM distortions	1									60	1303	145
Michell Alecto	1,150	Open, well focused imagery with natural, refined textures	1									50	1940	165
Moth 60 Watt Stereo	599	Miniature power amp lacks control and finesse, not comfortable with difficult speaker loads	1									60	1931	165
Moth 30 Series Monobloks	879	Tested with Active Preamp. While demonstrating solid, even balance it proved adept at delivering vital musical qualities	1									100		155
Musical Fidelity FX2	800	Quality build and imposing presentation is married to strong power yield, tonal colour and finesse	1									100	1934	165
Musical Fidelity X-A50	500	Cleverly configured and attractively packaged, open, lively and engaging sound. Reviewed with X-PRE	1									50		175
Myryad MA120	450	Based in MI120 integrated – see latter for comments, but sounds significantly better when bi-amped with MI120	1									60	1935	165
NAD 214	370	A little lightweight, but detailed, consistent sound quality, and excellent value for money	1									80	1932	165
Naim NAP90	450	Power amp from a Nait integrated with some improvements	1									30	1936	165
Quad 77 Power	600	Open, bold and colourful, with mild compression	1									85	1941	165
Rega Exon	1,196	Monoblock, priced each, dedicated for Hal preamp. Bold, outgoing, in-command kind of sound	1									125	1942	165
Rotel RB-971	200	Somewhat better than the accompanying preamp - clean, mean and bridgeable. (Tested with RC-971)	1									70		178
Rotel RB-980BX	450	Tames enthusiastically recorded material with a laid-back and occasionally smeared sound	1									120		155
Sumo Polaris III	950	Tested with Athena IIB. Big, natural and tidy-sounding with very natural reproduction of acoustic and electric instruments	1									164	1305	145
Talk Tornado 2	600	Good, but slightly retiring sound which lacks the authority to stand out in a crowd	1									65	1937	165
Thorens TTA2000	599	Low power shoe-box format, but gutsy and surprisingly subtle and articulate	1									30	1938	165

FOR MORE IN-DEPTH INFORMATION ON REVIEWED PRODUCTS, CHECK OUT OUR WEB SITE AT www.hifichoice.co.uk

HI-FI CHOICE



Cables

Cables — both to connect line-level devices to an amplifier, and to correct the latter to a speaker. — are not just accessories, but an integral part of a system. Though their prices may vary, the most expensive wires are not automatically the best. The best cable for your system will only be found through trial and error, but by combining our recommendations with those of a dealer, you will end up with something suitable. Generally speaking, budget to spend about 10 per cent of the total system cost on cables.

■ Analogue interconnects are the leads that connect between source components and amplifiers, and between pre and power amps. The cables in this section are priced for a one-metre terminated pair.

- Digital interconnects connect CD transports to DACs, and are traditionally coaxial with a 75 Ohm impedance. They come in optical and electrical varieties, the former being made of plastic or glass. The prices shown are for a terminated linear metre.
- Speaker cables are used between the amplifier and speaker. Our prices are per unterminated metre. Termination (plugs and soldering) costs vary with brands.

B Best buy **R** Recommended

KEY			
SYMMETRICAL: A twisted pair of conductors.	SOLID CORE: Single or multiple, individually insulated strands.	FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this section.	ISSUE NUMBER: The issue of <i>Hi-Fi Choice</i> in which the original review appeared.
COAXIAL: A central 'hot' conductor and a shield that carries the negative signal.	COPPER: Material used for conductor.		
STRANDED: Multiple strands with no intervening insulation.	SILVER: Material used for conductor.		
	DIG CABLE TYPE: O - optical digital, E - electrical digital.		

ISSUE NUMBER
FACTSBACK NUMBER
DIG CABLE TYPE
COPPER
SILVER
SOLID CORE
STRANDED
COAXIAL
SYMMETRICAL

CABLES

Product	Price(£)	Comments	1	2	3	4	5	6	7	8	9	10	11	12
Analogue Interconnects														
Audio Note AN-A	18	Not especially impressive: warm but well-rounded balance that restricts 'air' but is quite clear												108
Audio Note AN-C	35	Neutral but lacking in subtle texture and unable to distinguish fine detail												1687 131
Audio Note AN-S	99	Up-beat and enthusiastic sound with satisfyingly deep and grumbly bass												1687 131

CABLES (CONTINUED)

SYMMETRICAL
COAXIAL
STRANDED
SOLID CORE
COPPER
SILVER
FACTSBACK NUMBER
DIG CABLE TYPE
ISSUE NUMBER

Product	Price(£)	Comments	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	FACTSBACK NUMBER	DIG CABLE TYPE	ISSUE NUMBER	
Audio Note AN-V	179	15 individually insulated silver strands make up this very clean and dynamically unchallenged cable	●		●			●	1687		131	
Audioquest Turquoise	40	A 'fit and forget' cable that sounds distinctly lazy	●		●		●				160	
Audioquest Topaz 2	60	Sounds flattened out, with poor imaging and grainy treble					●	●	2166		176	
CableTalk Advanced 2	35	Slight roughness in loud music barely detracts from a well-balanced performance with good imaging			●		●		2166		176	
Cable Talk Studio 2	65	A first-class performer from tonal, dynamic and rhythmic standpoints	●		●		●				160	
Cambridge Pacific	30	Lacks subtlety and bass impact but is otherwise quite serviceable for the price			●	●	●		2167		176	
Cambridge Audio Studio Ref	40	Dynamic cable with strong soundstaging and only a slight lack of detail			●	●	●				160	
Chord Company Cobra 2	50	Good, strong sound with full-bodied music, less happy with smaller forces				●	●		2167		176	
Connections Midas HD	39	Canary yellow cable with excellent plugs and an open sound. Slight treble glare	●		●		●				160	
DNM TCC75	34	Price for 0.75m length. High resolution cable, but best in short runs due to higher than average series impedance					●	●	1690		131	
DPA Slink	41	Slightly bright and zingy sound with flat soundstaging and hollow sounding bass, vocals and strings sound convincing though					●	●	1690		131	
DPA White Slink	75	Bass recedes as the music gets complex; midrange and treble better with quite good detail and imaging					●	●	2168		176	
DPA Black Slink	245	Initially dark and meaty but becoming lucid and transparent with running in. Quad geometry, Gore-tex dielectric	●				●	●	1691		131	
Goertz M1 Interconnect	145	Soft sound lacking in bite, with excessive and plummy bass (NB sample used in review was only 0.5m)	●				●	●	2168		176	
Insert Audio IC100 MKII	47	Mostly good sound is let down by pervasive dryness					●	●	2169		176	
Ixos 104	20	Open and detailed presentation, full bass and silky if overly smooth treble			●		●	●	1692		131	
Ixos Gamma 1002	39	Lumpy bass, grainy treble, and poor integration. Nice colour, though	●		●		●		2169		176	
Ixos 103	45	Even-handed and generous sound, bass has a well-rounded, bouncy quality			●	●	●		1692		131	
Ixos 102	60	A bit bright and undynamic, this cable is nevertheless a good all-rounder, whose faults are largely subtractive			●	●	●				160	
Ixos 101	100	A cable with personality: its veiled and shut in quality bring an earthiness to vocals and rhythm guitar alike			●	●	●	●	1693		131	
Kimber Hero	110	Slight roughness detracts from some music; seems well suited to rock and jazz. Lively and detailed	●		●		●		2170		176	
Moth Ley Line Black	100	Offers a full and big sound, neutral yet very solid and confident in delivery. Expansive imaging retains music's energy	●		●		●	●			108	
Moth Ley Line Grey	200	Detailed enough but there's a sense of distance between the music and the listener: vocals are coarse rather than liquid	●		●		●	●			108	
Nordost Black Knight	60	Flat black cable that is distinctive but slightly coloured – but not in a wholly negative manner	●		●		●				160	
Nordost Blue Heaven	145	Very good bass and only slightly grainy treble add up to a well integrated, natural-sounding cable	●			●	●				176	
Prowire Silver	60	A good cable in every way, with just the occasional hint of coloration and coarseness				●		●	2171		176	
PAD Elementa	145	A fat, heavy and frankly rather lazy-sounding cable; best with music for small forces	●				●	●	2171		176	
QED Qnect 2	30	Very well balanced, refined and detailed, this is everything a good cable should be, and excellent value					●	●	2172		176	
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	
Sonic Link Black	49	Nickel-plated copper with a slight dryness in the bass and a hint of treble roll-off don't compromise integration.	●		●		●		2172		176	
Straight Wire Chorus	40	A very confident cable with good bass, though perhaps a shade of treble loss			●	●	●		2173		176	
van den Hul The Storm	25	Price for 0.8m length. Rich and warm but bass is rolled off: however there's plenty of drive and high frequencies are clean			●		●	●			1701	131
van den Hul Source HB	50	Price for 0.8m length. Hybrid carbon-fibre/copper cable that is a paragon of naturalness. Airy and well controlled			●	●	●				160	
van den Hul D102 MkIII	70	A cable with everything; good bass, treble, imaging and naturalness				●	●	●	2173		176	
van den Hul The First	210	Using 12,000 carbon fibres, a gentle and subtle sounding cable that conveys oodles of information but lacks dynamic punch			●	●					1702	131
van den 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 colourations; plenty of weight, smooth vocals			●		●	●		E	1707	131
Kimber Kable Opti-link	50	Appears to be a bog-standard PMNA fibre, yet sounds a little brighter and livelier than most								O	108	



Tel: 0181 348 5676 (2.00-7.00 pm)
Fax: 0181 341 9368

Esoteric High Fidelity CABLES

Dealers in: Absolute, Audio Note, Audioquest, Deltec, Electrocompaniet, Harmonix, Kimber, Mandrake, MIT, Siltech, Symo, Transparent, Van den Hul, WBT and others.

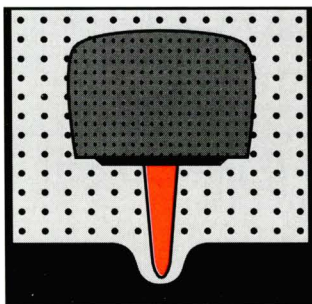
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... in YOUR system
... for YOUR ears
... in YOUR home

Contact us by phone, fax, or letter and we'll do our best to help you achieve your goal.
(Auditions may be subject to a handling charge)

CONNECTIONS 13 John Princes Street, London W1M 9HB (A division of Connection 90' Travel Ltd.)

CABLES (CONTINUED)

Product	Price(£)	Comments	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	FACTSBACK NUMBER	ISSUE NUMBER	
Moth Leyline Datalink	140	A thin, coaxial version of Leyline Black with a rather hard and unforgiving character. Too expensive		●					E	108	
QED Digiflex	20	A top performance, low-loss 75 Ohm coax with a very open, almost liquid quality		●					E	108	
Siltech HF-6	145	Sounds detailed, very clean and very extended, but bass is less well resolved — a treat for high-end systems though			●				E	1709 131	
SonicLink Green	60	Spacious, positive and engaging if a bit over-crisp at times — very compelling however			●				E	1709 131	
van den Hul The First	125	Exceptionally natural albeit slightly dark or cautious compared to some, plenty of subtle information and beautiful integration			●				E	1710 131	
Loudspeaker Cables											
Audio Note AN-D	4.50	Supplied in linear, non-polarised lengths that should be twisted into stereo pairs. Sounds rather grippy and forward					●	●			109
Audio Note AN-B	16.50	Well suited to valve systems, elastic bass, methodical but unintrusive and musical					●	●			1711 133
Audio Note AN-L	29.50	Fruity bass and expressive vocal rendition was appreciated by the panel which was happy to accept its foibles			●			●			1712 133
Audio Note AN-SP	150	A calm and civilised presentation, very quiet in the way it reveals subtle low level detail. Great poise and clarity			●			●			109
Audioquest F-14	2.2	Ideal for laying under carpets, F-14 encourages a slightly warm and vibrant sound					●	●			109
Audioquest Type 4	5	Four 18-gauge OFHC copper conductors wound in a Litz-type fashion increases capacitance but restrains the cable's 'bite'	●				●	●			109
Audioquest Crystal	25	Neutral balance is spoiled by some graininess and smearing	●				●	●			168
Bandridge LC7409	4	Detailed and up-beat cable. A bit too steely for classical strings					●	●			1800 157
Cable Talk Talk 3.1	2.25	Quite well-balanced but tends to lose bass lines in complex music			●			●			168
Cable Talk 4.1	4.25	Smooth and cultured sound that lacks fine detail and is a bit too restrained					●	●			1800 157
DNM LSC350	6.95	Majors on midband and lower treble lucidity at the expense of bass and extreme treble extension	●				●	●			168
DNM LSC8500	12	High impedance can influence the treble response, but this was a winner on sound per pound. Bi-wire					●	●			1716 133
DPA Black Sixteen	100	Unflappable resolution of fine musical details, there's no dampening of dynamics, simply oodles of taut information			●			●			1717 133
Gale XL189	1	Slightly bright and not too subtle, but a perfectly acceptable cable for any starter system			●			●			168
Gale XL315	2	A little lacking in detail but plenty of life and excellent value					●	●			1800 157
Gale XL160-2	2.50	Rhythmic and bouncy-sounding bi-wire cable. Can be slightly manipulative					●	●			1800 157
Goertz M2	32	Remarkably detailed, smooth, neutral and with excellent bass; check amplifier compatibility			●			●			168
Heybrook Heywire	3.5	This well-meaning facsimile of earlier ribbon cables ends up sounding lumpy and uneven					●	●			109
Hitachi LC-OFC	7	Very crisp, very clear and very confident. In the right system you'd have to spend several times as much to better it			●			●			109
Kimber 4TC	19.6	A well-balanced cable with good performance in all areas			●			●			168
Naim NACA 5	5.5	Described as a 'dinosaur of a cable', this stiff wire rod doesn't belong outside Naim systems. But it works a treat in them					●	●			109
Nordost Octava	3	Fair bass but confused treble and some coloration			●			●			168
Ortofon SPK100	3	Grey-sounding and strips instruments of their natural richness and resonance, a bit bass shy too					●	●			133
Ortofon SPK300	8	Tremendously open and atmospheric, with robust full blooded bass, and dynamic too — if slightly bright at times					●	●			133
Puresonic 7845	1.95	Big, weighty sound — but too messy and bloated for its own good					●	●			1800 157
Puresonic 7891	2.85	Chunky cable design, shame about the sound quality			●			●			1800 157
QED Qudos	2.25	Despite high-tech design and excellent Air-Loc plugs, the music failed to gel					●	●			1800 157
QED Profile 4x4	9	Good midrange and treble balance, but bass is rather slack and detail not outstanding					●	●			168
Silver Sounds 12 gauge	15	Basic 'homemade' construction gives fairly neutral sound, though not outstandingly competitive			●			●			168
Sonic Link S300	18	Happiest with simple music; tends to smudge detail in complex pieces			●			●			168
SonicLink AST50	1.95	It may look like bell-wire, but AST50 sounds detailed, ordered and balanced					●	●			1800 157
van den Hul The Clearwater	7	Despite its evocative title, the Clearwater turns out to be a disappointingly murky-sounding cable					●	●			109
van den Hul The Magnum	38	Touted as vdH's most prestigious twin-lead cable, Magnum sounds soft and old fashioned					●	●			109
van den Hul The Wind	40	'The Wind' kicks up a storm with its lush midrange and bone-crunching bass!					●	●			109
van den Hul Revolution	76	Silver-plated OFC combined with carbon fibre prompts a sombre character with an easy and relaxed treble					●	●			1726 133
XLO Pro Type 625	4	Lively but natural and relaxed-sounding — a hint of congestion at frequency extremes					●	●			1726 133
XLO Pro 600	16.60	Basically neutral tonality but can become aggressive and two-dimensional			●			●			168



Cartridges

Cartridges fall into two groups: high output MM (moving magnet) models, capable of working directly into most phono inputs; and generally more expensive low and very low output MC (moving coil) models. MC cartridges usually have better mechanical integrity, tighter tolerances and give better performance. Many amplifiers are no longer equipped with the necessary phono input for a cartridge, and a separate phono stage is necessary. Phono input equipped valve designs need a

transformer to cope with MC cartridges.

Cartridge/amplifier interfacing can be very subtle, but even basic high output MM designs benefit in overall balance from optimised amplifier capacitance loading.



KEY

MM: Moving magnet cartridge with a normal output suitable for all vinyl disc amplifier inputs.
MC: Moving coil cartridge with a low output only suitable for high-

sensitivity vinyl disc amplifier inputs.
REPLACEABLE STYLUS: Most MM cartridges have a stylus that can be removed and replaced.

OUTPUT (MV): Cartridge output in millivolts.
MASS (g): Cartridge mass can affect arm choice.
FACTSBACK NUMBER: The Factsback reference for ordering a fax

copy of the review.
ISSUE NUMBER: The issue of Hi-Fi Choice in which the original review appeared

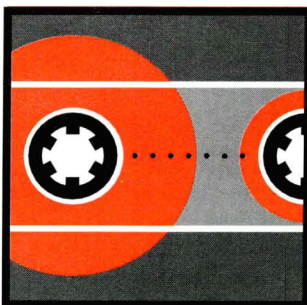
CARTRIDGES

Product	Price(£)	Comment	REPLACEABLE STYLUS	OUTPUT (MV)	MASS (g)	FACTSBACK NUMBER	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 too					103
Dynavecator Karat 17D2 mk2	450	Clean and controlled sound with taut, tuneful bass. Detailed and musically cogent		0.15	5.3		158

REPLACEABLE STYLUS
MM MC
FACTSBACK NUMBER
OUTPUT (MV)
MASS (g)
ISSUE NUMBER

CARTRIDGES (CONTINUED)

Product	Price(£)	Comment	REPLACEABLE STYLUS	MM	MC	FACTSBACK NUMBER	OUTPUT (MV)	MASS (g)	ISSUE NUMBER
4 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
4 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
4 Goldring Elan	19	A lightweight and frisky-sounding MM apparently based on Nagaoka MM4 body	●	●		5.0	7		67
4 Goldring 1012GX	79	Slightly harsh but plenty of life and detail. Some high frequency colouration apparent	●	●		6.5	7		85
4 Goldring 1022GX	99	As with 1012, a touch harsh; detail and transient purity improved	●	●		6.5	7		85
4 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 has a certain dirtiness	●	●		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
4 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
4 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, nonlinear with a questionable effect on records	●			5.0	6		84
4 Lyra Lydian	649	Superbly capable all-round musical performer that improves markedly when its body cover is removed	●	●		0.3	7		158
4 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
4 Ortofon S10/P	38	For the price, a good blend of virtues – weight, clarity and neutrality	●	●		3.0	5		85
4 Ortofon S20/P	65	Sensitive to load capacitance, the S20/P has a lively, effervescent sound	●	●		3.0	5		67
4 Ortofon MC3 Turbo	130	The 3 Turbo is bright, cheerful and bouncy, but unsubtle – take it as it comes	●	●		3.3	4		103
4 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
4 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
4 Ortofon MC3000II	1,100	A real eye-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 build, the Bias offers a gentle, refined sound	●	●		5	4		67
4 Rega Elys	85	Clearly superior to the Bias, the Elys is more detailed, accurate and convincing	●	●		5.0	5		67
4 Roksan Corus Black	130	Recognisably related to the Corus Blue, but smoother and more civilised	●	●		6.5	5		91
4 van den Hul MM-1	250	If woody midrange could be tamed, imaging and security would pull it through	●	●		5.5	6		103
van den Hul DDT-II	600	Outstanding stereo imaging and neutral balance are appealing, but rhythmically the DDT-II is a bit lazy	●	●		0.35	7.6		158
4 van den Hul MC-10	750	A neutral, balanced performer, gives fine depth and focus and a firm, extended bass	●	●		0.4	6		60
4 van den Hul MC-One	900	This extended all the positive qualities of the 10, but added greater authority and scale – worth all the extra money	●	●		0.4	6		60
4 van den Hul MC-Two	1,200	MC-Two rewards with a highly detailed yet fluid and musically convincing portrayal	●	●		0.4	6		72
4 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
4 van den Hul G' hopper IIIGLA	2,800	Undoubtedly one of the finest cartridges available, it has tremendous bandwidth, energy and finesse	●	●		0.4	6		122
4 Wilson benesch Matrix	786	Extraordinarily well balanced cartridge: neutral and detailed yet lively and rhythmically assertive	●	●		0.58	6		158
4 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. Buffs may wrinkle their noses, but they all use it.

There should be no problems in connecting a cassette deck to any normal amplifier, but some care needs to be taken in choosing the best tapes for a specific machine. (Trial and error is one effective technique, but many decks have manual bias adjustment and some match up to the tape automatically.) Twin decks offer the option to dub tapes and play two cassettes

sequentially. Autoreverse is a useful feature, but usually implies some mechanical compromise. Useful facilities include tape monitor switching and Dolby S.

B Best buy **R** Recommended

KEY			
DOLBY C: A rather extreme noise-reduction system not usually associated with high sound quality.	for cassette recording.	AUTOREVERSE: Automatically plays both sides of the cassette.	FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page.
DOLBY S: A desirable derivative of the Dolby SR professional noise-reduction system.	3-HEAD: If you want to monitor a recording while you are making it, a third head is essential.	AUTO CALIBRATION: The deck will automatically set up bias and EQ for any tape.	ISSUE NUMBER: The issue of <i>Hi-Fi Choice</i> in which the original review appeared.
DOLBY HX-PRO: System designed by B&O to extend headroom	TWIN DECK: Contains two decks for dubbing and continuous play. In most instances only one deck will record.	ADJUSTABLE BIAS: Bias can be manually set to suit the tape being used.	

CASSETTE DECKS

Product	Price(£)	Comments	DOLBY C	DOLBY S	DOLBY HX PRO	3-HEAD	AUTO CALIBRATION	ADJUSTABLE BIAS	FACTSBACK NUM.	ISSUE NUMBER
4 Aiwa AD-F450	120	Basic but well-designed budget deck, astonishing value; only the poor metering gives the game away	●	●	●	●	●	●	1513	136
4 Aiwa AD-WX727	170	High-class twin for those who want bells, whistles - and music	●	●	●	●	●	●	1377	146
4 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

DOLBY BX PRO
DOLBY S
DOLBY C

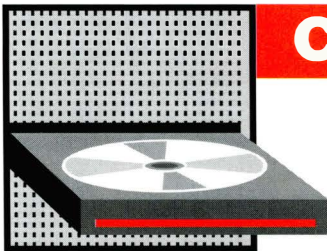
3-HEAD
TWIN HEAD
AUTO CALIBRATION
AUTO REVERSE

FACTSBACK NUMBER
ADJUSTABLE BIAS

ISSUE NUMBER

CASSETTE DECKS (CONTINUED)

Product	Price(£)	Comments	DOLBY BX PRO	DOLBY S	DOLBY C	3-HEAD	TWIN HEAD	AUTO CALIBRATION	AUTO REVERSE	FACTSBACK NUMBER	ADJUSTABLE BIAS	ISSUE NUMBER
Denon DRS-640	200	Draw-loading deck, with simple facilities and smooth, well-adjusted sound	●	●	●	●	●	●	●	1591	140	1920 164
Denon DRM-650S	230	An all-round improvement on predecessors, offers a wide-ranging, disciplined sound. Dolby S is not the best feature	●	●	●	●	●	●	●	1514	136	1592 140
Denon DRM-740	270	Breathed-on DRM-710, with good external treatment, offers good, if somewhat detached sonics	●	●	●	●	●	●	●	1920	164	1592 140
Denon DRS-810	310	Draw-loading deck, carefully designed yet lacking in subtlety on audition	●	●	●	●	●	●	●	1920	164	1592 140
Harman/Kardon TD420	250	Minor inconsistencies detract from a well-conceived, minimum features design	●	●	●	●	●	●	●	1920	164	1592 140
Harman/Kardon TD450	350	Draw loader with poor tape navigation features; good midband but shallow bass	●	●	●	●	●	●	●	1920	164	1592 140
JVC TD-R472	200	Excellent auto-reverse deck which doesn't suffer the usual disadvantages and is very sharply priced	●	●	●	●	●	●	●	1380	146	2039 171
JVC TD-V662BK	270	Assured, clean and agile sounding recorder, if not quite the most refined in its class	●	●	●	●	●	●	●	2040	171	2042 171
JVC TD-W718	300	Twin deck. Good for creative live recording, but no timer standby. Respectable though not earth-shattering performance	●	●	●	●	●	●	●	2041	171	2042 171
Kenwood KX-W6080	200	Modestly decent sounding twin deck, with some transport instability and ragged bass. The features list is also strong	●	●	●	●	●	●	●	1384	146	1385 146
NAD 613	230	Rough and ready, but enjoyable sound, though marred by mechanical motor noise	●	●	●	●	●	●	●	1920	164	1385 146
NAD 616	300	Primitive twin deck with basic features. No Dolby setting memory, transports are too unstable for serious quality first use.	●	●	●	●	●	●	●	1920	164	1385 146
Onkyo K-611	460	Cute drawer loading mini-size component with 3-heads and dual capstan transport	●	●	●	●	●	●	●	1920	164	1385 146
Pioneer CT-S550S	250	Great features, good with cheap low bias tapes, but slightly synthetic sound quality	●	●	●	●	●	●	●	1920	164	1385 146
Pioneer CT-W806DR	300	Had it not been for the iffy transport quality, this ultra-sophisticated twin would have been recommended.	●	●	●	●	●	●	●	1920	164	1385 146
Pioneer CT-S830S	500	High-class mechanism, if lacking in battleship externals, and superb sound	●	●	●	●	●	●	●	1920	164	1385 146
Sony TC-KE600S	300	Mild setting-up problems notwithstanding, this UK-tweaked design has a smooth, open and un-cassette-like sound	●	●	●	●	●	●	●	1920	164	1385 146
Technics RS-AZ6	200	For those who can't afford the RS-AZ7; exquisite clarity over the widest bandwidth thanks to AZ thin-film head	●	●	●	●	●	●	●	1920	164	1385 146
Technics RS-AZ7	270	Thin-film head gives a solid, almost CD-like bass and midrange. A clear advance in the state-of-the-art	●	●	●	●	●	●	●	1920	164	1385 146
Yamaha KX-490	200	Electrifyingly transparent and capable deck whose only flaw is a trace of audible wow and flutter	●	●	●	●	●	●	●	1920	164	1385 146
Yamaha KX-580SE	250	Subtle, engaging and transparent sounding deck, with a lightweight tonality, but good stability and strong detail	●	●	●	●	●	●	●	2043	171	1385 146



CD/DVD Players in association with MISSION

All CD players offer a basic selection of facilities, and some can keep you entertained for hours as you programme in disc names and track orders. All but the excessively inexpensive feature remote control. Most CD players can be upgraded by adding an outboard DAC (see below). To do this the player needs a digital output of either electrical or optical persuasion; sonically the former is preferable. A CD player can be split into two basic components: the disc drive or

transport, and a device which turns the digital bitstream coming off the disc into an analogue audio signal. This is called a digital to analogue convertor, or DAC. Although most players are contained in a single box, expensive players are usually two-box affairs.



KEY	AT&T OPT DIG OUTPUT:	MULTI-DISC:	DAC TYPE:	FACTSBACK NUMBER:	ISSUE NUMBER:
ELECTRICAL DIGITAL OUTPUT: For electrical connection to an outboard DAC.	High-speed optical output to be used with similarly equipped DACs.	Equipped with a carousel or multi-tray system for continuous play of multiple discs.	Digital to analogue convertor: BS – Philips Bitstream, MB – multibit, Hyb – hybrid of multibit and bit-stream technologies, 1bit – single bit types such as MASH,	The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page.	The issue of Hi-Fi Choice in which the original review appeared.
AES/EBU ELEC DIG OUTPUT: Balanced digital output to be used with similarly equipped DACs.	BAL ANALOGUE OUTPUT: Balanced analogue output for amplifiers equipped with balanced inputs.				
OPTICAL DIGITAL OUTPUT: For optical connection to an outboard DAC.	HEADPHONE SOCKET: For can users.				
	VARIABLE OUTPUT: Remotely adjustable, volume-				
	controlled output.				

Product	Price(£)	Comments	AES/EBU ELEC DIG OUTPUT	OPTICAL DIGITAL OUTPUT	AT&T OPT DIG OUTPUT	BAL ANALOGUE OUTPUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	FACTSBACK NUMBER	DAC TYPE	ISSUE NUMBER
Acurus ACD11	899	First-rate if costly player from the US, 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 (Statements)	●	●	●	●	●	●	●	1bit	165	169
Alchemist Nexus APD32A	597	Refined treble, constrained yet capable bass and attractive all-round presentation distinguish this player from the crowd	●	●	●	●	●	●	●	Hyb	169	172
AMC CD8A	150	Has balanced output, but is otherwise rather grey and unremarkable	●	●	●	●	●	●	●	BS	2071	172
AMC CD9/DAC8	200	Beer balanced 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 serious mechanical noise	●	●	●	●	●	●	●	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, this should be broadly compatible with a variety of amps	●	●	●	●	●	●	●	BS	1873	163
Arcam 8SE	600	Excellent (and very reasonably priced) HDCD-compatible player is a strong all-rounder	●	●	●	●	●	●	●	1-bit	176	176
Audiolab 8000CD	1,000	Developed according to the Green Cross Code of digital audio with an elegant but safe musical presentation	●	●	●	●	●	●	●	BS	1874	163
Audio Research CD1	3,290	Suspends disbelief with a frighteningly real yet obviously coloured sound. A rare proposition among CD players	●	●	●	●	●	●	●	BS	1875	163
AVI S2000MC2	899	A chip off the old block, this model's in-yr-face balance obstructs an otherwise finely detailed and dynamic sound	●	●	●	●	●	●	●	MB	2179	176
AVI S2000MC Reference	1,399	Lean, dry, high resolution player, built to outlast most of us, and a fine performer in a sympathetic system	●	●	●	●	●	●	●	MB	169	147
Cambridge Audio CD4	150	Basic appearance and sluggish track access/track search belies its up and at 'em sound quality	●	●	●	●	●	●	●	Hyb	1268	147
Cambridge Audio CD4SE	200	Among the best players we have encountered at the price, considerably more refined and convincing than CD4	●	●	●	●	●	●	●	BS	1877	163
Cambridge Audio CD6	250	A sharp, lively and articulate player, a real thoroughbred in fact, perhaps too sharp and lively for some systems	●	●	●	●	●	●	●	BS	159	159
Copland CDA-266	1,199	Visually 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, one for refined tastes	●	●	●	●	●	●	●	MB	1880	163
Cymbal CDP12	1,299	Clean, detailed and airy HDCD-equipped player with minimalist trappings	●	●	●	●	●	●	●	Hybrid	2184	176
Denon DCD-625	200	DCD-615 replacement is generously equipped but lacks sophisticated sound of its forebear	●	●	●	●	●	●	●	MB	1269	147
Denon DCD-825	240	Despite extensive revisions, this latest player still sounds like a typical 18-bit Denon, which is no bad thing!	●	●	●	●	●	●	●	MB	1531	137
Denon DCD-1550AR	350	Disappointing bland and ploddy sound from an immaculately constructed, high tech player	●	●	●	●	●	●	●	MB	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, but very agreeable at that	●	●	●	●	●	●	●	MB	1881	163
Denon DCD-635	180	Modest presentation gives little clue to the thoroughbred electronics ticking away inside	●	●	●	●	●	●	●	MB	2075	172

CD/DVD PLAYERS (CONTINUED)

AES/EBU DIGITAL OUT
OPTICAL DIGITAL OUT
AT&T OPT DIG OUT
BAL ANALOGUE OUT
HEADPHONE OUTPUT
VARIABLE SOCKET
MULTI-DISC
FACTS/BACK NUMBER
ISSUE NUMBER
DAC TYPE

Product	Price(£)	Comments	AES/EBU DIGITAL OUT	OPTICAL DIGITAL OUT	AT&T OPT DIG OUT	BAL ANALOGUE OUT	HEADPHONE OUTPUT	VARIABLE SOCKET	MULTI-DISC	FACTS/BACK NUMBER	ISSUE NUMBER	DAC TYPE
Eclipse CD101a	80	If you want to know the sound of high order distortion, this is probably as good a place to start as any									MB	144
Harman/Kardon HD710	200	A player of integrity, but can sound a bit hard and rough when extended, and is somewhat amplifier fussy	●								1bit	159
Harman/Kardon HD730	300	Competitive at the price, with a coloured but dynamic and outgoing sound supported by a raft of user features	●								BS	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
JVC XL-V184BK	120	Excellent budget player, well presented, a tad 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, if occasionally unpredictable sound	●								1bit	1270 147
JVC XL-Z574	250	Strong resolving power and good midband and dynamics, but slightly raw and thin									1bit	159
JVC XL-Z674BK	300	Even-handed, but glosses over the most intimate moments	●								1bit	1637 151
Kenwood DP-3080	170	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 Test too	●								1bit	2076 172
Kenwood DP-5090	300	Disappointing senior brother to the excellent DP-4090, but surface interface is good	●								1-bit	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 CD63MkII KI Sig	500	It's the quintessential sound of Marantz - warm, open, and smooth almost to a fault	●								Hyb	169
Marantz CD-67SE	350	Refined, enjoyable player, though ultimately a little soft-centred	●								BS	1958 166
Marantz CD-67 Mk II	250	The digital equivalent of a safe pair of hands. Smooth	●								BS	2268 179
Marantz CD-48	200	Somewhat inconsistent, middle ranking player which hints at better things	●								1bit	2077 172
Marantz CD-17	800	Fabulous packaging and an excellent all round performer: smooth, detailed and consistent	●								BS	1763 155
Marantz CD-17KIS	1,100	Minor QC problems aside, this is a superbly turned-out machine, but ultimately a little bland	●								BS	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	●								1 bit	2182 176
Meridian 508 (20-bit)	1,995	Combines a delicate mid and treble with rich, opulent bass and has impressive low-level resolution	●								BS	1886 163
Mission Cyrus dAD3	598	This front loader has a relaxed style of delivery that convinces with guile and subtlety rather than orchestral ordnance									BS	1887 163
Mission Cyrus dAD3Q	898	Lucid, transparent and uncontrived sound quality, superb build, and readily upgradeable									MB	1887 169
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 A2	500	Warm (too warm), attractive and open player, a great improvement on (related) E60	●								BS	1959 169
Musical Fidelity FCD	1,500	A forward disposition makes this perfect for Fenders but less appropriate to Guarneris	●								BS	1888 163
Myryad MC100	700	A little extra get-up-and-go wouldn't go amiss, but its sheer maturity and composure ensure listenability	●								BS	1889 163
Myryad MCD500	1,300	Well-built attractive player, which has much promise, some unrealised, and which can be a little hard going on audition	●								1bit	2185 176
NAD 522	170	Crude, mechanical sounding player fails to tickle the music buds									1 bit	2262 179
NAD 510	200	Pale version of NAD's senior CD players with a stripped down feature count									1bit	2078 172
NAD 512	250	Simple, well-focused presentation, and articulate with it, though hard-nosed quality is not everyone's cup of tea	●								1bit	159
NAD 523	250	Nothing seriously amiss with this classic NAD 'no-frills' changer, but it lacks that vital spark									Hyb	2222 178
NAD 514	370	Boisterous sound, but undeniably attractive	●								BS	1639 151
Naim Audio CD3	1,000	The idiosyncratically packaged CD3 is solid and highly articulate. Always has its feet on the ground though									MB	1765 155
Naim Audio CD2	2,000	Provides bags of detail with a solid stereo focus but not all the romanticism we know to be possible									MB	1890 163
Onkyo DX-7210	260	Well-bred CD player features an unusual digital filter, is smooth and cultured without appearing grey or boring	●								BS	1273 147
Onkyo DX-7510	400	Strongly flavoured, assertive sound	●								BS	1640 151
Orelle CD-100EA	649	Excellent imagery, timing and transparency, and readily upgraded or reconfigured	●								MB	1964 166
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	A dichotomy, this machine was loved by some for its articulacy and disliked by others for sounding too impressive!	●								BS	1891 163
Pioneer PD-F906	350	Interesting appearance and concept, but this changer's sound is seriously lacklustre and ergonomics frustrating									1bit	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, if a tad laid back	●								MB	2176 176
Pioneer PD-S505 Precision	460	Assured, fluid-sounding player, with great spatial coherence	●								1bit	1965 166
Quad 77	900	A true thoroughbred combining a penetrating insight into detail with poise rarely found at the price									Hyb	1893 163
Roksan DP3P	1,495	Dramatic and compelling, classical listeners should be ready to 'air conduct' when auditioning this player	●								BS	1896 163
Roksan Caspian	895	Solid, articulate, and fundamentally well-engineered player, but with some subtle low-level limitations	●								Hyb	169
Rotel RCD-970BX	375	A combination of solid build, useful facilities and an attention grabbing sound make this a winner	●								BS	1897 163
Sherwood CD-4030R	180	Easy on the ear, smooth-sounding player, with limits set by the slightly soft, compressed quality - and messy fascia									BS	159
Sherwood CD1	1,100	A very neutral, even handed sounding player with a rather flat, lifeless sound. Beautiful construction	●								BS	1899 163
Sony CDP-XE310	140	Excellent value and bright as a button, but can sound OTT in some systems	●								1-bit	179
Sony CDP-XE510	180	Souped up CDP-XE500 which tells a rather bland and unengaging story									1bit	172
Sony CDP-XE900E	300	Refined and analytical disc scavenging tool, but there are some distinctive colourations making auditioning vital									BS	159
Sony CDP-XA20ES	450	High tech, with a long list of gadgets, this is an oddly configured player that ultimately sounds less than compelling	●								1-bit	2177 176
Sony CDP-X3000ES	500	Shoobox format player, with looks to die for, and switchable digital filters to tweak the already excellent sound	●								BS	169
Teac 3450SE	200	For once a budget player where the gadgets take second place to respectable, budget amplifier-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-9	700	Well-presented, heavyweight midi, the Teac is crisp, yet shallow, and inconsistent in sound quality and partnering skills	●								1-bit	2178 176
Teac VRDS-10SE	850	Superbly built and presented, but rather leaden bass, with an over-prominent and not ideally refined mid/top	●								BS	169
Teac VRDS-25	1,300	A solid player in all respects combining powerful sound with state-of-the-art technology	●								MB	1903 163
Technics SL-PG480A	130	Full driving sound, but somewhat uneven in balance with a subtle, slightly harsh top end									1bit	159
Technics SL-PS670D	200	Fine, middle ranking player which sounds solid, sometimes even a little stolid.									1 bit	2264 179
Technics SL-PS770D	250	High tech and well built technology battleship which smoothes 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
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
Yamaha CDC-665	220	This player offers many useful features and highly listenable sound, with tidy and tuneful bass and good imaging	●								1bit	2225 178

CD/DVD PLAYERS

Product	Price(£)	Comments	AES/EBU ELEC DIGITAL OUTPUT	OPTICAL DIGITAL OUTPUT	AT&T OPT DIG OUT	DAL ANALOGUE OUTPUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	FACTSBACK NUMBER	ISSUE NUMBER	
TRANSPORTS												
Arcam Delta 250	800	This model is based on a Philips CDM9 transport. Specification includes Sync Lock facility	●	●				●		- 1491	130	
Audiolab 8000CDM	1,400	Super-slick transport and basically very honest sound, but lacking the last degree of fine detail	●	●	●					- 1867	162	
Linn Karik	1,850	Based on early Linn transport, the Karik is dry but very positive, detailed and engraving	●	●						- 1323	144	
Meridian 500	1,245	Used with the 563 DAC, the combination is thin, brash and uncomfortable	●	●						- 1103	133	
PS Audio Lambda	2,250	With Ultralink Two, sound positively sparkles with colour and resonant detail. (Tested with Ultralink 2 DAC)	●	●						- 1106	133	
Roksan 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; but just too expensive for the performance on offer	●	●	●	●				- 1495	130	
DACS												
Arcam Black Box 50	350	Measured and sophisticated sound from a DAC that leaves plenty in reserve for future upgrades								Hyb	1506	133
Arcam Black Box 500	500	Sophisticated unit with sync lock and discrete DAC								BS	1519	136
Audio Note DAC1	675	Oddball DAC with manual de-emphasis switch. Needs a high preamp input impedance or bass will suffer								MB		127
Linn Numerik	1,500	A new 20-bit DAC and revised Karik transport have cleaned up; but sounds a bit dry and humourless								MB	1323	144
PS Audio UltraLink 2 HDCD	2,590	The sound positively sparkles with colour and resonant detail. (Tested with Lambada transport)								MB	1106	133
PS Audio Reference Link	4,550	Consolidates reputation of PS Audio for high performance digital electronics						●		MB	1069	132
Roksan Attesa 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-3000	700	Enjoyable rather than analytical, includes 24/96 and AC-3/MPEG-2 Audio	●	●						BS		180
Panasonic DVD-A350	700	24/96 converter and AC-3 & MPEG-2 Audio included, well balanced, if slightly blurred and shut in	●	●				●		BS		180
Pioneer DV-505	450	Plenty of analysis, with a slightly ragged edge. Rescued by the price & S/PDIF capabilities.	●	●						BS		180
Pioneer DVL-909	900	DVD and LD player: self-recommending to AV nuts; musically detailed but occasionally seems disjointed	●	●						BS		180
Sony DVP-S715	600	24/96 converter for DAD compatibility, sharp, forward, but slightly unsubtle sound	●	●				●		BS		180
Toshiba SD3107B	550	Dynamic sound and good stereo which lacks lowest stratum of detail.	●	●				●		BS		180

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Digital Recorders

Digital recorders have been available in a variety of different guises, but only Minidisc has had any impact on the domestic market. Even then, it's early days, and a new rewritable CD from Philips has upset the applecart. At present there are four types to choose from: DAT (digital audio tape), MD (MiniDisc), CD-R (CD Recordable) and CD-RW (CD Rewritable). MD's claim to fame is its optical disc format, which offers instant track access. DAT has been on the market for quite some time now, but has never really 'made it' as a

consumer medium due to the dearth of pre-recorded material. However it has begun to carve itself a niche in the top end of the market, replacing reel-to-reel as the audiophile's tape based medium. Home CD-R is coming into its own with Pioneer's two models and aggressively pitched new ranges from Philips.



KEY

FORMAT: Type of recorder, see above for descriptions.
DAC TYPE: Digital to analogue converter: BS - Philips Bitstream, MB - multibit, Hyb - hybrid of multibit and bitstream technologies, 1bit - single bit types such as MASH, bitstream, PWM etc.

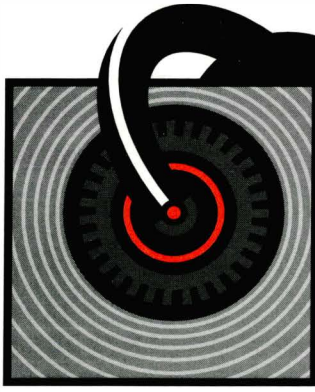
ADC TYPE: Analogue to digital converter types as per DACs.
PORTABLE: Can be operated from batteries but is not necessarily personal stereo size.
OPTICAL IN/OUTPUTS: Digital socketry for optical cable.

ELECTRICAL IN/OUTPUTS: Digital socketry for electrical cable.
FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this

section
ISSUE NUMBER: The issue of Hi-Fi Choice in which the original review appeared.

DIGITAL RECORDERS

Product	Price(£)	Comments	FORMAT	DAC TYPE	ADC TYPE	PORTABLE	ELECTRICAL IN/OUTPUTS	FACTSBACK NUMBER	ISSUE NUMBER
Denon DMD-1300	500	Sound sometimes lacks integration but tonal balance is good and it handles loud music with panache	MD	BS	BS		●		2193 177
Kenwood DM-9090	550	Slight sibilance and image vagueness do not detract from excellent balance and solid bass	MD	BS	BS		●	●	2194 177
Onk o MD-121	450	Midi-sized deck that sounds slightly coloured at times, though immediate and lively	MD	BS	BS		●		2195 177
Philips CDR-870	500	The first re-writable CDR, but has jitter problems in direct digital dubbing	CD-R	BS	BS		●	●	174
Pioneer PDR-04	700	Scaled down version of the PDR-05 (see below) with auto level setting but all the socketry and features you need to make CDs	CD-R	BS	BS		●	●	171
Pioneer D-05	900	Second generation 96kHz DAT recorder can offer startling realism	DAT	BS	BS		●	●	1652 152
Pioneer PDR-05	1,000	The first domestic — excellent sound quality	CD-R	BS	BS		●	●	1652 152
Pioneer D-C88	2,000	State-of-the-art portable 96kHz DAT recorder, the size of a lap-top computer	DAT	BS	BS	●	●	●	1431 150
Sharp MD-R2	300	Budget recorder that loses little or nothing in comparisons with much more expensive models — highly capable	MD	BS	BS		●	●	2196 177



Headphones

There are a number of approaches to headphone design. Among the more expensive models, electrostatic drivers are used in open-backed phones. Most models feature dynamic (moving coil) drivers in circular, open or closed-back designs. The advantage of open backs seems to be a correspondingly open sound, but one can also hear external noise, of course. Closed-back designs are useful in situations where it is necessary to block out noise. In recent

years, a number of manufacturers have started to offer cordless headphones using infrared or radio waves. For best results a separate headphone amplifier is recommended.

Best Buy

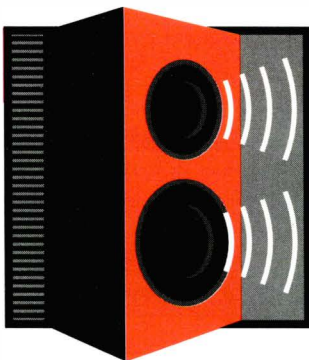
Recommended

KEY	CLOSED BACK:	3.5MM JACK ADAPTOR:	ISSUE NUMBER:
TYPE: Operating principle: D - dynamic, E - electrostatic. SUPRA-AURAL: Style where a flat pad presses on the outer ear. CIRCUM-AURAL: Style which encloses the ear. OPEN BACK: Offers an open sound but lets in noise.	Keeps out external noise. WEIGHT (G): Mass in grams IMPEDANCE (Ω): Load offered to the headphone amplifier. All things being equal, the lower the impedance the louder the sound for a given amplifier output.	Can be used with mini-jack-equipped components such as personal stereos. FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this section.	The issue of <i>Hi-Fi Choice</i> in which the original review appeared.

HEADPHONES

Product	Price (£)	Comments	CIRCUM-AURAL TYPE	SUPRA-AURAL	OPEN BACK	CLOSED BACK	WEIGHT (G)	3.5MM JACK ADAPTOR (IMPEDANCE Ω)	ISSUE NUMBER
AKG K1000	700	One of the best dynamics on the market, hooks directly into speaker outputs	D	●	●	●	270	120	99
Audio Technica ATH910PRO	80	The closed back 910s are an improvement on the 909s, with a nice rhythmic quality rarely found in headphones	D	●	●	●	280	40	55
Beyer DT100	160	Rugged, modular professional design, but bass is woolly and treble lacks detail	D	●	●	●	350	600	157
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 DT511	106	Superb midband clarity and speed slightly at odds with soft bass. High tingle factor even so	D	●	●	●	200	250	2063 172
Beyer DT531	135	A good buy for serious, heavy-duty music making	D	●	●	●	245	250	144
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	Clear, open and dynamic with pedantically open mid-band. Crude physical design, rough frequency extremes	D	●	●	●	60	8	1801 157
Grado SR-225	200	Warm, darkly-coloured tonally and ultimately lacking in clarity, but true to the spirit of the music if not the letter	D	●	●	●	200	32	1883 163
Jecklin Float Model 1	79	While very unusual in appearance, the Floats give remarkable sound quality and openness at a reasonable price	D	●	●	●	400	200	55
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-D910	65	Broadly acceptable if unexciting design with low level losses and some colourations	D	●	●	●	220	32	121
JVC HA-W60	49	Remarkable lack of interference and hiss ameliorates adequate sound of this cordless design	D	●	●	●	165	I/R	172
Precide Ergo Model 2	140	Still has much of the spaciousness and detachment of the Float from which it is derived, but coarse mid/top	D	●	●	●	380	100	1892 163
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 the 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	I/R	172
Sennheiser HD 455	55	Inoffensive, if nondescript sound, modular, but can become dislodged from head	D	●	●	●	185	60	1801 157
Sennheiser HD 475	80	Elegant, uncluttered sound and very comfortable but lean bass saps satisfaction	D	●	●	●	120	60	2065 172
Sennheiser HD 545	125	Fine all rounder that takes all styles of music in its stride. Ear-clamping headband	D	●	●	●	255	150	2066 172
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-CD770	100	Neutrality and comfort make the Sony easy to live with. Technically correct-sounding too, yet musically unrewarding	D	●	●	●	-	-	1801 157
Sony MDR-CD1700	200	Astonishingly detailed, uncoloured and free of the usual artefacts from a sealed back headphone. Tremendous value	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
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 IR5800	50	Consistently musical infra-red design. Doesn't reach for sonic heights so hiss can be forgiven	D	●	1/2	●	226	I/R	172
Vivanco SR650	50	Unusually comfortable 'phone with excellent detail resolution but aggressive, thanks to tweeter resonance	D	●	●	●	175	-	1801 157
Vivanco SR750	60	Cossetting physical design, attractive sound an pricing, though suffers overhang and lacks ultimate dynamics	D	●	●	●	188	-	1801 157
Vivanco Cyberwave FMH3000	80	The only cordless headphone to offer genuine walkabout freedom. Unfortunately, sounds like a cheap FM tuner	D	●	●	●	210	FM	172

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Hi-Fi Loudspeakers

As the last link in the hi-fi chain, the loudspeaker is at the mercy of the signal it is called upon to reproduce. Nevertheless, the distortions introduced by loudspeakers (and rooms) tend to be the most obvious.

The average loudspeaker consists of an enclosure plus a couple of drive units behind a removable grille. Inside the box lurks a simple electrical circuit known as a crossover, which divides the incoming (full range) signal into the right bits for the drivers to handle. The designer's primary

task is to balance the 'sensitivity' of the loudspeaker (how loud it goes for a given electrical input) against the bass extension (how low it goes), for the given box size.

Subwoofers augment the bass and are available as passive (unamplified) and self-amplified active form. Unlike regular speakers, they are not too fussy about their position in the listening room

Best Buy

Recommended

KEY	IMPEDANCE (Ω):	FREE SPACE:	FACTSBACK NUMBER:
SIZE WxHxD (cm): Width by height by depth in centimetres.	Measured in Ohms, impedance is a measure of how hard a loudspeaker is to drive: the lower the number the more powerful the amplifier needs to be.	Speakers should be placed away from walls.	The reference for ordering a fax copy of the review. Use the contents page to find the Factsback page.
FLOORSTANDER: As opposed to requiring a dedicated stand.	BASS FROM (Hz): The lowest frequency that a speaker can reproduce, based on in-room measurements.	CLOSE TO WALL: It is recommended that these speakers be placed close (between 3 and 12cm) to the rear wall.	ISSUE NUMBER: The issue of <i>Hi-Fi Choice</i> in which the original review appeared.
SENSITIVITY (dB/W): Efficiency — how much sound you get for a given input. The higher the figure the louder the speaker.			

HI-FI LOUDSPEAKERS

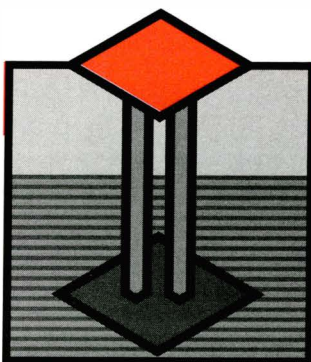
Product	Price(£)	Comments	SIZE WxHxD(CM)	SENSITIVITY(dB/W)	IMPEDANCE(Ω)	BASS FROM (Hz)	CLOSE TO WALL	FREE SPACE	FACTSBACK NUMBER	ISSUE NUMBER
Acoustic Energy AE200	250	Metal cone miniature has a tendency to shout but is still lots of fun, and well built too	18.5,30,25	87	6	40	●	●	2199	177
Acoustic Energy 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, and a difficult amp load too	18,98,28	● 89	4	25	●	●	1904	170
ATC SCM20	1,599	Massively built, invariably informative but the rather forward presentation can be uncomfortable	24,44,31	● 83	8	28	●	●		86
Audio Gem Emerald	540	Pretty compact floorstander with lively if lightweight sound	18,94,21	● 87	6	40	●	●	1905	164
Audio Note AN-I/B	799	Light damping and local unevenness add some colouration, but don't spoil the speaker	38,58,25	● 93	8	25	●	●		110
Audio Note AN-E/B	1,299	Coherent, dynamic and transparent, with extended bass and high sensitivity - but ugly!	36,84,28	● 94	8	20	●	●		106
Audio Physic Tempo	1,999	Tall and unusually-styled floorstander has stunning stereo but suspect bass tuning	22,107,47	● 88	8	28	●	●	1344	143
Audiovector M2	1,399	High class, smooth and slightly laid back performer has driving bass. It's upgradeable too!	20,102,30	● 89	4	22	●	●		174
AVI Positron	899	Suited to smaller rooms, this 'mini-floorstander' is capable of great precision and delicacy, but in a rather small scale way	17.5,25,7784	● 85	6	40	●	●	2130	180
B&W DM302	150	Highly competent and neutral all rounder; clever Prism enclosure	19,32,22	● 88	4	45	●	●	1778	156
B&W DM601	199	Great main driver for the price, entertaining dynamics	20.5,35.5,23	● 88	6	30	●	●	1779	156
B&W DM602	300	Prefers tall stands and space, but offers impressive midband dynamics and musical tension	24,49,31	● 90	8	30	●	●	1654	152
B&W DM305	350	Ridged paper cone gives lively sound, clever box, but a little uneven	22,87,31	● 89	4	40	●	●	1908	164
B&W DM603	500	Squat floorstander with decent dynamics and well-judged, restrained balance; bass could go deeper	23.5,88,29	● 89	7	45	●	●	2030	170
B&W CDM1 SE	600	A gorgeous looking stand-mount with one of the best midbands around, and a subtle blend of other qualities	22,37,29	● 88	5	40	●	●	2209	177
B&W CDM7	1,000	A combination of serious welly and physical elegance; a basic lack of midband smoothness rather let the side down	22,97,29	● 90	4	22	●	●	2131	174
B&W Matrix 805 V	1,095	Stylish, remarkable imaging, good balance and low colouration	33,33,21	● 87	8	30	●	●		98
B&W Matrix 804	1,695	A great all-rounder which combines exceptional bass extension with fine sensitivity	26,96,26	● 88	4	20	●	●	1985	167
B&W Matrix 801S3	3,995	Lacks transparency and the drama of the best dynamics, but acoustically a tour de force	44,100,56	● 87	8	20	●	●		81
Cabasse Farella 400	950	Exciting but very upfront-and-in-ye-face sound. High sensitivity, fine build and good dynamic drive	26,92,32	● 92	5	28	●	●		180
Castle Isis	250	A great miniature at a very competitive price. Sound is lightweight but very coherent, with a fine overall balance	17,35.5,21	● 87	8	45	●	●	2019	170
Castle Kendal	500	A beautifully finished compact floorstander with a decidedly forward but communicative sound. Try before you buy	17,76,20	● 86	6	45	●	●	2204	177
Castle Severn 2	539	Carbon fibre cone gives lovely, subtle midband but treble is a bit dull and bass a bit thumpy; lovely cabinet work	21,84,25	● 87	8	30	●	●	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	Ably fills the gap between Chester and Winchester; has a rich, laid-back balance	26,104,41	● 90	8	40	●	●	1078	132
Celestion 12i	119	Not without virtue, but in the long run the relentless enthusiasm and mid-band colourations can become wearing	19,31,21	● 88	6	45	●	●	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
Cerwin-Vega VS10	350	Not very refined but extremely ballsy; these rock boxes have no shortage of gung-ho	33,70,29	● 95	6	37	●	●	1758	155
Chario Syntar 100	249	Pretty with a pleasantly easygoing balance, but not the most communicative or exciting sound around	18,32,27	● 87	6	45	●	●	2020	170
Chario Academie	1650	Pricey Italian stand-mount, has high class sound and appearance. Solid walnut enclosures	25,40,31	● 84	8	40	●	●		180
Dali 104B	370	Lively, rich sounding and communicative. Shame about bland styling and dull balance	22,86,27	● 93	4	28	●	●	1657	152
Dali 606	400	A big bruiser at a tempting price, Dali's 'no-frills' 606 sounds refined and polite, but also packs some punch	22,97,32	● 91	4	25	●	●	2121	174
Dynaudio Audience 5	400	Follows the Dynaudio tradition for fine midband transparency, but the overall timbre is a bit thin and cold	20,31,26	● 85	4	40	●	●	2205	177
Dynaudio Audience 50	577	This compact stand-mount doesn't look big, but sound quality can match many models at twice the price	20,33,25	● 86	4	30	●	●	2122	174
Dynaudio Contour 1.8	1,842	Wonderful voice-band delicacy and loads of deep bass from a very elegant and compact box	21,95,29	● 85	4	20	●	●	1986	167
Eltax Linear Response	249	A curiously dumpy shape, this smooth and laid back performer is very easy on the ears, with fine tonal accuracy	25,35,32	● 85	4	40	●	●	2201	177
Epos ES12	499	High quality luxury stand-mount has great midband and stereo imaging	20,38,25	● 85	8	45	●	●	1823	160
Epos 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
Genexxa 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, clarity, speed and timing. Sounds fresh and vital, though sometimes lacks scale and weight	20,29,18	● 87	6	50	●	●	2256	179
Heybrook Heylette	269	Attractive traditional-style near-miniature has fine bass-to-mid integrity, but dull and shut-in top end	19.5,30,20	● 89	6	45	●	●	2026	170

HI-FI LOUDSPEAKERS (CONTINUED)

Product	Price(£)	Comments	SIZE WxHxD(CM)	SENSITIVITY(dB/W)	FLOORSTANDER	BASS FROM (Hz)	IMPEDANCE(Ω)	FREE SPACE	CLOSE TO WALL	FACTSBACK NUMBER	ISSUE NUMBER
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 Quartet	649	Solid, large bookshelf model with good sensitivity and a lively, forward sound	24,41,22	90	8	48	●	●	●	122	
Heybrook Ultima	649	Has the bass wallop to justify its dual hi-fi/home cinema roles, but didn't get our listeners particularly excited	22,97,29	●	89	6	45	●	●	2126	174
Heybrook Sextet	1,299	Coherent and highly analytical, partly due to distinct upper-mid forwardness	27,90,20	●	88	8	25	●	●	102	
Heybrook Octet	1800	Good-looking but pricey floorstander with novel drivers and a fine ceramic-enclosure midband	24,97,31	●	90	6	25	●	●	180	
Infinity Reference 1i	150	Although not to our tastes, this is a competent speaker, and decent material value	20,34,20	89	6	50	●	●	●	1403	148
Jamo BX100A	350	Offering a cracking output for their size, these rock boxes can be a bit bright but have decent bass	31,5,54,28	91	8	40	●	●	●	1758	155
Jamo Classic 8	400	A lot of speaker for the money; good when playing quietly, but boom 'n tizz character sounded crude	22,90,29	●	90	4	28	●	●	1659	152
Jamo 477A	500	Very prettily styled, but build and sound quality are disappointing at the price	19,77,28	●	88	4	40	●	●	1549	138
Jamo 507A	700	Exceptionally imaginative styling keeps the front view super slim yet still packs a punch. Glass top is a neat extra touch	22,94,37	●	88	3	40	●	●	2126	174
JBL LX2	250	Lively and invigorating, if a touch crude, this good-hearted speaker reproduces music with considerable enthusiasm	22,40,27	87	8	40	●	●	●	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, and the sound is quite a lot of fun, enlivened by a juicy bass thump	17,5,51,31	86	8	40	●	●	●	2127	174
JBL L40	1,000	Classic, large, stand-mount 3-way is full of vim and vigour, with a superb sense of balance	30,65,31	88	4	23	●	●	●	1976	167
JBL SVA 2100	1250	Monstrously large and brutish styling, goes very loud as well as deep. Fine focus but some boxiness	37,114,52	●	91	8	<20	●	●	180	
JBL L90	1,500	A classic monitor which communicates with gusto and enthusiasm, though it can sound a bit crude	24,94,35	●	91	6	23	●	●	1348	143
JM Lab Spectral 909.1	1,375	Multi-driver array in a large and very substantial enclosure. Good scale but lacks delicacy and sweetness	27,107,35	●	90	4	20	●	●	180	
Jordan Watts JH400	565	Piano-finish hexagon has controversial sound, with uneven balance but delightful mid	28,38,21	86	8	50	●	●	●	106	
JPW Mini Monitor	60	Ultra-cheap miniature works well in a limited way	18,27,17.5	86	8	50	●	●	●	1781	156
JPW Gold Monitor	80	More informative than Mini Monitor — but fiercer too	18,27,17.5	86	8	50	●	●	●	1782	156
JPW ML510	130	Lots of good-quality speaker for the price, but not an ideal match for cheap budget components	20,34,22	88	5	50	●	●	●	169	
JPW ML710	230	Good material value but disappointingly uneven bass — check out the 510s and a pair of proper stands instead	20,88,30	●	88	5	40	●	●	2202	177
JPW ML1010	400	A seriously substantial speaker for the price, and an obvious choice for those who like their music loud	22,5,115,40	●	91	6	25	●	●	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 in focus precision	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 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 Reference Model 2	1,599	Classy, large floorstander that has massive headroom and clean mid-to-treble, but limited deep bass for size	23,103,34	●	89	4	30	●	●	1987	167
Kelly KT3	1,200	Super high sensitivity, this hefty floorstander sacrifices smoothness to dynamic realism — to very good effect	25,95,36	●	95	4	28	●	●	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 shape and styling. Goes loud and deep but could be smoother	18-26, 93,28	●	90	4	20	●	●	1977	167
Linn Keilidh Passive	750	Stunning timing and coherence, and awesome bass drive	20,83,28	●	87	4	22	●	●	1552	138
Linn Kåber Passive	2,000	Dry, bright balance emphasises dynamics and transients, but can sound unforgiving	20,90,28	●	87	4	25	●	●	118	
Living Voice Auditorium	1,500	Pretty, compact floorstander has wonderful coherence, high sensitivity and fine dynamic integrity	21,5,98,29	●	91	4	25	●	●	180	
Magnat Vintage 720	1200	Slightly crude in some respects but lots of heart, fine scale, decent dynamic coherence and integrity	29,113,32	●	88	4	20	●	●	180	
Mission 700	130	Both in size and sound, a lot of speaker for the money. Good bass weight and extension and goes loud with ease	18,34,26	87	8	40	●	●	●	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	
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 733i	330	New tweeter gives this floorstander a more open sound; a good all-rounder that doesn't sound as big as it looks	20,5,88,30	●	88	8	45	●	●	2027	170
Mission 752 Freedom	578	A beautifully judged compromise in the art of combining presentation with a decent sound, and a lively midband	20,90,25	●	89	8	45	●	●	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 for size	22,111,31	●	88	4	40	●	●	1981	167
Monitor Audio Monitor 3	400	An exceptionally discreet floorstander; sonically uneven, it's capable of fine results if used in a sympathetic system	16,91,21	●	88	5	30	●	●	2032	170
Monitor Audio Monitor 4	500	An oddball balance but a nonetheless entertaining sound, and a good looking real wood box at a realistic price	20,87,24	●	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 that intimate midband focus which seems the preserve of metal cone main drivers	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	1400	Beautifully finished compact floorstander with fine midband coherence, but limited bass and top end	20,94,28	●	89	4	25	●	●	180	
Mordaunt-Short MS10i	140	Up front, bouncy and a whole lot of fun	18,5,30,5,20	86	8	50	●	●	●	1789	156
Mordaunt-Short MS30i	275	Slightly shut-in and coloured quality is offset by fine bass and impressive communication	25,43,28	90	8	28	●	●	●	1662	152
Musical Technology Kestrel SE	300	Brighter and drier-sounding than the standard Kestrel (and not the better for it)	20,84,19	●	84	5	50	●	●	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 Condor	1,000	Lots of clever ideas in a compact floorstander, which places transparency and smoothness ahead of dynamic drama	25,91,23	●	85	4	28	●	●	2134	174
Musical Technology Hawk	1250	Strikingly original, purposeful and attractive enclosure, but upper midband is decidedly shut in	20-36,93,24-38	●	87	5	23	●	●	180	
Naim Intro	660	Great dynamic range and info retrieval, but thin, lacks warmth	24,89,27	●	89	6	30	●	●	1916	164
Naim Credo	1,060	Very involving but the sound is rather forward and cold. Good clarity, but some coloration and a lack of richness	24,89,30	●	88	8	28	●	●	180	
Naim SBL Passive	1,970	Lively and punchy — smoother but more upfront than before	27,89,27	●	88	6	25	●	●	1352	143
Neat Mystique Mk2	575	An elegant package which delivers a fine overall sound quality; some might find the top end too insistent	20,86,18	●	85	6	23	●	●	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
Origin Live Conqueror	1,650	Chunky floorstanding 3-way has lovely cabinetwork and lively sound, but limited deep bass	24,94,27	●	88	8	30	●	●	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

HI-FI LOUDSPEAKERS (CONTINUED)

Product	Price(£)	Comments	SIZE WxHxD(CM)	SENSITIVITY(dB/W)	IMPEDANCE(Ω)	BASS FROM (Hz)	FACTS		ISSUE NUMBER	
							FLOORSTANDER	FREE SPACE	CLOSE TO WALL	NUMBER
Polk LS70	1,200	High sensitivity, but balance has too much midbass boom; mid-top is laid back		31,94,37	● 90	8 22	●	●	1084	132
Proac Response 2.5	2,700	For aspirant high-enders looking for seriously good conventional boxes, this speaker should be first port of call		22,107,25	● 86	8 30	●	●	1457	149
QLN Signature	1,000	Attractive pyramidal stand-mount with heavy, laid-back balance but remarkably unboxy sound; superb stereo		27,37,36	● 83	4 25	●	●		167
Quad ESL-63	3,450	Classic electrostatic lacks punch, but has strengths some can't live without		66,93,27	● 86	8 34	●	●		60
Rega Kyte	198	Has splendid timing and coherence, sounds very explicit and informative		19,31,19	● 87	8 50	●	●		114
Rega EL8	298	Kyle drivers in compact floorstander gives more bass but less coherence		17,72,20	● 86	8 55	●	●		122
Rega ELA Mk II	498	Pretty and smooth, the latest incarnation has a superb midband and excellent communicative skills		30,80,20	● 87	8 40	●	●	1578	139
Rega XEL	1,040	Looks and sounds great: balance bright but even, with delightful coherence and timing		20,82,30	● 89	6 40	●	●	1083	132
Rehdeko RK 115a	1,700	Single-driver system has limited bandwidth and obvious coloration, but wondrous dynamic and temporal coherence		34,42,27	● 95	8 55	●	●	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 GS1	179	Classy looking small box with equally classy, if slightly over cautious sound		19,30,17	● 85	8 45	●	●	2258	179
Rogers dB101	250	Style par excellence, this shapely sub-miniature is fast and agile but lightweight and forward: great voices; lacks bass		20,26,20	● 88	6 45	●	●	2024	170
Rogers LS3/5A	699	Clever AB1 stand/subwoofer helps the classic 3/5A monitor give its best shot		19,31,17	● 82	12 45	●	●	1354	143
Rogers C6/28	1,399	Large floorstander with carbon-fibre tweeter. Sounds much better than it looks, especially through the midband		25,103,29	● 88	6 20	●	●		167
Roksan ROKone	595	Large stand-mount is musically very communicative if a little coloured		21,45,33	● 89	6 30	●	●	1834	160
Roksan Ojan 3 Black	795	Squat, stylish and black, great bass extension and somewhat uneven balance		28,76,46	● 88	8 20	●	●	1082	132
Roksan OJ3X Black	995	Innovative low-line, 2-way floorstander with decoupled tweeter; great bass and fine dynamic range		28,79,46	● 84	8 20	●	●	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 Sceptre	599	Graceful 'traditional' cabinetwork with classy veneer and shiny gilt fixings, hampered by a rather wayward sound balance		21,38,31	● 87	8 40	●	●	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 3-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
SD Acoustics SD3R	649	New SD3 has the agility and charm of a quality miniature, good bass and low sensitivity		20,38,30	● 87	8 25	●	●		106
SD Acoustics SD5	1,549	Bass suspect but forward midband is delightfully smooth. Has ribbon tweeter		20,110,30	● 88	8 30	●	●	1081	132
Sequence 400	329	Clever hang-on-wall panel is well voiced, though bass isn't too great		25,100,7	● 86	8 45	●	●	1917	164
Shahinian Arc	1,875	Occasionally wonderful small floorstanding omni; bright but coherent and revealing		35,69,25	● 88	6 24	●	●		110
Silverado Raider	695	Beautifully built audiophile compact, neutral if bright, tough work for amps		20,40,25	● 83	3 30	●	●	1918	164
Spendor 2030	599	Discreet slimline floorstander with delicately coherent, laid-back sound		18,89,27	● 87	8 30	●	●	1836	160
Tangent Monitor 5	80	An uneven performer best suited to small rooms and generous volume levels		17,5,27,18	● 83	8 55	●	●		169
Tangent Monitor 9	150	Budget floorstander that can motor when the music demands with a solid bass but occasionally raw treble		19,5,75,5,22,5	● 90	6 45	●	●	1926	165
Tannoy Mercury M1	120	Sounds much bigger and more expensive than it is. Solid, tuneful bass, wide open soundstage with excellent imaging		17,30,20	● 87	8 50	●	●	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 Mercury M3	230	Good-looking fine value floorstander is very neutral and evenhanded, with fine midband but weak dynamics and drive		20,5,87,28	● 87	7 20	●	●	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	●	●		093
TDL RTL3SE	450	A touch of boom'n'tizz might be to taste, but this is a lot of box for the money, with floor-shaking bass capabilities		20,91,39	● 89	6 22	●	●	2124	174
TDL CF200 Cotswold	650	Fine midband tonality and dynamic range, but less happy towards the bandwidth extremes		22,5,78,23	● 86	6 40	●	●	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
Totem Model One	1,195	Utterly delightful but exasperatingly expensive luxury miniature sets the benchmark for its size		17,31,23	● 87	4 28	●	●		122
Vandersteen 2Ce	1,395	Elegant staggered baffle contributes to a refreshing freedom from boxiness		41,101,27	● 88	7 23	●	●		86
Wharfedale Diamond 7.2	140	A 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 Valds 400	200	Goes very loud with a minimum of amplification, but the sound is very thick and uneven, with a heavy upper bass		25,80,26	● 91	8 30	●	●	1414	148
Wharfedale Valds 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	Very competently engineered all round, and goes (unnecessarily) very loud		54,47,48		20	●	●	2248	179
B&W AS6	500	Good material value with a fair amount of low bass from 100W active design		45,51,45,5	●	30			1736	154
Celestion CS135	139	Compact hideaway passive sub lacks deep bass for high sensitivity speakers		52,19,34	● 86	8 45	●	●		128
Jamo SW600	530	Has some neat styling touches and remote control but deep bass is limited (active)		38,41,53	●	30			1736	154
JPW SW60	349	A real heavyweight for 349, sounds clean and transparent, if perhaps a little understated. Usefully flexible		55,47,39		20	●	●	2249	179
KEF Model 30B	499	Commendably discreet with good sense of timing but limited extension (active)		38,5,37,43	●	45			1736	154
KEF AV1	2,499	Works well, looks great, shakes the windows but costs a lot and is bulky		56,43,50	●	45				128
M&K YX-7B	450	Baby of a big range; this active design delivers deep, plenteous bass but lacks transparency		35,25,37	●	40			1736	154
M&K MX70	900	Justifies its cost and belies its diminutive size, with an agility that makes sense of the toughest material		25,5,46,35		25	●	●	2250	179
REL Q50	375	Genuinely deep, clean bass from an attractively compact and cost effective package		40,41,42		20	●	●	2251	179
Rogers AB1	549	Subwoofer-cum-stand designed as partner for LS3/5a or similar miniatures		19,57,16	● 82	8	●	●	1354	143



Stands & Supports

Hi-fi furniture is more important than you might imagine. The effect it can have on the sound of your system is far from subtle. Hi-fi furniture can be split up into two categories — equipment supports and loudspeaker stands. Though this branch of hi-fi is less governed by vigorous science than, say, amps and CD players, extended listening has proved that stands and supports do sound different — and make a difference to the

sound of the components that are placed upon them! Speaker stands come in a variety of sizes and styles to suit different models. Use dealer or manufacturer recommendations to narrow down the choice, but as a rule you want the tweeter at ear height.

B Best buy **R** Recommended

KEY	
HEIGHT (CM): Height of stand or equipment shelf.	lead to increase mass, which affects sound.
TOP PLATE SIZE (CM): Dimensions of top plate on speaker stand or equipment support.	WELDED: The better stands and supports are welded rather than bolted together.
FILLABLE: Some speaker stands can be filled with sand and/or	NUMBER OF SHELVES: The number of tiers on an equipment
	rack or support.
	SHELF TYPE: Material from which shelves are made. Wood generally means MDF.
	FACTSBACK NUMBER: The Factsback reference for ordering a fax
	copy of the review. Use the contents page to find the Factsback information page, elsewhere in this section..
	ISSUE NUMBER: The issue of Hi-Fi Choice in which the original review appeared.

STANDS & SUPPORTS

Product	Price(£)	Comments	HEIGHT(CM)	TOP PLATE SIZE(CM)	FILLABLE	WELDED	SHELF TYPE	FACTSBACK NUMBER	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 that made a spectacular impression on audition	70	52,34			3 Glass	1952	166
Ixos Deadrock 704	250	Looks like an MFI job 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 to components upon it	91	49,39			5 Glass	1633	151
Optimum Int 2000 OPT490	299	25kg stand with shelves sandwiched between variable height tubular uprights. Sounds smooth and relaxed with sturdy bass	50	60,40			4 Glass	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, and tonally neutral	54	40,49			4 MDF	1633	151
Sound Organisation Z038	135	Too lively and lacking order — but cheap	50	84,40			5 Wood	1633	151
Sound Organisation Z560	160	A mix of welded and bolted members gives good structural integrity. While performance is not up with the best, it's great value	90	46,36			5 Wood	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 that 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	
Soundstyle X100	150	Looks lovely, sounds lively but slightly bright	64	49,28			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	84	Tall, slim and elegant, though sound and value are unexceptional	40-60	17,17					159
Alphason Titan	125	Excels in the midband and allows voices to come across in a detailed and expressive fashion	40-60	16,16				1373	146
Apollo AZ6	80	Fine engineering value, but sound is unexceptional and top-plate small	66	15,13					159
Atacama BD21	55	Good-looking and good value, but doesn't match the SE24's sound quality	56	15,17					159
Atacama SE24	70	Stands out from the budget crowd because of the consistency and overall quality of the performance	61	19,5,17				1373	146
AVF Tower 400	35	Ridiculously cheap and much better than no stand at all	54	17,20					159
Kudos S50	100	Better sound than the budget stands, particularly at the bottom end	60	15,21					159
Kudos S100	270	The best all-round stand around. . . Probably. . .	63	15,21					159

Select

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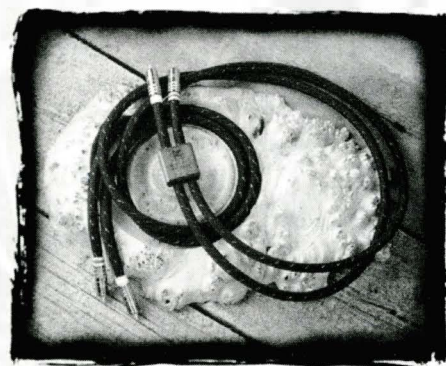
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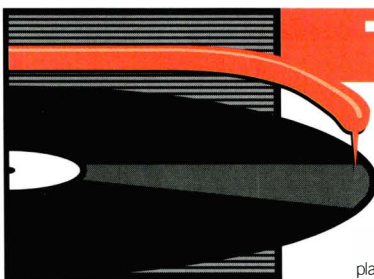
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STANDS & SUPPORTS (CONTINUED)

Product	Price(£)	Comments	TOP PLATE SIZE(CM) HEIGHT(CM)	FILLABLE	WELDED	FACTSBACK NUMBER	ISSUE NUMBER
Mana Soundframes	125	For use under floorstanders and equipment racks, these make music effortless and natural, can be stacked for greater effect	5		●		1373 146
Revolver RS1	70	A good blend of performance and appearance for the price	53	18,18	●		159
RMS/Stands Unique Vivus	349	Pricey carbon fibres give ultra-clean sound with exceptional voices	50	N/A			159
Stands Unique HP	220	Real wood disguises high performance tuned technology	59	22,23			159



Tonearms

Turntables at the cheaper end of the market tend to be supplied with a matching tonearm, and often include a 'starter' cartridge. Still better quality is found at higher prices among the separate motor units and tonearms. Careful partnering and set-up is essential for these components.

Although the turntable is the most important part of a record player, the tonearm is the second most important, and the quality of

its construction and design have a significant bearing on sound quality. There are three basic types of arms listed in the key and each has its strengths, but pivoted designs are the most popular, for reasons both practical and economical.



KEY

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.

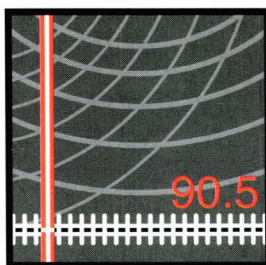
ADJUSTABLE HEIGHT: Important for accurate cartridge set-up.

FACTSBACK NUMBER: The reference for ordering a fax copy of the review. Use the contents page to find the Factsback reference.

ISSUE NUMBER: The issue of *Hi-Fi Choice* in which the original review appeared.

TO NEARMS

Product	Price(£)	Comments	PARALLEL TRACKING	EFFECTIVE MASS	PIVOTED	UNI-PIVOT	EFFECTIVE LENGTH(CM)	ADJUSTABLE HEIGHT	FACTSBACK NUMBER	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

The radio medium may have at a lower profile than TV, but in areas outside pop music the BBC service is the envy of the world. Live concerts rival all other sources from a hi-fi perspective.

Though tuners might seem something of a hi-fi afterthought, the task they discharge is far from simple, since it requires the skills of RF (reception) and audio (signal processing) engineering. The importance of the former will depend on reception conditions, unless you get radio via cable, but a high-

quality aerial system is well worth having. Tuners come in two basic types. Analogue models tune gradually and can have analogue or digital displays; they are often preferred for sound quality. Digital tuners offer convenient automatic tuning facilities and pre-set memories.



KEY

WAVEBANDS: Only the FM (VHF) bands give stereo hi-fi sound, though AM (MW & LW) are useful for receiving certain transmissions in the UK.

PRESETS: Number of station frequencies that can be stored.

RDS: (radio data system) was originally designed for in-car

applications. Basically RDS tuners can identify and display the name of the radio station being received, as well as prioritising traffic announcements.

REMOTE CONTROL: Couch-potato friendly

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.

FACTSBACK NUMBER: The Factsback reference for

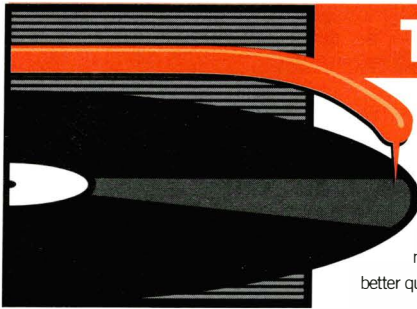
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ISSUE NUMBER: The issue of *Hi-Fi Choice* in which the original review appeared.

Tuners

Product	Price(£)	Comments	WAVEBANDS	PRESETS	RDS	ROTARY TUNING KNOB	SIGNAL STRENGTH METER	REMOTE CONTROL	FACTSBACK NUMBER	ISSUE NUMBER
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
Audiolab 8000T	800	Unusual combination of fine sound quality and RF performance (inc AM), and superb ergonomics	FM, M, L	39		●	●			1254 142
Denon TU-260L	120	Careful minimalist design promises a surprisingly open and vivacious sound	FM, M, L	20						93
Denon TU-425RD	200	A fine all-rounder with advanced RDS, good RF performance and decent sound. Remote extra	FM, M	40	●					1947 166
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. The reviewer's saving up but you should check it out for yourself	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
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, if a touch shut-in at the top	FM	29		●	●	●		1254 142
Musical Fidelity E50	300	Sounds involving if coloured and with a subjectively larger-than-life presentation	FM	20						1810 157
Naim NAT01	1,730	There may be better sounding tuners in the world, but we have yet to hear one	FM							1254 142
Pioneer F-504RDS	250	Cable-friendly with advanced RDS and excellent RF performance, slightly disappointing sound	FM, M	40	●		●	●		1949 166
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
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, it nonetheless makes listening fun	FM, M	59	●	●	●	●		1810 157

Turntables



Specialist turntables are what high fidelity sound is all about. CD players may offer silent backgrounds and flat frequency responses, but they can't match the dynamics and superlative timing that serious turntable users take for granted. Turntables at the cheaper end of the market tend to be supplied with a matching tonearm, and often include a 'starter' cartridge. Still better quality is found at higher prices among the separate motor units

and tonearms. Careful partnering and set-up is essential for these components, but many so-called 'sympathetic' combinations exist.

Because turntables are mechanical devices that are designed to retrieve modulations as small as a micron, engineering quality is of paramount importance. It is also the reason why turntables cost as much as they do, and require high quality support systems.



KEY

MANUAL: You do it all: put the needle on the record and take it off.
AUTO: The record player does it all.
SEMI-AUTO: Share the work: you put it on, it lifts it off.
SPEEDS: In RPM to correspond with your platters.
SUSPENDED SUBCHASSIS: Spring suspension to minimise

structural interference.
EXTERNAL PSU: Outboard power supply; generally indicative of higher-quality performance.
SUPPLIED WITH ARM: Many turntables require a separate arm to be fitted; if not, this tells you so.

SUPPLIED WITH CARTRIDGE: Most turntables do not come supplied with a needle.
FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this

section.
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TURNTABLES

Product	Price(£)	Comments	MANUAL	SEMI-AUTO	SPEEDS	SUSPENDED SUBCHASSIS	EXTERNAL SUPPLIED WITH CARTRIDGE	FACTSBACK NUMBER	ISSUE NUMBER
Clearaudio Reference	3,990	Opulent beast tested with Souther TQ-1 arm. Tends to gloss over detail with a fizzy character but is quite bold	●		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
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/Arm750	750	No frills, just a first-rate, outstandingly natural-sounding deck that will last forever	●		33/45		●	●	159
Pink Triangle Anniversary	2,500	Possibly the most detailed, clear and neutral-sounding deck around. Likeness to master tape is uncanny	●		33/45				91
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 mid-price 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	The '3' sounds musical in a balanced and coherent 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 20A	4,863	Supplied with Series V arm. Engineered to last a lifetime, giving excellent stereo and detail retrieval	●		33/45/78		●	●	118
Thorens TD166 VI/UK/RB	400	Refined and solid sound with well-focused imagery; suitable for use with good MM and budget MC cartridges	●		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 it is not ideal, but has a limpid quality and a lack of artificiality that sets standards	●		33/45				1180 136

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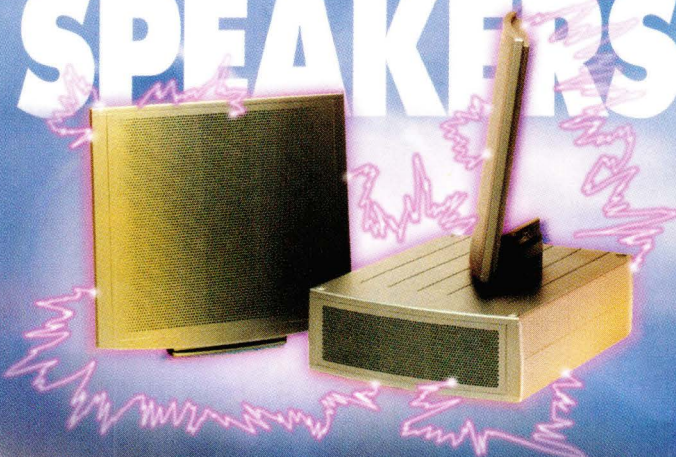
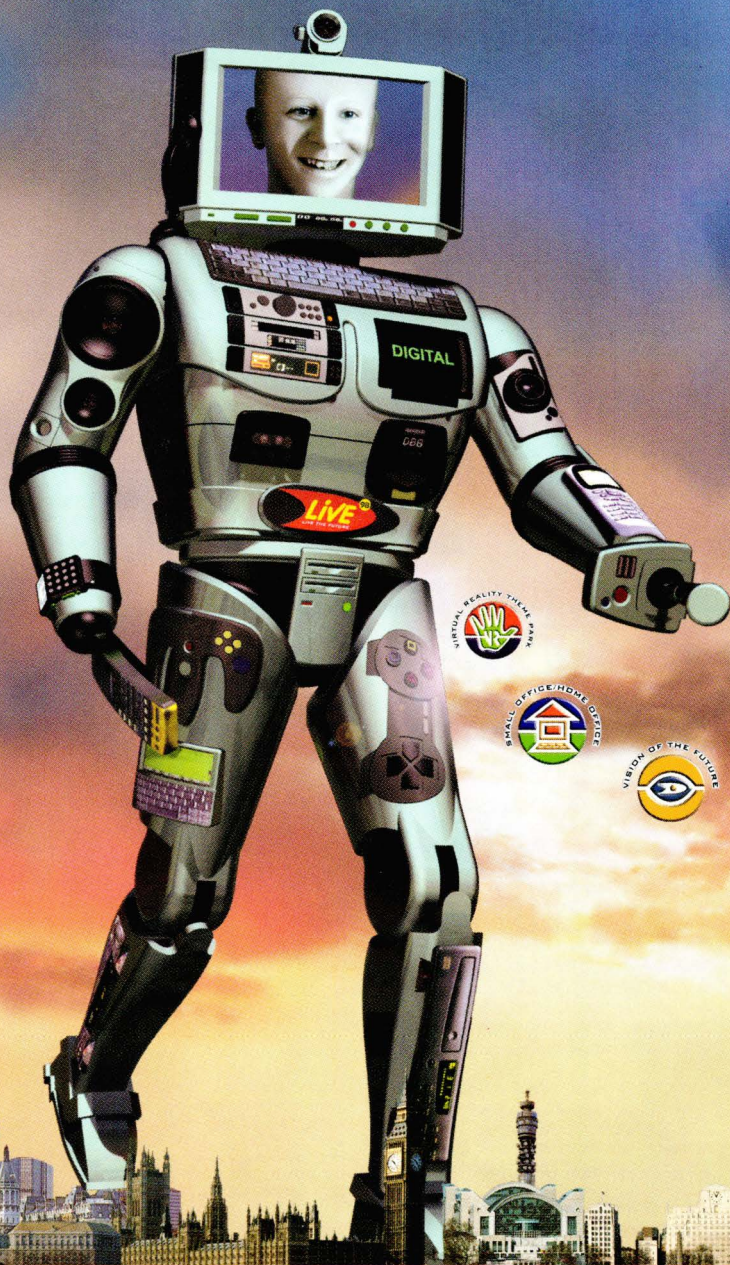
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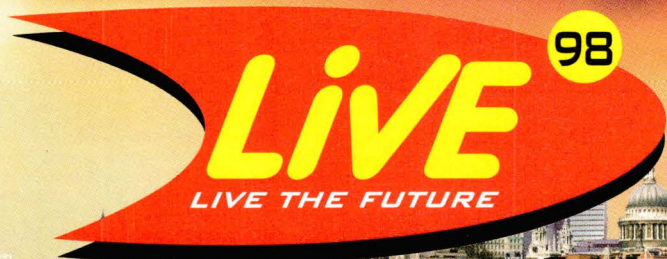
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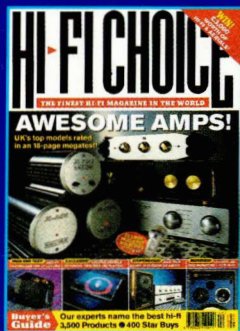
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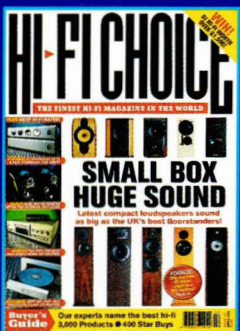
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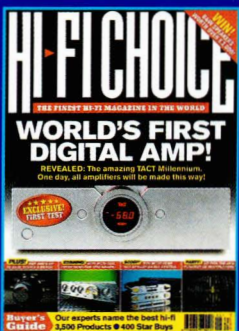
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- MD & CD PORTABLES
- EUROPEAN AWARDS 1998
- THE VINYL RESURGENCE



Sharp MD-MS702H

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Get up to date with the latest gear available for people on the move. We've searched long and hard for the latest, greatest personal players and recorders for both MiniDisc and CD formats. Which deserve space in your suitcase? We check out the hottest small objects of desire from Sharp, Kenwood, Aiwa, Sanyo, Sony and Panasonic.

EISA WINNERS

Experts from Europe's major hi-fi and home entertainment magazines have converged to vote on the ultimate hi-fi and home cinema products you can buy over the next year. These are the highly respected Awards from EISA, the European Imaging & Sound Association, and *Hi-Fi Choice* has exclusive rights to reveal them in the UK. The full story in October's issue.



Rega Planar 3

VINYL: THE COMEBACK

It's not just LP freaks flogging a dead format — vinyl records are still in circulation, even burgeoning, and our investigation sets out to find why. We'll compare vinyl and CD, examine audiophile albums and list the most affordable essential turntables.

STATEMENTS

Advanced Audio Disc replay arrives in the guide of Muse's 24-bit/96kHz DAD player, the first high-end player specifically designed for this new format. Musical Fidelity's Nu-Vista pre-amp makes its debut and reintroduces a little known vacuum-tube component: the Nuvisor. Plus: shame (not!) about the World Cup defeat by Croatia, but Germany fights back with two new CD players — the high-end Revox Exception and the bitstream/multi-bit T+A CD1220R. Gesundheit!

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THE OCTOBER 1998 EDITION OF HI-FI CHOICE WILL BE ON SALE THURSDAY AUGUST 27th, 1998. DON'T MISS IT!

Ultra

Is it possible to create a quality system relying only on reviews?
David Vivian advises everyone to get friendly with a hi-fi dealer.

Vivian Scene

Once upon a time, assembling a successful hi-fi system was a great art. The process required time, patience, a little skill and luck — and the close attendance of a hi-fi doctor, who could help explore the options available until one permutation hit the spot.

We recommend the same course of action today, of course, but now it's less popular as the most valid way to proceed. A culture of instantism has taken over. Same-day gratification rules. People will argue that they haven't got time to faff around in dealer demo rooms. Because life's too short. And, as everyone who's ever read a hi-fi magazine knows, all the gear is so good, so compatible, it's more or less a matter of slinging together a few well-reviewed products and making room in the car boot.

If you can't be bothered to do that, just buy a system that a magazine has concocted and raved about. They've done the legwork for you. Easy life. Shocked? You shouldn't be. Magazines, even though they always dispense the good advice outlined above, understand perfectly well that this is the way of the world and can't help but pander to it. People know they shouldn't believe everything they read in the papers, but that doesn't stop them taking it in and passing it off as fact.

Besides, it's human nature to short-circuit a laborious process. The pages of *Ideal Home* are full of décor ideas religiously replicated. And if it wasn't for the *Reader's Digest Family Medical Adviser* manual and its extensive 'Check Your Symptoms' section, GPs would be overrun by people with spots on their tongues. Laura Ashley wouldn't be in business if it was selling merely frocks, perfumes and wallpaper. What it sells are solutions: gift-wrapped creativity.

The hi-fi guide to happiness

Reviews are meant to guide people as they compile a shortlist of products; printed texts are not a ready-made solution. But dealers are all too familiar with the customer who walks in armed with the latest 'What This?', not with a view to planning a listening session, but with a cast-iron conviction to depart with boxes. If the dealer has any sense, he won't be complaining.

So, what can I tell you? That this is a dangerous way to spend your money? Nope, not a bit of it. I reckon that nine times out of 10, it's possible to get away with being in a hurry to buy hi-fi. If hi-fi reviewers are honest,



they know that most modern gear mixes and matches extremely well, and will sound pretty damn good into the bargain. Moreover, for those people graduating from a music centre or mini system to their first proper hi-fi, subtle mismatch anomalies will not be a severe problem. A Pioneer CD player will go with a Denon amplifier and Mission speakers, no problem, and it will sound tasty enough. Hard-bitten audiophiles don't need reminding of the value added by a good dealer's services, but they're in the minority.


There's a difference between a good sound and the exceptional one which will remain rewarding after the first flush of enthusiasm. This can be just as much the product of painstaking system-matching as of money lashed out. The magic sought by dedicated music lovers is rarely conjured when random components are thrown together; but it can be the prize for a little perseverance.

The right combination?

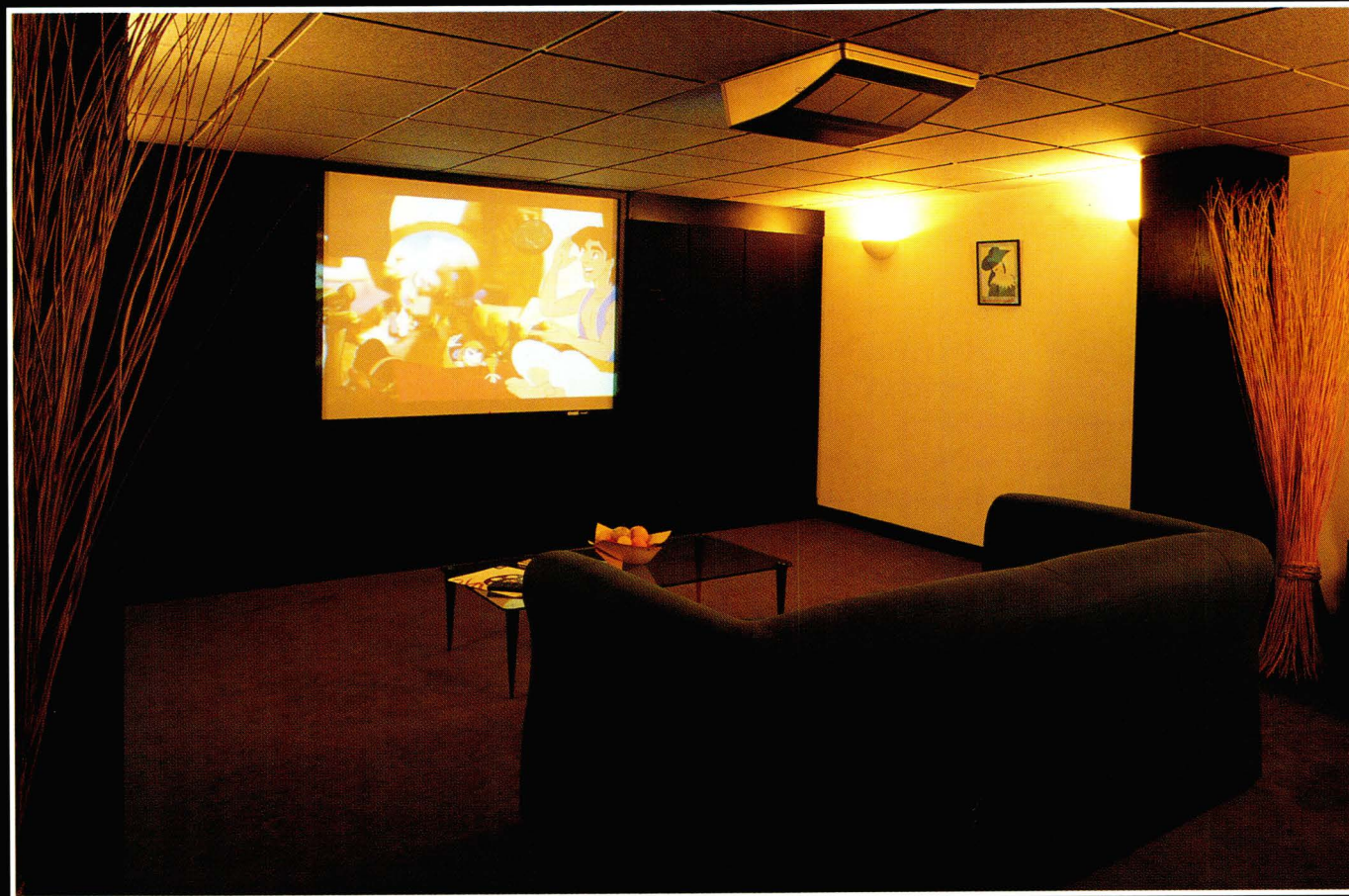
Occasionally, it is possible to come unstuck big time. In last month's column, I wrote about the prodigious power and control afforded by Arcam's new Alpha 10 integrated/10P power amplifier combo.

Connected to super-efficient and naturally ballsy Kelly KT2 speakers, the British amp duo sounded big, forceful and authoritative in a way I've seldom heard at the price (£1,400 for the pair). The 10/10P also worked their spell with a pair of B&W CDM2SE I'd been using. These sounded seductively transparent but also soft and plummy with my regular Pioneer A-300R Precision. The Arcams injected life, drive and greater tonal colour. Suddenly the B&Ws were great speakers.

I could hardly wait to hook up the Castle Kendal floorstander that has also wowed me recently. With its carbon bass-mid driver, sealed box and easy load, the Kendal has a fast, punchy delivery with taut bass and plenty of presence. Or so I thought. Powered by the 10/10P I could hardly believe my ears. It sounded hard, bleached and mean — as if its ebullient spirit had been squeezed dry.

Such was the transformation in the speakers' character, I thought they'd gone wrong. They hadn't. Against all reasonable expectations, they simply didn't like the Arcams. Does that make either product less excellent? Of course not. But it does mean that, when it comes to system building, you can't always rely on a hunch... 

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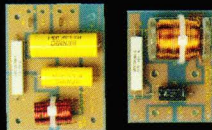


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