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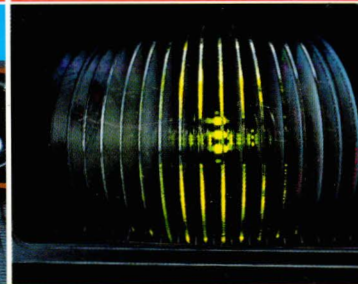
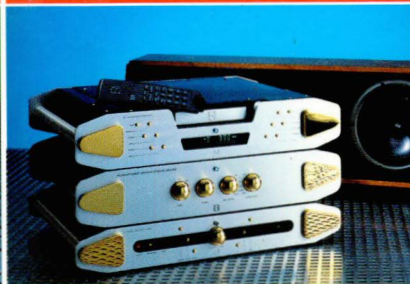


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Fast Forward

Audiolab wish West McLaren Mercedes continued success
in the 1998 FIA Formula One World Championship

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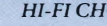
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EISA honours the finest hi-fi and home cinema products throughout Europe.

Editor's Notebook



PHOTO BY SEAN ALDREDGE

Radio is dead. Long live digital radio!

Stan Vincent muses on the implications of digital broadcasting.

As you'll read in *Write On!* this month (p22), one of our readers has discovered that he can receive FM radio via his local cable TV network. The availability of this service came as news to me. Until now, I assumed it took a roof-mounted twig, bristling with elements, to pull in all the subtleties of the airwaves.

Supply of radio via cable offers an alternative, particularly for dwellers in a weak signal area, or for those whose RF spectrum is plagued by pirate broadcasters. This intelligence arrives just as a new, digital form of broadcasting is making headline news.

Digital radio is already available, thanks to some hard work by the BBC. (See our feature in *HFC* 175 for the latest position.) However, very few domestic digital receivers are currently available, and all are designed for in-car use. New products of the same genre have been promised for launch this spring, while interesting variants, such as a PC card radio receiver, are still tantalisingly far up the pipeline.

However, imagine if you could take advantage of digitally-transmitted music in your domestic hi-fi system — right now. The good news is you will be able to, when digital TV launches later in the year. Subscribers to BSkyB's satellite services will be able to receive "up to 60 channels" of "uninterrupted CD-quality" music, provided they purchase the appropriate decoder box. Digital terrestrial operator British Digital Broadcasting, meanwhile, claims it will offer a visual version of Radio One, called UK FM.

Selected highlights?

No-one knows how good those 60 channels of satellite music will be. Today's favourite radio stations, both from the BBC and independent companies, will be available only on conventional analogue broadcasts, or via digital radio services.

Satellite's new non-stop music service will be provided by a third party, Sky Music Choice. And it's worth noting that a similar non-stop satellite music venture, called DMX, described an ill-fated arc after its high-profile launch a few years back.

Once digital broadcasting is established, the conventional form of radio will come under immense pressure. The radio spec-

trum is in enormous and increasing demand for new, space-efficient digital communications applications. Current FM radio broadcasts use up a disproportionately large amount of the ether, because the analogue FM system makes inefficient use of it.

As digital gathers ground, I regret that today's tuners will go the way of turntables, but worse still, they will cease to have a *raison d'être* once analogue radio transmissions cease. In the face of this cataclysmic broadcasting upheaval, it is all the more reassuring to know that the National Vintage Communications Fair (the annual event for fans of old radios and anachrophiles in general) is still going strong, and will be held this year at the Birmingham NEC on Sunday May 10. See *Update* (p6) for details of how to win tickets.

In a 1984 hit, the rock group Queen suggested radio was yet to have its finest hour. That hour is upon us, with the dawning of the digital era. But Marconi's technology, in the form it was conceived, has now entered its twilight years. Enjoy it while you can, and remember it for your grandchildren.

READER SURVEY PRIZE WINNERS

We extend our thanks to all readers who filled in the Reader Survey questionnaire, included with *HFC's* March 1998 issue. We are currently in the process of compiling the results, which will be used to shape our editorial coverage in the year ahead. However, we can now reveal the winners in our Prize Draw, into which were entered all submitted forms. Each of the following will receive a Prime Design A-100 amplifier worth £650: P Watson of Witherwood, Bristol; K J Mason of Rochester, Kent; R Maddock of Mollington, Chester; H Sung of Maghull, Liverpool; and D Robinson of Gillingham, Kent. Congratulations to all winners!

NB: Turn to page 14 for names of other competition winners from our February 1998 edition.



Prime Design A-100 amplifier, worth £650!



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Scream, rant, rave, jump up and down, pull out your hair... or just write to us. Instant hi-fi therapy is at hand, and free clothing.

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...on p38 we exclusively reveal the world's first digital amplifier: the TACT Millennium.

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Choice exclusive! We reveal the world's first digital amplifier, in the guise of the TACT Millennium. Is it worth £5,000?

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WIN! WIN! WIN!

Over £3,000 worth of B&W
speakers up for grabs!



Update

THIS MONTH... REVISED PHILIPS CD-RW... NEW MISSION SPEAKER RANGE... LINN'S 'MINISYSTEM'... AND MUCH MORE...

In brief



No Name, no pack drill.

No Name Acoustics has released the Monogram Series of acoustic platforms, which includes speaker stands, isolation tables and racks. Each piece is hand-finished in polished stainless steel and aluminium, and prices start at £600. ☎ (0171) 288 1966

Glaive has announced the availability of Insert Audio Reference Series Optic 2.1, fibre-optic interconnect cable. It is suitable for use between CD transports and digital to analogue converters, the AC-3 outputs of DVD and Laser Disc players, and between suitably equipped preamps and active digital speakers. Prices start at £24.99 for a 0.5m terminated length. ☎ (01622) 664070



Henry Azima (R) with gong.

Huntingdon-based NXT won the prestigious Business Weekly Award for Development, for its revolutionary flat panel loudspeaker technology. NXT has won a total of five awards in the last 12 months. ☎ (01480) 451 777

Philips remakes recorders

Philips has named a successor to the CDR870 CD Recorder reviewed in *HFC* 174. Dubbed the CDR880, and priced at £499.99, the new model shares its predecessor's features, such as the ability to use new rewritable CDs (CD-RW), and a sample-rate converter to tackle 32, 44.1 (CD) and 48kHz (DAT) sampling frequencies.

Philips claims the CDR880's circuits have been "enhanced", and that our review's findings of spurious jitter in the '870 have been remedied. We aim to review the '880 in the next possible issue.

Like the '870, the '880 will be supplied with four blank CD-Rs and one blank CD-RW (rewritable) disc.

The CD-R roster will swell in August when three new CD-R/CD-RW products are due. The £449.99 CDR765 will be a spiritual heir to the twin tape decks we know today. It will incorporate both a CD player and a recordable CD drive. Double-

speed digital copying is bound to be a hit with home recordists in a hurry.

Other summer specials will include the CDR760, which is based on the CDR870 but benefits from the CDR880's "enhanced" circuits, according to Philips. By virtue of omitting the sampling-rate converter, however, it will be thus 'bargain' priced at £399.99.

Finally, for mini-system users there will be the CDR560, priced at £349.99. This will be sold as a package with Philips' FW530C mini system (redesignated FW538R) at a price of £529.99. Philips ☎ (0181) 665 6350



Philips' new CDR880: new, "enhanced", jitter-free?

Proceed's Famous Five

In the world of multichannel power amplifiers, the ability to deliver full power with all channels driven is not universal. But Madrigal Audio claims this is about to change with the introduction of the first Proceed five-channel amplifier.

The AMP 5, which is due to be priced at £4,995, claims to deliver 125 Watts per channel into 8 Ohms, doubling this to 250 Watts into 4 Ohms.

The new Proceed amp owes its performance to a unique power supply, according to Madrigal, which was designed by the same team that conceived the Mark Levinson power-amplifier range. In the AMP 5, they say, three custom-designed transformers have a total capacity of over 2000 VA, and feed five separate power supplies. The unit accommodates both balanced and single-ended inputs.

For home cinema buffs who are short on living-room real-estate, the Proceed AMP 5 aims to provide a power-packed but compact and top-quality solution. Further details are available on the Madrigal Web site, located at <http://www.madrigal.com>.

Path Premier ☎ (01494) 441736



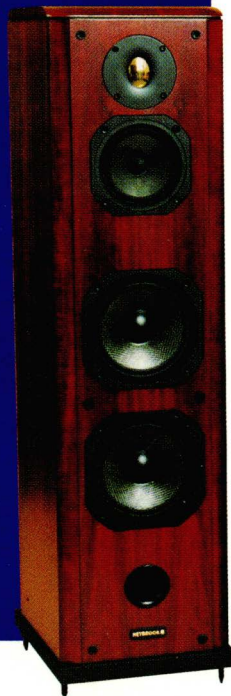
Madrigal's AMP 5: a compact Magnox for your parlour.

Make Heybrook while the sun shines

To celebrate 20 years of loudspeaker production, Heybrook has put a new flagship, the Octet, into production, and will sell it at £1,800. As unveiled in our Ramada show report (*HFC* 172), the Octet stands 940mm high (including metal stands) and has 30mm-thick laminated baffle with double braces. It is available in cherry, rose or black ash veneer.

The elliptical tweeter diaphragm of "piezo polymer film" is plated with pure gold and filled with pressurised gas to create the "ideal" dispersion characteristics. The midrange unit has an aerogel cone and is built into an isolated, sealed, damped ceramic enclosure within the cabinet. Two proprietary 165mm carbon-fibre bass units complete the driver array.

Two more similar models, one stand-mounted and one floorstanding, are due for introduction later this year, to complete Heybrook's premium range of speakers. Heybrook ☎ (01579) 342866



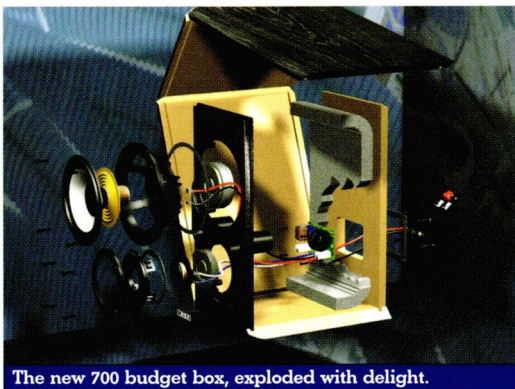
HI-FI CHOICE

Fireworks in Huntingdon

Mission has had an explosion of new loudspeakers at its Huntingdon headquarters. A new, eleven-strong range, dubbed the 700 Series, will replace the 73 Series.

The range was designed by Mission's Technical Director Robin Marshall, and its most distinctive feature is the white-glass composite used in the cones of the bass/mid drivers. This new cone material is said to have excellent rigidity and high levels of internal damping: qualities which are claimed to give the speakers remarkable transient response, pinpoint precision and high efficiency.

Mission's new entry point is the £129.90 700, one of three bookshelf models. Following this there are four floorstanders including the 703 at £299.90, and range topping 705A £899.90, which incorporates twin, active, bass drive-units. There's a strong home cinema showing with two new centre channels and an active subwoofer. Centralforce ☎ (01480) 451777



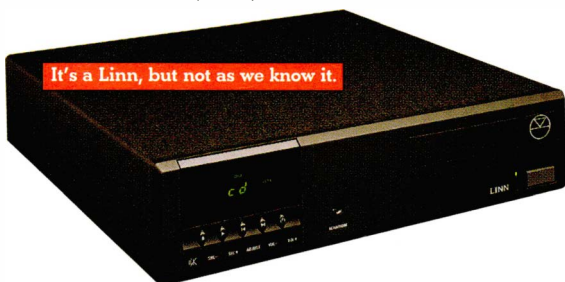
The new 700 budget box, exploded with delight.

Lightweight Linn

Scottish separates specialist Linn Products has taken the bold step of announcing its first integrated component: a combined CD player, preamp and power amp in a single box. The £995 Classik seeks to introduce the Linn brand to those daunted by hi-fi separates. There is a full complement of features lurking behind Linn's traditionally bluff fascia.

The remarkably un-hair-shirted Classik offers packaged audio novelties such as a clock-timer for unattended power switching, two signal-sensing standby modes for auto turn-off, and tone controls. Remote control is standard.

Claimed power output is a healthy 75 Watts (4 Ohms), and facilities include four line inputs and tape loop for alternative sources. With five metres of terminated cable included in the box, it looks like a 'plug'n'play' component! Linn Products ☎ (0500) 888909



Def Tech delivers

Definitive Technology has unveiled new loudspeakers. The latest addition to the BP2000 series is the £1,700 BP2004, which benefits from the '2002's four-drive-unit bipolar array (in which sound is radiated from the back of the speaker as well as the front). It uses two 14cm-diameter, polymer-coned, cast-basket bass-mid drivers; plus two 26mm-diameter, aluminium-domed tweeters with silk surrounds.

Built into the base of this metre-tall, 18cm-wide floor-standing enclosure, meanwhile, is a side-firing, ten-inch-diameter, subwoofer cone. This is driven by a 125 Watt amp and loaded by a "computer-synthesised transmission-line", according to the makers.

Further sophistication comes in the form of a "unique" Linkwitz-Riley differential crossover, which tailors signals for front- and rear-facing drive units differently. Users can adjust low-frequency extension to account for individual room acoustics and user preferences. A Dolby Digital LFE subwoofer input provides advanced home cinema compatibility.

Fans of the latter should look out for the £4,995 BP3000, due for launch this summer. Said to include a trouser-flapping 18-inch bass driver powered by "1000 Watts" of amplification, this unit will be complemented by the £1,195 CLR3000, an active dialogue speaker (with 500 Watts amp).

Gecko Inc Ltd ☎ (0181) 681 1817

Music maestro!

Berkshire-based Sound Management Services has unveiled details of its new Music Maestro CD Management system. Created to link up the Pioneer PD-F series of 100-disc CD players (like the Pioneer PD-F906 reviewed on p52), with a PC running Windows '95, Music Maestro will hit the streets this summer.

At its simplest, the system creates a comprehensive interactive catalogue of a CD collection. However, it can also be used to mix and schedule varied music programs, supplying a blend of tracks delineated by style, age and tempo characteristics.

The starter pack comes with a PC interface card, control cable, dedicated software, a "detailed" manual and a software security facility.

System upgrades are also available to control up to 24 PD-F905/6 CD autochangers.

Sound Management Services ☎ (01635) 521353



Wurlitzer comes to your desktop! Where's the coin slot?

Audiolab F3

Not content with blowing the Formula One opposition into the Armco, TAG McLaren is promising to do the same with all Audiolab's old rivals come the summer. The Woking-based Grand Prix team, which acquired Audiolab last November, is aiming to re-launch the 8000-series with sexy styling, up-graded electronics and a new name: F3.

But that's not all. Two all-new line ups follow in 1999 and 2000, taking Audiolab, by stages, into true high-end territory. Dr Udo Zucker, CEO of TAG Electronic Holdings and a Krell/Apogee owning audiophile, wants to take Audiolab all the way so that it becomes a world reference for sound quality as well as value. The three-tiers of electronics get their own dedicated speakers (expect radical styling) and are being designed in collaboration with one of Britain's leading speaker manufacturers. TAG McLaren isn't saying who, but the smart money is on B&W.

In brief

Papworth Audio Technology has been purchased by its design and production chief, Eddie Fincham. It has also appointed Elm Audio Distribution as its new UK distributor. To coincide with this it's launched a new integrated amp, the MVH-200, which retails at £1,250 and will also be available as a power amp. ☎ (01744) 604578



Sonneteer's poetical CDP.

Sonneteer has launched its first CD player. The Byron features a multitbit/delta-sigma DAC accompanied by an analogue stage and power supply. Equipped with a remote control it retails at £795. ☎ (0181) 286 6661/01372 468676



Sunfire's glowing Classic.

Audusa & Co have become the distributors for German Acoustic speakers in the UK, after their preview of the £4,475 Avante Garde RX20s at the last Ramada show. Audusa is also promoting Sunfire's £1,370 Classic all-tube pre-amp, with optional phono stage offering both MM and MC inputs. ☎ (0181) 241 9826

WIN TICKETS!

The National Vintage Communications Fair will take place on Sunday May 10, at the Birmingham NEC, between 10.30am and 4.00pm. Entrance is £5. All manner of old radios, classic valve hi-fi and gramophones etc. will be on display. Start your old-tech collection here! For further information ☎ (01392) 411565. We have ten tickets to give away: these will be awarded to the first ten self-addressed postcards to arrive in the HFC office (address on p3) by April 23. Our usual competition rules apply.

Harman International Industries and New Transducers Ltd (NXT) have announced an agreement giving Harman exclusive rights to represent NXT and license it to US-based manufacturers in



THERE ARE SPEAKERS, AND THERE ARE GREAT ORATORS...

"In summary, the Concert 8 is one of the most advanced loudspeaker designs on the market today."

Hi-Fi World June 1997

"... the Jamos prove capable of wide open soundstaging, wonderfully free-breathing dynamics and a winning combination of glorious bass power with smoothly-integrated midband ambience and sweet, clear treble."

What Hi-Fi? April 1997 ★★★★★

"For the Classical listener, however, it can offer something that few other box loudspeakers

can: that insight into the music that we all desire but all too rarely experience."

GRAMOPHONE FEBRUARY 1997

"It is a true audiophile component that will bring out the best in high-quality partnering equipment."

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THE CONCERT 8 - A GREAT ORATOR FROM **Jamo**[®]

← Sony's shrinking systems

Following last month's hi-fi/DVD announcement, Sony has unveiled more details of portable products in its MiniDisc (MD) range — which in 1998 will be 27 strong.

First up is the new MZ-E25, which distinguishes itself as the cheapest MD portable player in Sony's range. It measures 102x17.2x75mm, and weighs 170g with batteries. Priced at £199.99, it has Sony's new 'stick'-style headphone-lead remote control, and is available in silver, blue or "burnt-orange" finishes.

The smallest unit is the MZ-E35, which at 82.5x19.1x80mm is barely bigger than the software it plays, and at 155g not taxing even for delicate pockets.

Gadget lovers will swoon over the new £499.99 MZ-R5ST. This portable recording Walkman comes complete with a remote-controllable docking 'base station', which incorporates a big LCD display, upgraded transport controls and sophisticated editing facilities.

Other recording portables include the MZ-R35, priced at £299.99; and the diminutive MZ-R50, which costs £349.99, and measures only 109.5x19.7x77mm. It weighs 240g including batteries.

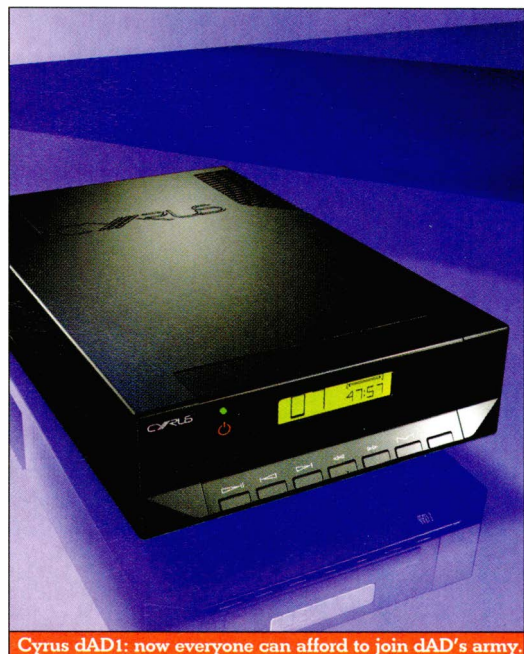
Sony claims that MiniDisc's hour is upon us, attesting that in 1997 the MD market was worth £25 million — more than many hi-fi separate components markets.

Furthermore, Sony claims there is an increasing quan-

tity of prerecorded software being released, citing 2,500 titles as the worldwide total, and 750 in the UK. New releases include the *Titanic* soundtrack, and from Virgin Records, recent albums by The Verve, Air and Spice Girls. Sony ☎ (0990) 111 999



Sony's MZ-E35 MD player. Almost nanotechnological!



Cyrus dAD1: now everyone can afford to join dAD's army.

Son of dAD

The new dAD1 sets a new low price-point for Cyrus CD players. It costs £398, exactly the same as the company's 'budget' amplifier, the Cyrus SL. Despite these cost savings, Cyrus claims that sound quality has not been sacrificed.

Using technology developed for the more expensive dAD3 and 3Q players, the dAD1 has the classic Cyrus die-cast chassis (to enhance isolation and RF shielding), independently-regulated supplies for the disc motor and DAC, and a double-layer PCB with star earthing.

For Cyrus system users there's also the MC-BUS comms connection, which gives mini-system-style ease of use, and inveterate upgraders will be pleased to hear that an S/PDIF digital output is supplied for future DAC improvements.

Cyrus also announces a speaker-wire connector conforming to new EU standards. Using an inverted version of the existing banana-plug system, this connector has been developed following an incident in which a Continental type plugged his speaker wires into the mains. Bad news for devotees of existing banana-plug-terminated speaker wires! Centralforce ☎ (01480) 451777

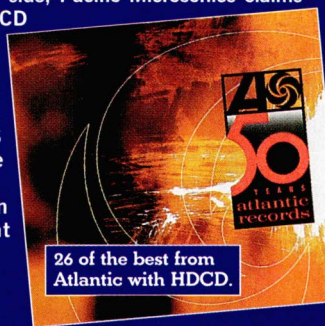
HDCCD on Atlantic

Atlantic Records is celebrating its 50th anniversary with an HDCCD-mastered, two-disc compilation of tracks from the label's illustrious tape vaults. Released on catalogue number 83088, *The Gold Anniversary* includes 26 golden greats including *Roundabout* by Yes, *Suite: Judy Blue Eyes* by Crosby, Stills and Nash and *Stop Draggin' My Heart Around* by Stevie Nicks and Tom Petty. It has the potential to be the best selling HDCCD yet.

HDCCD claims to be making serious inroads into the mass market, citing over a hundred HDCCD-equipped products and new licensing deals with semi-conductor companies such as Motorola (*Update*, HFC 177).

On the software side, Pacific Microsonics claims there are now HDCCD 1000 recordings available and a healthy ten per cent stake in the Top 200 chart of US weekly music-trade paper, *Billboard*.

More details on the Web site at www.hdcd.com. ☎ Memec (01844) 261919

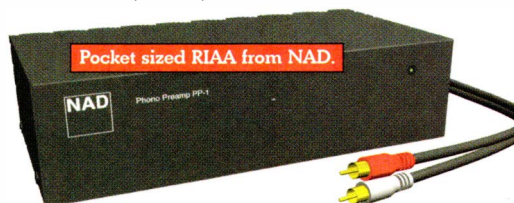


Hum dinger!

NAD has identified a gap in the market for high-quality, low-cost phono preamps, and has launched the PP-1 to fill it. Retailing at only £39.95, this unit claims to incorporate features usually found only on more expensive products.

Thanks to an external power supply, NAD claims that mains-transformer hum does not interfere with low-level signals from the cartridge, while RF contamination should be minimised by the steel box which houses the electronics.

Further noise protection comes in the guise of a "gentle subsonic filter", which minimises rumble from the turntable or record. Low-noise regulators are used to further ameliorate any spurious hum. Audio Club ☎ (01296) 482017



In brief

the fields of home audio, home theatre and professional audio. All Harman subsidiaries are covered in this agreement, including JBL, Infinity, harman/kardon and Audax. ☎ +1 (818) 895 3380

Dynaudio's new subwoofers are the Audience SUB-20A and SUB-30A. Features include 360-degree phase-shift control and a subsonic filter. The SUB-20A contains a 10-inch woofer with a three-inch voice coil, while the SUB-30A has a 12-inch woofer with a four-inch voice coil. Diaphragms are made from magnesium silicate polymer. ☎ (01732) 451938



Alphason's standing order.

Alphason Designs has enhanced its range of mini system support racks, which now have rosewood shelves. The VGMV2P rack has space for equipment which is 28cm wide by 38cm deep. It comes with storage space for up to 40 CDs and a unique tension-rod system; price is £195. ☎ (01942) 678000

A group of eight electronics 'giants' has been formed to create a system for interconnecting AV appliances, which allows interoperability and two-way connectivity. The alliance includes: Grundig, Hitachi, Matsushita (Technics/Panasonic), Philips, Sharp, Sony, Thompson and Toshiba. The system will be openly licensed for use by the entire multimedia industry.

Lucasfilm THX has appointed KEF's former Technical Director, Laurie Fincham, as the new Research and Development Director. He will oversee engineering activities for Home THX, theatres and digital mastering.

Gone West

Jason Kennedy and Charlotte Ricca fought their way through Bristol crowds to bring you their impressions of the finest show in the west.

This year's Sound & Vision Bristol show held more than the usual number of surprises. Not least the number of visitors with whom we rubbed shoulders on Friday afternoon! The February timing of this friendly show seems to coincide more and more with new product releases. The feeding frenzy of early Autumn no longer takes the lion's share.

All the big companies had an impressive array of goodies on show, the vinyl marketplace continues to grow, and there was a good smattering of smaller brands and some new names. One of these was Cetech Audio, which commended itself by playing the Yes album *Fragile* on a carbon-fibre-enclosed valve amp. The company specialises in this high-tech composite material, which it supplies in honeycomb-cored form for use in all sorts of hi-fi component, from amplifiers to turntables. Cetech also supplies kits for valve amplifiers, turntables and an open dipole speaker with active bass transducers. *Cetech* ☎ (01773) 712503.

More familiar specialist companies at the show included Michell, which showed its new preamplifier, the Orca, which replaces the Argo. This is a line-only, remote-control unit designed by Trichord — the company which has been modifying the Aleco power amps. The new pre will retail for about £1,500. *Michell* ☎ (0181) 953 0771. Trichord itself is investigating HDCD, apropos installing the filter in the Pulsar DAC.

Serious amplification lurked in ATC's den. The ATC SIA2-150 integrated is a £1,984 'Krell-beater', according to the company's Alan Ainslie. That claim we hope to investigate in a future issue. The West-Country active speaker specialist also had its new SCM20 Tower SL, the £3,995 floor-standing version of its SCM 20A, together with a compact passive design called A7 at £749. *ATC* ☎ (01285) 760561.

NAD displayed a tasty new series of amps called Silverline. These chunky, anodised units look set to establish the brand as a high-end contender; present prices are unconfirmed but look like being £1,600 for the S300 integrated, £1,000 for the S500 CD player and £2,200 for the S100/200 pre/power combo. *NAD* ☎ (01296) 482017.

Rotel rolled out a big gun in the shape of

the RB-991, a £500, 200 Watts power amp with front-facing fins. Also previewed were the RCD-971 at £300 and the RCD-991 at between £600 and £700, both incorporating HDCD decoders. *Rotel* ☎ (01908) 317707.

Arcam seems to churn out new products at a greater rate these days. Last month we revealed the Alpha 10 and 10P amps; at Bristol there was an Alpha 9C preamp (£400), with multi-zone outputs and remote control; alongside the forthcoming Alpha 9 CD player. This £800 machine has high-tech pretensions, in this instance a dCS Ring DAC which claims to offer linearity approaching 24-bit, with 4.5 bit, 64x oversampling — pretty radical stuff at any price, let alone one so affordable. There's even the promise that owners of other current Alpha players will be able to upgrade to this spec in future. *Arcam* ☎ (01223) 203203.

Denon's show-wares appeared to blend high perceived build quality with value-conscious prices. The remote-controlled PMA-1500R amp looks very solid for £500; likewise the DCD-1650G CD player at £700. *Denon* ☎ (01753) 888447.

Quad had a big stand touting the new 99 Series of electronics, and electrostatic speakers, as previewed in *Update*, HFC 176. Regrettably none of it is available just yet. *Quad* ☎ (01480) 431737.

The final link in the chain

Speakers were displayed in their usual profusion. Henley Designs won on sheer quantity, with a huge new range from Magnat in Germany. This comprises 25 models ranging from £79 to £3,499, and including the biggest £149 floorstander we've ever seen: the Victory 6. (See *Instant Systems*, p12, for a review of the Magnat Vintage 720.) *Henley Designs* ☎ (01753) 889949.

There were some nice new bookshelf designs, too. Monitor Audio's Studio 2SE from £600, brings MA's 'Studio' standards to those with space limitations. AVI is capitalising on the success of its floorstanding Positron, with the NuNeutron (£500). *Monitor Audio* ☎ (01223) 242898 • *AVI* ☎ (01453) 765682.

Heybrook had the finished version of its Octet floorstander, the new range-topper at £1,800 which features a piezo tweeter, as well as the mkII version of the Prima budget

design. *Heybrook Hi-Fi* ☎ (01579) 342866.

Mission launched the new 700 series, featuring glass-composite bass/mid drivers and priced between £130 (for the 700 bookshelf) and £900 (for the 705A with twin active bass drivers). *Mission* ☎ (01480) 451777.

On the DVD front, Pioneer showed the DVL-909 combi LD/DVD player, Sony had first samples of its DVP-315 and '715, and Marantz brought along the DVD-730 for a sneak preview alongside the forthcoming CD-RW recorder, the DR-700, which is due to sell for around £600. *Pioneer* ☎ (01753) 789500 • *Marantz* ☎ (01753) 680868. ▲

The new girl discovers hi-fi

It's intimidating to enter the high-tech atmosphere of a hi-fi show for the first time. The fear of being revealed as a mere hi-fi wannabe, unable to understand the deluge of techno jargon, is almost enough to make novices stay at home. Don't let it!

I went in the expectation of a great concert hall, jammed with high-end pieces of equipment, all vying for attention. Jazz, classical and rock music would be fighting tooth and nail to make an individual hi-fi system stand out in a (literal) crowd. The reality is rather more civilised.

At the Bristol show, hotel bedrooms provide individual showrooms where you can view everything at leisure. It seemed odd to nose around folks' 'bedrooms' — teenage memories of "come up to my room and listen to some records" took on a whole new meaning. But the astounding array of gorgeous gear soon distracted from its slightly bizarre setting.

The partition walls of the hotel rooms don't exactly provide the best environment for hi-fi enjoyment — but neither did a decidedly dodgy selection of music being played. Perhaps manufacturers were attempting the ultimate sound challenge: to make Chris Rea sound dynamic. Tricky...

To see and hear the latest high-end gear, and pick the brains of those behind the outfits, a show like this is a must. Just one word of advice — take your own music!

Charlotte Ricca joined Hi-Fi Choice as Editorial Assistant on Christmas Eve, 1997.

Mission's wall of sound. The new 700 series came to Bristol in force.



Silver Machines: Quad's prototypes of the forthcoming 99 Series separates.

NAD Silverline S300 integrated amp, beside the S500 CD player and S400 tuner.



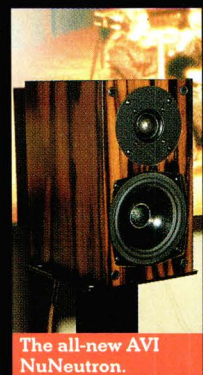
ATC's entry into the integrated amplifier stakes: this chunky little SIA2-150.



Michell's new remote-control Orca line preamp and matching power supply.



Left: Monitor Audio Studio 2SE. Above: Ceteck's carbon-fibre-encased KT88 power amp.



The all-new AVI NuNeutron.

System Synergy

Alan Sircom checks out a new system from Henley Designs which looks the biz! Can its sound match the stunning appearance?

Some systems can be divided into component parts and sprinkled into other mix-and-match combos. Others should never be split asunder. This month's outfit, from Henley Designs, falls strongly in the latter camp. Even before you turn on the power, system synergy looms large.

The Alchemist Forseti CD drive and DAC, each priced at £1,100, have a highly striking appearance. Only the £999.95 Forseti integrated amplifier has styling strong enough to match. These are the kind

of visuals that polarise opinion, but for the most part, I believe people will like what they see. I certainly did. With a third-party amplifier in tow, the visual consistency would be broken.

Speakers, by their lonesome nature at the end of the hi-fi chain, have more freedom to dress how they want. But with such a bold visual statement up front, any less-than-refined enclosure wouldn't be up to the mark. Fortunately the £1,199 Magnat Vintage 720 fits the bill — almost. This tall, ported floorstander looms larger than most



UK speakers, but drips quality in an understated manner. My only reservation concerns the daft logo on both grille and front baffle. The drawing of a bulldog looks like nothing so much as a skinhead's tattoo!

These electronics do not only complement each other in cosmetic appearance. Equal harmony is present under the hood. The Philips-based Forseti Drive uses a centre-mounted tray, claimed to be supported by an exclusive multi-layer suspension system in the aim of keeping mechanical vibration at bay. Multiple regulated power supplies draw juice from an overkill high-current main power supply, with claimed benefits of minimising internal interference. And despite a minimalist appearance, the player sports a complete set of control surfaces on both front panel and remote control. There are both balanced and single-ended digital outputs, plus a 'low-jitter' clock.

The DAC claims to use a pair of 20-bit Delta-Sigma processors per channel, allied to a system of multiple resynchronisation to keep the processing clean. A novel feature is a remote-controllable motorised volume pot. Once more, regulated power supplies are said to be in evidence — no less than nine supplies per section according to Alchemist. For a DAC, it has a well endowed front panel, with options including standby, a switchable display and phase inversion. Both balanced and single-ended inputs and outputs are provided.

The APD15AmkII integrated amp, rated at 100 Watts, shares the same industrial design. It's a heavyweight black box with brushed alloy side-bars and front panel, plus gold-coloured cheeks and knobs. As with the CD and DAC, Alchemist claims to have paid great attention to the power supply and regulation, and like all products in the Forseti range, it has received input from Tim de Paravicini, designer of EAR/Yoshino and more well-respected products than most people care to remember. For the amp, he has developed a special bias-sensing circuit.

Tattoo-like logo aside, the German-built Magnat speaker is a serious bit of kit, and excellent value for money. Using the classic D'Appolito layout, the 720 sports a 20mm ceramic tweeter flanked by two 165mm aluminium-coned mid-bass units. At the rear is a huge port and a quartet of the largest binding posts known to man. Partner this with a 28mm thick MDF front baffle, a suggested four Ohm impedance and a claimed 90dB efficiency, and you have a speaker that makes its presence felt. Especially as the frequency response is claimed to hit 22Hz in the bass and an extremely high 42kHz at the top. It is also one of the heaviest speakers available at the price, although the actual weight is not quoted on the spec sheet.

Henley recommends you use this entire set-up with Ortofon SPK 200 or SPK 300 speaker cable. You'd expect nothing else from Ortofon's UK importer. However, I have

no qualms about recommending these cables here. The speakers need plenty of free space around them, and the light, deft touch of the SPK cable does balance out some of 720's heavy bass.

Magnat refers to the range as 'speakers with bite', and I can confirm this is an accurate representation. It does not sound fierce — the Alchemist electronics and ceramic tweeter ensure that mid and treble are free from brashness or spit — but the sound is bold. There is loads of bass: big, bouncy and brassy. Yet it is still tuneful and easy to follow. Get too close to the rear wall and full-on bass will drag everything down.

The midband is not quite so forthright but is at least clean and focused. Imagery is good, and there's a great sense of solidity, especially with acoustic rock tracks. Classical fares less well, but not because of odd tonal aberrations. The fault lies with the very characteristic which makes bass lines so palpable: a recessed midband. Cellos sound like double basses.

Piece by piece, here you have a clean and lively CD player; an earthy, warm yet detailed amp; and a pair of powerful, dynamic and occasionally brusque speakers. Put it all together and you have an energetic, powerful sound with precise imagery, rock-hard solidity, but still some grace and verve. If you like the looks, chances are you'll love the sound!

Henley Designs ☎ (01491) 834700

THE SYSTEM

Alchemist Forseti APD33A CD Drive	£1,099.95
Alchemist Forseti APD34A DAC	
(combined price)	£1,099.95
Alchemist Forseti APD15AmkII integrated amp	£999.95
Magnat Vintage 720	£1,199.00
Ortofon SPK200 speaker cable (5m used)	£4.99/m
Total Cost	£4,423.80

WIN!

600 OF THE BEST

OVER £3,000 WORTH OF FANTASTIC B&W SPEAKERS MUST BE WON!

First Prize: one pair DM604	worth £1,000
Second Prize: two pairs DM603	worth £500 each
Third Prize: two pairs DM602	worth £300 each
Fourth Prize: three pairs DM601	worth £199 each
Total value of prizes:	£3,197

FIRST PRIZE

THIRD PRIZE

FOURTH PRIZE

HIFI CHOICE BEST BUY

SECOND PRIZE

HIFI CHOICE RECOMMENDED

HIFI CHOICE RECOMMENDED

HIFI CHOICE

If you're after a new pair of loudspeakers, then you've come to the right place! This month *Hi-Fi Choice* has teamed up with B&W, to celebrate the esteemed speaker manufacturer's launch of a superb new Cherry finish for the highly successful 600 Series of loudspeakers.

What's more, B&W is now able to offer a five-year warranty on all of its speakers, because it specifies, designs and manufactures all of its own products.

We've got no less than eight pairs of speakers to give away. First Prize is a pair of DM604, worth £1,000. In this three-way design, B&W's famous seven-inch Kevlar drive-unit is dedicated to the mid-band. Two Cobex bass units, meanwhile, have the same 110mm magnets as found in B&W's upmarket Silver Signature design.

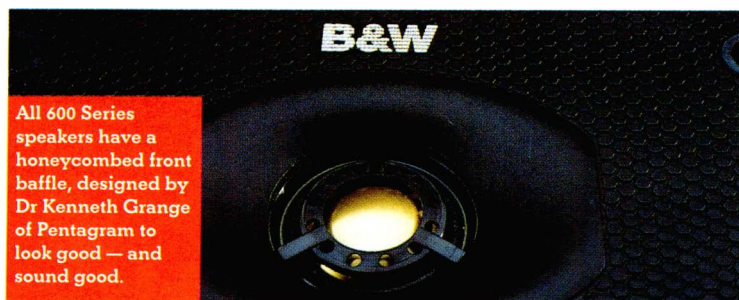
There are two Second Prizes: two pairs of DM603. This £500 floorstander scored a resounding *Hi-Fi Choice* Best Buy in *HFC* 170, and deploys the yellow Kevlar mid/bass cone in conjunction with an Auxiliary Bass Radiator (ABR) for enhanced bass.

Two lucky Third Prize winners will each receive pairs of DM602, a £300 stand-mount design Recommended in *HFC* 152. And three Fourth Prizes consist of B&W's DM601 enclosure, valued at £200. It, too, has worn a *Hi-Fi Choice* Recommended tag since issue 156. Plus, unusually for a model at this price, it sports cast-alloy-frame drivers.

Enter today, and see if your lounge will soon be enhanced by the sound of B&W Loudspeakers!



B&W's distinctive, yellow, Kevlar-coned drive-unit. Made from the same stuff as bulletproof vests!



All 600 Series speakers have a honeycombed front baffle, designed by Dr Kenneth Grange of Pentagram to look good — and sound good.

CONGRATULATIONS TO THE FOLLOWING WINNERS OF OUR FEBRUARY 1998 COMPETITIONS.

In the Antiference Aerials competition, the correct answer was:

- b) Trumatch
Ten prizes of professionally-installed Antiference FM1083 aerials go to:
- D Rich of London
 - J Gray of Edinburgh
 - M Lawton of Leicester
 - J Hall of Kent
 - N Maszry of W Sussex
 - M Millar of Warks
 - M Campbell of Doncaster
 - R Wallace of Newcastle
 - S Jones of Staffs

● D Yates of Herts

In the Acoustic Precision/Pioneer competition, the correct answer was:

- d) Phase Linear
The winning prize consists of: Pioneer PD-S505 Precision CD player, Pioneer A-300R Precision amplifier, Acoustic Precision Black Box mains conditioner, Acoustic Precision Eikos FR1 speakers, Acoustic Precision Eikos interconnect, and Electrofluidics Monolith 20:20 speaker cable.
The winner is:
● D Thorley of Blackpool

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now on **01491-034700**

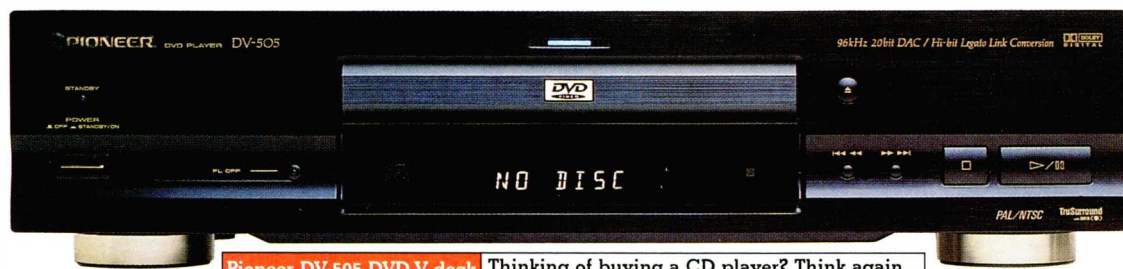


Magnat

VECTOR SERIES

Ear Waxings

Jason 'Daytime TV' Kennedy investigates future music formats, and wonders whether it's time to trade in the CD player for something cheaper!



Pioneer DV-505 DVD-V deck Thinking of buying a CD player? Think again...

Better late than never? Years after I came to terms with CD, Channel 5 rang up and asked me to appear in a news feature on 'the vinyl revival'. If they'd suggested the same thing five years ago, I would have enthusiastically trashed CD and eulogised on the wonder of 12-inch black discs. Today's JK couldn't really muster enough enthusiasm for the latest LP resurrection, which appears founded on the video to Cornershop's *Brimful of Asha* hit, in which a teeny-bopper gyrates amid stacks of old-school 45rpm singles and sleeves. Apparently there has been an upturn in vinyl sales, as suggested by news from Tower Records in *Update*, HFC 176. Even if this is a consequence of burgeoning bedroom deejaying, as long as 'the kids' dig the analogue 'vibe' I guess it's all right by me.

Diddly-viddly digital dreams

CD, the less fashionable polycarbonate medium, is not about to roll over and die. Especially if we can draw any general conclusions for the startling quality of CD replay on even a prosaic DVD player such as the Pioneer DV-505 I've been using this month.

In last month's column I mentioned that a bunch of American high-end companies and an audiophile record label (Classic Records) had created a subset of the DVD video format, called DAD. This is a two-channel, 24-bit/96kHz format that will play on existing DVD-Video players and forthcoming DAD players. Having heard an impressive DAD demo I got straight on to Classic Records for some DAD samples. When they arrived I tea-leafed the Pioneer DVD-V player from *Choice's* sibling publication *Home Entertainment*.

The results were stunning. More impressive, in fact, than a similar demonstration cited last month, because this month I was listening via my own system. The material on the five discs ranges from jazz to classical, to

avant-garde styles — the latter disc was the most convincing. It's called *Pulse*, and collects compositions scored for percussion by modern composers such as John Cage. Instrumentation includes tubular bells, which have extraordinary resonances and create pressure waves quite unlike anything I've previously heard from reproduced music. Weird, captivating stuff. The classical piece is an old Vox/Turnabout recording of Rachmaninov's *Symphonic Dances*, that became a bit of an audiophile favourite several years ago when Athena re-released it on a top-quality vinyl. The DAD version has all of that LP's remarkable tonal and dynamic fidelity, leaving the strings sounding realistic and natural.

As well as getting to know DAD better, I was eager to find out whether the DVD machine was as good a CD player as it had seemed on first acquaintance. If anything, it impressed me more, and with the exception of making a few control comparisons to ensure I hadn't been hoodwinked in some way, I have hardly used my newly-turbocharged (Lithos-upgraded) Eikos CD player since then.

The Pioneer DV-505 plays CDs in what might be called 'enhanced' mode, extracting more scale, dynamics, subtlety and sheer palpability than a very good CD player. You can just about tell that this is a £450 product by comparison with the Eikos's refined electronics, but somehow it extracts additional presence lacking from the senior machine's reproduction.

I want a DV-505 that benefits from the Precision or Eikos treatment! That desire may be fulfilled by the first commercial DAD player which will become available, from Resolution Audio. Watch this space.

The next paradigm

Some have heralded DAD as the third paradigm after the LP and CD, but due to the limited supply of software for this medium, I don't think that would be appropriate.

Stronger pretenders to the throne will be DVD Audio and/or the Sony/Philips SACD format featured in HFC 175. I went up to Abbey Road studios recently, to hear a demonstration of the SACD system in two and five-channel modes. The two-channel demo was given via a pair of Genelec near-field studio monitors, arranged so that only one person got a decent stereo image — and since that person wasn't me, I was left less than bowled over but still suitably impressed.

The OTT five-channel demo, done with B&W 801 speakers and bridged Marantz SM-5 power amps, was quite startling by comparison. It gave an extremely solid impression of the hall in which the orchestra had been recorded.

Meanwhile in the DVD camp, I hear that the DVD Forum's long-awaited DVD-Audio format spec (v0.9) will be finalised 'around June(ish)'. There's talk, too, of an uncompressible multi-channel expansion of the current DVD-V format due in 1999. Forget the Greenwich dome — at the turn of the Millennium, you'll want to be indoors listening to music like you've never heard it reproduced before... ▲

THE \$64,000 QUESTION

So you're in the market for a new CD player, but now you're wondering whether to get a DVD-Video player instead. At present we've experienced only two DVD-V players, but our findings would suggest the new technology confers distinct advantages over conventional CD players. However, at present DVD-V players will not read home-made CD recordings on CD-R or CD-RW, and it is still uncertain whether DVD-V decks will be compatible with future audio-only formats such as DVD-Audio and Super Audio CD (SACD). Also, there's a possibility that audiophile-tweaked DVD-V players will start appearing later in the year. You pays your money...

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The integrated, interactive, sound solution !



AA-88

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Disc

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COMPACT
disc
DIGITAL AUDIO

+



+

AM
FM

For years music systems have remained the same. Colours, features and styling have become stale, trapped in a void free of fresh ideas and feeling. Music changes, people change, History dictates that we should in-turn follow suit, but the Audio Industry has chosen the safe path substituting fresh ideas for black boxes !

Active Audio changes all that!

The AA-88 incorporates a high quality pitch control compact disc player, fully programmable Mini Disc Recorder, FM Tuner, stereo integrated hi-fi amplifier and an eleven input DJ mixer along with Vestax's un-surpassed design and audio engineering. The mixer output section allows you to send your music to other systems if you need more than your on-board power output, giving the AA-88 more than domestic appeal.

Let Active Audio with it's fusion of audio elements and Future Retro design convey your feelings about your music, break away from the black box !

The Jimmy Hughes Experience

Jimmy Hughes shares some handy tips on how to keep your precious vinyl collection free from dust and dirt.

I was encouraged to read that younger listeners are discovering the pleasures of LP reproduction (see *Personal Messages*, HFC 175). It demonstrates that vinyl lovers aren't just sentimental old fogeys who cling to their LP collections out of loyalty alone. Trouble is, for those just beginning their vinyl collection now, there's a dearth of new material being issued. True, there are increasing numbers of audiophile titles pressed on 180g vinyl, but not everyone can afford to spend £20-£30 each on these issues. The only other option is to buy records second-hand.

If you're lucky and happen to be in the right place at the right time, you can find good LPs priced at between 50p to £1 each. The places to visit are charity shops, car boot sales, and street market stalls. But there's always an element of risk when buying second-hand vinyl. A record can look perfect yet have noisy surfaces. The grooves may be worn too, having been bludgeoned to death by a poor-quality record player — you won't know for sure until you actually play the record. If the grooves are damaged, there isn't much that can be done. But if the surfaces are noisy, it's possible that wet cleaning will eliminate most (if not all) extraneous noise.

Unfortunately, wet cleaning is not without certain dangers. If you play your disc while the surfaces are still wet, the noise may be gone. Alas, when the fluid dries, the record may actually be noisier than it was before cleaning took place! And there's the vexed question of which cleaning fluid to use. Many are a mixture of distilled water and alcohol, the latter being used to dissolve grease and oil. Unfortunately, alcohol also removes vital lubricants from the vinyl, leaving it clean but 'dry'. In extreme cases the surfaces may even be damaged, creating surface noise. Fortunately there is an effective LP cleaner that's safe to use — The Disc Doctor's Miracle Record Cleaner from America.

DiscDoctor fluid contains no alcohol, but is nevertheless effective at removing grease. It's a two-stage process: you apply the cleaning fluid first, then wash it off with pure distilled water. It is possible to let the cleaned LP dry naturally, by letting the water run off and evaporate. But you'll definitely get better, more consistent results by using a vacuum suction record cleaning machine (check

out machines from VPI, Moth, and Nitty Gritty) to suck off the excess fluid. When you wet LP surfaces, the fluid removes and suspends the small particles from the groove walls that cause surface noise. The safest, most effective treatment is to vacuum away this fluid, and with it the dirt, so the disc is left clean.

Allowing the record to dry naturally does not remove dirt from the surfaces, though some debris will be picked up by the cleaning brushes. However, because grit and dirt are no longer impacted onto the groove walls, it should be possible for the stylus to simply push it out of the way. In my experience, leaving LPs to dry naturally after wet cleaning is usually satisfactory, though surfaces are often quieter after a proper record cleaning machine is used, as this removes all traces of dirt and fluid.

To clean or not to clean

Now there is a school of thought that says wet LP cleaning is unnecessary. The stylus itself 'cleans' the groove as it plays, eliminating surface noise in the process. For this to happen, the stylus needs to track at about 1.8g or higher. However, even new LPs with quiet surfaces benefit from wet cleaning if it's done correctly. Removing surface contamination (including mould-release agent) seems to make the sound freer, more detailed and dynamic. There's an added feeling of security, as though stylus and groove wall are now in closer physical contact. The music sounds more flowing and effortless.

Even when you clean damaged LPs that sound rough, somehow even the distortion sounds smoother! Subjectively there's much less sense of the stylus rattling around the groove walls. So climaxes sound cleaner and more secure. During quiet passages, the

The Disc Doctor could help nurse your precious vinyl back to good health!



music seems to be more focused and solid, allowing subtle changes of pitch and dynamics to be heard more easily.

Put another way: after cleaning, your LPs should sound more like master tapes.

Another nice thing about Disc Doctor is that the cleaning brushes are made from rubber, with a replaceable plush velvet cleaning face. If you drop one on an LP it won't do any damage. The brushes come in three sizes, for 7in, 10in, and 12in records. Disc Doctor Fluid is economical to use, and once the brush is wet you need to add very little fluid for each LP cleaned. The maker claims Disc Doctor is a once-only treatment, though past experience with other wet cleaning systems (Centurion, Hunt P2, Last, etc) leads me to suspect a further wash might be beneficial after about five years. Even if your LPs are meticulously handled and stored, contaminants in the air, and the on-going reaction between the vinyl and its poly-lined inner sleeve, may result in the surface becoming 'dirty' again. Fortunately, because Disc Doctor fluid claims to be safe and non toxic, using it more than once shouldn't cause damage of its own. Disc Doctor costs £45 for the starter kit, and £20 per pint bottle

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TELL US YOUR VIEWS ON HI-FI AND MUSIC. THE BEST LETTER EVERY MONTH WINS AN M-S POLO-SHIRT!

LETTER OF THE MONTH

Colour by numbers

Recently I had a telecommunications company install a 'cable' network into my flat so that I could receive both television and telephone by cable, as well as the added bonus of various radio channels.



Now that's what we call an aerial!

How delighted I was at the musical presentation. Gone was the usual flat compressed junk which used to emanate through my B&Ws. Now I have glorious reception, with a sweet sound to boot. The incoming signal is split at the decoder end and a 75 Ohm cable is fed to the aerial input socket on my Arcam tuner.

However, if we are venturing down the road of cable, will the need for complex 'tuner' circuitry become defunct? What I find interesting is how the tuner makes the most of the incoming signal.

Does the tuner alter in any way the sound quality of an excellent incoming signal via cable, or is it the original transmission that makes the quality of the sound what it is?

Would I hear a difference if I switched my five-year-old Arcam Alpha 3 for something like a Naim Nait, or the Audiolab 8000T, while feeding the electronics with a signal via the cable network?

Does this mean tuners will disappear in a similar way to turntables, leaving only the die-hard enthusiasts behind? Is digital radio going to take over the way we listen to the wireless forever? If the little black box which is perched on our video can decode a TV signal, perhaps it can do the same to a tuner signal, and then we can by-pass the need for a tuner completely, feeding a line-level output straight into the amplifier 'aux' socket.

Is this the start of 'digital music', where we dial up a song on our TV sets, and digital sound is instantly transmitted through the cable network and into a room through our hi-fi systems?

Neil Hunter, Worthing, West Sussex

Stan Vincent replies... Thank you for a most interesting and thought-provoking letter. In answer to your question, you would hear a difference between your venerable but prosaic Arcam, and one of the more exalted models you mention... if — and only if — you had a top-quality aerial signal feed.

To achieve this in a marginal signal area such as yours, you would need to invest in a large, specialised antenna array; or, as you have done, rely on the services of a cable supplier.

For readers wishing to pursue the former, contact the Confederation of Aerial Industries ☎ (0181) 902 8998 to find out the name of your nearest installation specialist.

The concept of "digital music" is here already; see last month's Update pages, for example, where we reported on the new Sky Channel, Music Choice. See also my editorial column this month (p3), where I expand upon these topics further.

Here's Dis Clarification, Dudes

We were pleased to see the HDCD (High Definition Compatible Digital) coverage in HFC 176. However, I did want to correct any misinformation regarding HDCD implementations in different CD players.

The CD player conclusion (page 84) states: "There is a rumour that not every HDCD implementation is strictly kosher...".

These rumours can be put to rest. There is only one HDCD chip, the PMD-100 (more are on the way soon), and it performs automatic, precise decoding and digital filtering, which means that every HDCD player decodes HDCD CDs in exactly the same way.

After decoding, the signal runs through the digital filter section of the PMD-100. The digital filter does have a program mode which allows designers to use additional features such as DAC output dither and digital attenuation, but in either mode, standalone or program, all HDCD players implement HDCD digital filtering in the same way. There are no partial implementations of HDCD decoding and digital filtering.

Each HDCD licensee is required to send Pacific Microsonics a production unit for certification, as part of the standard HDCD license agreement. Our engineers conduct a series of technical tests to verify that HDCD decoding and filtering are implemented correctly and the HDCD indicator light on the front panel operates properly. The test criteria are objective and units either pass or fail. For units which do not pass, we work with the manufacturer to fix the problem.

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.

Andy Johnson, VP Marketing,
Pacific Microsonics Inc,
Berkeley, California, USA

Mind your Ps and Ls

Being an avid reader of your magazine, as well as a subscriber, I noted with interest the 'Hot Rod Hi-Fi' competition in HFC 175 — particularly as my ideas favour those of Tom Evans.

However, I was a little surprised that the competition question posed related to the concept of linear phase. I believe the competition answer, 'phase linear', is grammatically incorrect, 'phase' being the noun and 'linear' the adjective. I enclose the relevant pages from the English dictionary to support this, and should you dispute my argument, maybe you would be kind enough to furnish me with documentary evidence.

Greg Shepherd, Kenley, Surrey

Purple haze!

The best letter every month wins a stylish polo-shirt from Mordaunt-Short, purveyors of fine loudspeakers. Available in black with a discreet sleeve logo. One 'large' size fits all.



Stan Vincent replies... Mr Shepherd, you may well be correct in your allegations. Alas, I do not have learned works with which to refute you. However, before you retire to your library, gloating with etymological smugness, please remember one simple home truth. Nobody likes a Smart Alec.

Where's the beef?

I wish to criticise your poor coverage of high-end hi-fi. The reason I buy glossy magazines is for sheer escapism and fantasy.

In your Directory you list the Avalon Osiris at £72,000 — these are the speakers I want to read about. Are they really worth twice as much as the Rockport Procyon at £32,500 or the B&W Nautilus at £35,000? Who buys them, what size are they, what do they look like, what materials are they made of, in what size room are they used and what partnering equipment is used with them?

Are they bought by oil-rich Arabs or Stock Exchange whiz kids or research establishments or recording studios? I am fed up with reviews all listing the same old, boring, affordable equipment.

Paul Metson, Harrogate, North Yorkshire

Stan Vincent replies... Is a £72,000 speaker worth twice as much as a £35,000 speaker?

Hmm, I'll have to ask my dinner-party guests. I've often been asked why Hi-Fi Choice doesn't cover more ultra-expensive equipment. Usually, the answer comes down to simple logistics, especially where high-end US products are concerned. Importers don't keep two or three review samples of five-figure speakers, just for us reviewers to play with!

However, if you look back through recent issues of the magazine, you'll see that we have indeed reviewed some fat-wallet specials of late: the Conrad-Johnson A.R.T. in HFC 170, and the B&W Nautilus in HFC 166.

Save the vinyl!

I very much enjoyed the high-end cartridge reviews in issue 175, even though all the models featured are way above my price range. I'm glad that HFC still supports vinyl.

However, looking through your Price Guide I noticed some

other interesting designs, such as the Benz MC20 and some Clearaudio, Sumiko and van den Hul designs, which I can't recall ever having seen reviewed. So how about a similar test of these, or other more affordable designs?

James Taylor, Wood Green, London

Stan Vincent replies... It's good to know that so many readers still carry the flame of living vinyl into battle against the ravaging hordes of CD.

Regrettably the digital infidels have long since occupied the HFC camp, but we still manage the odd piece of insurrection now and then — February's cartridge test being a case in point. It will be a while, I'm afraid, until the punishment scars have healed and we are once again permitted the freedom to name needles openly. But as and when we do, rest assured that your suggestions will be top of the list.

Interconnect, schminterconnect?

I read Richard Black's interconnects review (HFC 176) with particular interest. This kind of review is infuriating, if not misleading, when it sets out to convince people that one short length of wire sounds different from another.

Quite rightly, as the article said, this kind of 'kiddology' carries no weight in scientific circles. I'll admit that the cables you reviewed would enhance the appearance of anyone's system — all were attractive. But he who would pay £30 to £145 for a metre pair of interconnects evidently has more money than sense.

I'll stick with the interconnects which came with the system. The money I save will be better spent elsewhere.

TM Goodwin, Prestwich, Manchester

Stan Vincent replies... Mr Goodwin, do you speak from prejudice or experience? In the absence of experimental data to support your thesis, I can only assume the former.

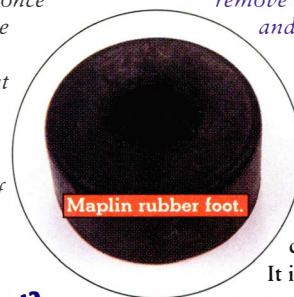
This magazine approaches signal interconnect and speaker



PAD Elementa Costs £145/1.5m.

cables from the centre ground between cynicism and credulity. It's all a question of expectations. If you've never compared a cheap freebie cable with even a modestly-priced specialist interconnect, maybe it's hard for you to believe that the latter could sound better.

It's less certain whether you'd hear further progressive improvements by using more and more expensive wire. And before you do upgrade your cable, always make sure your phono sockets are bulled up to remove oxide deposits and other debris.



Maplin rubber foot.

Rubber fetishist

I am writing to tell you about the tweak of a lifetime, which costs less than £2.

It involves nothing more exalted than four

rubber feet, available from Maplin. These have metal washers inserted within their circumference (they are probably designed for hobbyists putting the finishing touch to the casework of home-built electronics. — Ed).

I tried them under my Revox A77 open-reel tape recorder to begin with, and the results were so good I tried them under my Roksan Attesa 2 CD player as well, to good effect.

Then I put the smaller size rubber feet under my Sugden A21A amplifier, which was when I really got the full picture. My equipment is on a Sound Organisation stand (model Z560).

The catalogue number for the small feet is FP02; for the extra large it's FS25. Place the foot with the big hole facing down — it sounds better but don't ask me why!

Raymond Moss, Sale, Cheshire

Stan Vincent adds... One great thing about this kind of tweak: it's wonderful if it does work, but you've only lost the price of a pint if it doesn't!



Avalon Osiris Quality sound for the price of a small house: £72,000.

Help!

SEND YOUR HI-FI QUERIES TO
'Help', Hi-Fi Choice, 19 Bolsover Street,
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e-mail: editorial.hifichoice@dennis.co.uk
(Don't forget your postal address!)

Alan Sircom and Jason Kennedy answer your hi-fi queries!
Every letter published wins a TDK SA 90 tape worth approx. £2.39! Ten tapes for our Query of the Month!

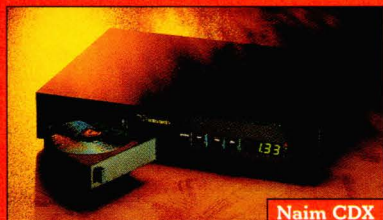


Query of the month

Brought to you in association with TDK

Back to earth

For many years now, I feel I have been going around in circles with my hi-fi, upgrading this and that, but not enjoying music any more. I feel that it is a



Naim CDX

case of listening to the system, not the music. This system comprises Linn LP12 with Ittok arm, Troika cartridge and Lingo power supply, Rotel RCD-965BX CD player, Naim 42S/Hi-Cap/250 amplifier and Linn Kaber speakers.

I seem to listen on the edge of my seat, but the speakers in particular just don't make my feet tap. Please advise me what's wrong and how to rectify it, so I can get tapping again!

Trevor Griffiths, Comrie, Perthshire

With a couple of exceptions, you have THE classic 'flat earth' hi-fi system of a decade ago. Consequently, this system is likely to sound a little tired and edgy. The cure — potentially — has three stages, if you wish to keep the system more or less as it stands. First, you should get the Troika retipped and the deck serviced. The 'Red Devil', as it was known, was phased out several years ago and it should be taken back to a Linn dealer.

At the same time get the Kabers brought up to current specification, which should reduce the 'edge-of-the-seat' sound you're hearing. Have the new Kabers demonstrated to see how far they have progressed, but at the same time check out Castle Howard, Naim SBL and Shahinian Arc to cover all the bases.

Use Mana supports throughout your system to help re-establish activity in the phalanx. Add a multi-level Reference table, supports and bases, and you'll soon be tapping toes.

Finally, consider a CD player upgrade. The new Naim CDX is calling out to be fitted into your system, but you may also find satisfaction in sounds from Meridian, Linn or Exposure.

Otherwise, the problem could be that Linn/Naim systems and you do not mix. If this is the case, start shopping around for hi-fi with valves or phase linearity. Maybe you expect too much of your system at this price, or perhaps too much of any hi-fi system. The latter is hardest to fix, but if you still can't find musical satisfaction in the average £50,000 system, you'll have to set your sights lower!

Every issue, we're giving 10 of TDK's award-winning SA 90 tapes to the writer of the month's best query. When reviewed in Hi-Fi Choice, TDK's SA tape revealed the heart and soul of music with a graceful and transparent sound. We awarded Five Stars for Sound Quality and our coveted Recommended flag!



Speaker drive

My system comprises Pioneer A400, Cambridge CD4SE, old Linn LP12/Akito/AT-OC5 turntable and Spondor BC1 speakers. Since changing cables (to Sonic Link and Gale) and speaker stands (to Something Solid), sonic improvements have been stunning. I wish to upgrade further but this jazz freak is unsure where to look next. I tried a friend's Marantz PM-66 KI Signature but it had a detrimental effect on the sound.

Allen Bell, Redditch

If you like the a Pioneer A-400, few amplifiers will replace it. Off-hand, only the Pioneer A-300R Precision at a realistic price — and Michell or ECA amplifiers at the high-end — will fit the bill.

You would be far better advised to improve key areas in the chain. Get the turntable set up by a good



Michell Iso/Hera

Linn dealer, who will also ensure your cartridge's integrity (it will probably need changing or retipping soon). It is vital that this deck rests upon a decent equipment support, like the ubiquitous Mana table. Then the modest phono stage in the A-400 should be upgraded by adding a Michell Iso/Hera combination.

You should also consider investing in good equipment supports for the electronics, and improving the cables. The Audio Precision Eikos interconnects and Sonolith Monolith 20:20 cables will all help to bring out the best in what is extremely fine equipment.

Winner!

I was fortunate enough to win second prize in HFC 172, and am now the proud owner of a NAD 312 integrated amplifier. As a relative newcomer, I am confused by the array of CD players and speakers. Could you recommend some suitable CD players and standmounted speakers to audition, that would be a good match? My musical preferences include classical, rock, metal, dance etc. MG Hellen, North London

The £200 Best Buy 312 is a superb all-rounder for the money and can be used with a whole variety of components. However, we would suggest adding a Cambridge Audio CD4SE or CD6, Denon DCD-635, or the Kenwood DP-4090. Standmounted speakers to match this combo would be B&W DM302, Mission's 731 PRO, Mordaunt Short MS10i, Rega Kyte, Tangent Monitor 9 and Tannoy Mercury M2. Factor in £100 or

Cambridge Audio CD4SE



so for Atacama, Kudos or Partington stands and the same again for some Ixos or Cable Talk

interconnects and speaker cables. Then your system will start to come alive!

The laid-back approach

My system comprises an Alchemist Nexus CD player, Meridian 551 amplifier and B&W P4 speakers. This is connected with Chord Flatline Twin speaker cable and Audioquest Topaz interconnects. The problem is that midrange reproduction is a little harsh on vocals. Can this be resolved with existing equipment or will I have to change the speakers? If so, will the Castle Avon or Epos ES22 do the job?

MJ Butler, Nuneaton, Warwickshire

The problem you suffer is endemic to most components in the chain (with the exception of the Topaz interconnect), and each product is helping to enhance the others' character. Unfortunately, this means that simply changing one component may not prove to be the panacea you hope for. Changing both the speaker and the cable will help to address the problem, but the speakers we would recommend are the Castle Harlech and the Celestion A1. The two you mention are laid-back and have good midband information, but you would need to audition them carefully before committing yourself. Try either of our recommendations with bi-wired DNM or Kimber 4TC, and the harsh vocals should be a thing of the past. If not, you need to think about changing the whole system for something a little more synergistic.



Castle Harlech

System synergy

I am thinking of buying a pair of Monitor Audio Monitor 3 speakers. I currently have an Audiolab 8000S integrated amplifier and Marantz CD-63 KI Signature CD player.

Will the Monitor 3 be a good choice for that set-up? I listen to classical music, but also rock and blues. I would appreciate any info, recommendations or opinions.
Alex Volodarsky, via the Internet



PMC TB1

One of our rival journals considers the Marantz/Audiolab/Monitor Audio combination to be one without peer. However, we do not agree, because when this system is used for replay of classical music, the combination can sound bright and compressed.

The stumbling block is the combination of Marantz and Monitor Audio. Individually, the character of one component does not add too much flavour to the sound. But the combination of the two adds too much of their own signature. Our counterpart suggests that this can be ameliorated by the use of Audioquest cables, but we remain unconvinced.

We found the Monitor 3 to be an exceptionally discreet floorstander, but sonically uneven. It is capable of producing fine results in a sympathetic system, but we are not convinced that yours is it. A far better match for your rig would be the Professional Monitor Company TB1 or the NHT SuperOne. Neither of these are floorstanders, however; if you want a floorstanding speaker try the Dali 606 and B&W 603. You should create a shortlist of two or three of these five models.



Arcam Alpha 8SE

Pioneer upgrade

I have a Pioneer A-400 (original circa 1991), Acoustic Energy AE109 floorstanders, Sony CD CDP-XE300 CD player due for upgrade, Nordost Blue Heaven interconnect and Cable Talk 4.1 biwire speaker cable.

I want to upgrade the amp and CD but I don't know where to go. CD is obviously lacking in my set-up, but I don't know what would be a good upgrade from the XE 300. I was interested in your review of the Pioneer Precision amp and CD player and I wonder if getting both of them would be an improvement.

Is the A-300R Precision so much better than its predecessor? Or should I set my sights on something like a Densen Beat B-100mk2?

Gary Jamieson, via the Internet

The Pioneer Precision does sound better than the A-400 you currently own, but the level of improvement is not a revolution — the A-400 was a classic of its day and can only be replaced by its Pioneer Precision heir. We would also suggest that the Precision CD player is a worthwhile investment in your system. Ultimately, once this is installed, the Precision amp is worth investigating and then substituting the existing speaker cable with Goertz or Sonolith Monolith will improve the sound further.

We feel that your choice of interconnect, speaker cable and speakers leads you in a very different directions. You may find the sound of the Precision kit too clinical in its approach and may prefer the sound of the Arcam Alpha 8SE and Densen Beat B-100 in this context. You should audition these two sets of CD and amplifier, with your speakers, to see which you prefer.

Time for a change

My system consists of the following items: Dual CS505-3 turntable, Denon TU-260L tuner, Aiwa XC-700 CD player, Pioneer A-300R amplifier and Goodmans RB25 speakers, purchased in 1977. I suspect that the speakers are the weakest link in the chain. Any suggestions for some better speakers costing under £250 per pair? I don't understand the technicalities of hi-fi, I just like the sound of it.

Mr A Sprules, West Wickham, Kent

You are right, your speakers are the weak link. They were fine for the time, but will have aged badly and are not very compatible with the more modern equipment you own. As such, we would suggest changing over to a pair of Mission 750LE (if you have a small room) or a pair of B&W DM601 (if not). Place either speaker on a pair of decent Atacama or Kudos stands with some good, cheap Gale speaker cable — and enjoy!



Mission 750LE

Linn on me

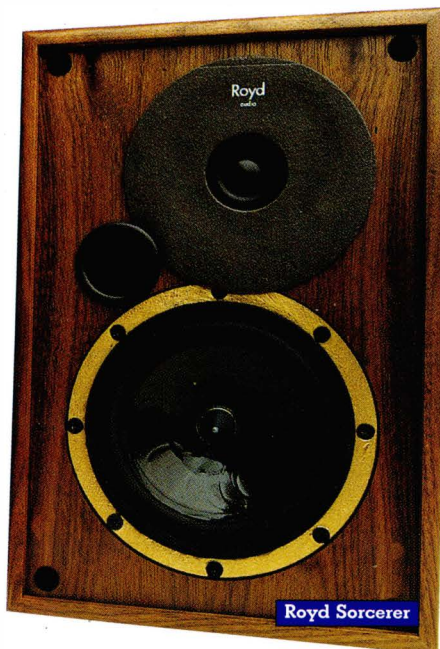
My system comprises a Meridian 200/203 CD player with a Linn Kairn preamplifier and two Linn LK100 power amps, driving a pair of Linn Keilidh loudspeakers on their stands. I am very happy with this system but may need to change the speakers for a more exalted pair in a smaller room. What would you suggest? I listen to vocal soul and I like a rounded but clear sound.

Also, is it true that Linn equipment works best together? If so, should I change my Meridian CD player or stick to Linn speakers? Keith Wilding, Bedford

Before you ditch the Keilidh speakers, try them in the smaller room. This speaker's character does make it ideal for use in rooms far smaller than many people expect, and the Keilidh is the kind of speaker that is hard to replace. If it is too large or the bass is too overblown, then you should try the Royd Sorcerer or the Harbeth HL-P3ES, both of which suit the system and smaller rooms

perfectly. These speakers benefit from support on an open-frame stand, like the one from Royd or the late, lamented Linn Kan II stand. If you want to stay in the Linn 'kamp', try the Tukan speaker, but unless used far from walls, we found this speaker too bass-heavy for most small rooms.

There is a certain synergy exhibited by Linn products which makes them sound at their best when operated together, but that does not rule out using other brands' products in the chain. If the system sounds good with other components, so be it!



Royd Sorcerer

Sensitive seventies

My present system — purchased between 1971 and 1977 — consists of a Sony TA-1055 amp, ST-5055L tuner and TC-2045D tape deck, together with a Philips GA 212 record deck and Celestion Ditton 15 speakers. I want to add a CD player and was thinking of the Sony CDP-XE510. Would this match my system?

Also, how does my existing system compare with current hi-fi outfits? I am thinking of splashing out on a new rig, but would like to keep my Philips turntable. What do you recommend?

B D Collyer, West Molesey, Surrey

Our only problem about hooking a CD player to your existing system is that the input sensitivity and impedance of your amplifier will make all CDs seem extremely loud compared to your other inputs. With CDs that are especially dynamic sounding, this could be a problem for your now-tired speakers.

We think your idea of starting again is a good one, as this system was fine for its time — about 25 years ago — but things have moved on since then. And, although you want to keep your Philips deck, we believe that some of the most substantial improvements can be made by substituting this deck for a more high end model from today. Rather than make recommendations directly, we suggest trawling through our Dealer Directory and finding your two nearest hi-fi specialists, then asking for a demonstration at both. You are bound to find a system you enjoy.

Contamination and gloop pits

I have a Well-Tempered Fountainhead turntable in my system, but though I love it I am paranoid about contamination problems with the 'gloop pit' in which the arm rests. The manufacturer assures me that there's no problem — as dust simply floats on the top of the viscous fluid, and does not interfere with the performance — but I am unconvinced. I have had a perspex cover made, but that doesn't help when the record player is in use.

Is there a turntable in the UK with a similar sound to that of the Well-Tempered design? The nearest in the US is the VPI, but I find the bass too powerful.

Rick Heston, California, via the Internet

We have found that the closest approach to the Well-Tempered sound comes from turntables under the DNM brand, made by Reson of Switzerland. The Rota 1 or Rota 2 come complete with arm, cartridge and stand, and offer the deft touch and pace of the W-T design, but not with thumping bass. Also try the Audio Note version of the old Voyd turntable, or even the Michell Orbe; but you may find the bass overpowering.

Finally, long-term W-T users do find that, with the passage of time, the paranoia you've suffered soon fades. Dust and debris does float to the top of the fluid-damping pit, and there is no problem with contamination — unless you drink the stuff!



DNM Rota

Upgrade and a half

After reading some reviews of Sonus Faber Concertino speakers, I went to listen to them with the rest of my system (NAD 304, Cambridge Audio CD6, Cambridge Audio Studio Reference 2 interconnect and QED Qudos speaker cable). I liked them so much I ended up buying them.

They seem to make a huge difference from my last speakers (Mordaunt-Short MS10i) and I'm fully satisfied. The only problem is that I think my amp is a bit 'short of breath' for these babies, and I would like your considered opinion on two things.

First, the amp has a second set of sockets for connecting an extra pair of speakers. Would it be a good idea to use these sockets to bi-wire the Concertinos?

Second, what kind of amps should I look for (and hear) to upgrade the NAD? Would a power amp be also a good choice with the 304 working as a preamp?

Ricardo Pinto, via the Internet

We can't say we're surprised that your 304 is struggling with a pair of Concertinos, nor that the latter are a upgrade over your Mordaunt-Shorts. However, you're right: more power would probably help matters, but whether it's such a good idea to use the 304 as a preamp is open to question.

We would suggest trying a better integrated such as an Audiolab 8000S, Copland CSA8, Densen Beat B100, Electrocompaniet ECI-2 or even Quad 77. Any of these would have both the extra grunt and more importantly the extra finesse that the Sonus Fabers deserve.



In-ear entertainment

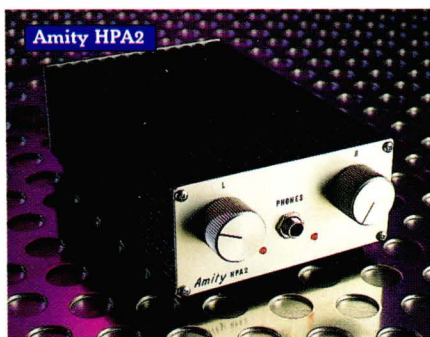
I have just purchased a set of Sennheiser HD600 headphones. However, in the absence of a headphone jack on my amplifier I now require a suitable headphone amplifier to use with them.

Despite ringing a number of retailers I have only managed to come up with four possibilities: two solid state (Naim, Creek); and two tube (Earmax, Musical Fidelity). My preference is to stick with tubes (as in the rest of my system) but will obviously choose whichever sounds best.

I would prefer to have a larger range to select from, so can you please advise of any other headphone amps for £500 or less that I should consider auditioning?

D Nicholson, via the Internet

We have tested one other headphone amp, namely the German-made Amity HPA2, which proved very impressive when compared with the Musical Fidelity and Creek in HFC 172. This £249 unit does not have UK distribution, but if you're interested,



makers Anderson Electronics are happy to send by mail order. Call +49 7138 3225.

Otherwise, the thing to do is audition. Either take your cans to the store, or borrow a few headphone amps and see what you can hear.

Vinyl and polycarbonate

My current system consists of the following components: Musical Fidelity X-PRE and X-A50 amps, Rotel RCD-965BX CD player, Luxman PD 131 turntable, SME 3009 Series III tonearm and a damaged Goldring 1040 cartridge. The speakers are Spondor BC1 connected by Cable Talk 3.1. Interconnects are Chord Cobra 2.



I am looking to purchase the X-LP phono stage and I need some advice on which cartridge to purchase. I have been recommended the Ortofon MC10.

Is it worth buying a new CD player such as the Arcam 8SE? Or would I be better off getting an X-DAC now, to use with the Rotel? When more cash is available, I could eventually upgrade to a CD transport like the Trichord

Digital Turntable or TEAC VRDS-T1. There is also the possibility of placing the monoblocks close to the speakers and purchasing long runs of QED Qnect 2 interconnects.

Adrian Vass via the Internet

On the cartridge front you would be better off going for a high compliance model to suit the SME arm, which rules out the MC10 and suggests something like a Grado Prestige Gold, Denon DL304 or a Goldring 1042.

On the silver-disc front, both options you suggest make sense, so the way to decide would be to audition them, side by side if at all possible. We would expect the Digital Turntable/X-DAC combo to be the more impressive, but it is the more expensive as well.

Control and definition

My system consists of a Rega Planet CD player, Rega Brio amp and a pair of ProAc Response 1SC with van den Hul Source interconnects and Cable Talk 3.1 speaker cables (not bi-wired).

I like the speakers very much and would like to keep them. The speakers are wall mounted and sound relatively crisp and warm, with good soundstaging.

I think, however, that the amp is a weak link and could do with more control and definition. What would you suggest as a suitable upgrade for about £900? Or should I save up longer?

Jason Loh via the Internet

There are a variety of alternatives to consider here. If you want to retain the same character but add extra grunt, Rega's big Elicit amp would be worth trying. On the other hand, you could add a touch of finesse with an Electrocompaniet ECI-1 or Musical Fidelity's X-PRE/X-A50 combination. You should audition some other pre/power combos while you're at it — you may feel that the extra quality they offer is worth saving for. Try Acurus RL11/A150, Quad 77 pre/power or ECA Vista/Lectern.

If you end up with any spare change, apply it to the amplifier/loudspeaker interface. Try speaker cable from Goertz or Electrofluidics for maximum resolution.



The right path

My system comprises a Pink Triangle Export turntable with a Rega RB300 arm (van den Hul rewired with van den Hul MC-10 cartridge), DNM Series 3 preamp with double power supply, Musical Fidelity P-270 power amp and Spondor S100 speakers. Interconnect cable between pre and power amplifiers is Cardas 2x21 and speaker cables are Audioquest Indigo+ bi-wire. The room is 4x8m. The equipment is housed in a Target support with spikes.

One especially important factor for me is sound-staging, which must have a good depth, width and height. I cannot tell that there is a lack of soundstage, but I feel there is a weak link in my system that prevents it from performing at its best.

The second important thing is clean, tight, deep bass, but the system sometimes booms even with top recordings — although the loudspeakers are positioned 110cm from back walls and approximately 50cm from side walls. I think that the weak link in my system is the power amp, which is outdated in my opinion. Am I walking the right path or not? I listen to a wide range of music, particularly jazz.

Your advice and proposals would be greatly appreciated. My budget is £2,000.

Dimitris Moschovakos, Athens, Greece

The first thing to sort out is your speaker cable. Indigo+ is good stuff but doesn't have the ability to reproduce the low frequencies and stereo imaging offered by Electrofluidics Monolith 20/20 or Goertz M1. Try cables first then consider what the speakers are mounted on. Spondor recommends an 18inch (45cm) open-frame stand — if you already have some of these you might find that a mass-loaded stand will give you more low frequency control.

Then think about power amps. The most sensible option would be DNM's PA-1, which starts at £1,650. This isn't a power-house, and if you need serious level it's not the answer, but otherwise the subtlety it can convey should prove beguiling.

If more heft is required try Michell Alecto monobloks: these image and kick but will use up all of your budget!

Clear and detailed

My present system consists of the following: Denon DCD-920 CD player, playing through a Cambridge Audio DACMagic 2, a Marantz PM-66 KI Signature amp and Mission 760 SE speakers. I listen mainly to orchestral and operatic music.

I know that the speakers are the weakest link in my system and I've been spending considerable amounts of time listening to possible replacements in the £300-£400 bracket, but haven't hit on the speaker that I know is right for me. The closest match has been the Monitor Audio Monitor 3.

Like most of us I'm looking for clear, detailed reproduction along with adequate bass extension and weight without any muddle. Am I asking for too much in this price band?

One other quickie: do you think a Trichord Genesis 3 clock modification (costing £172) of my CD player represents value for money, or would it



Cable advances

Following your review of the Heybrook Quartet speakers (HFC 122), I took my Musical Fidelity E100 amp and E600 CD player to my local dealer, so that I could hear them with the Quartets. As a result, I bought the Quartets and am very pleased with them, but as cable has advanced so much since that test, could you recommend suitable wires for this system? Would adding a Pro-Ject 6 turntable complement it, and would an MF E300 power amp be an upgrade worth considering?

Stephen Thompson, Balloch, Loch Lomond

Decent cable would indeed be a good idea — see if you can find either 1xos 104 interconnect and 603 speaker cable, or Cable Talk Advanced 2 interconnect and Talk 3.1 speaker cable.

Yes a Pro-Ject 6 would probably complement it, but so would a Michell Mycro, and it would look considerably better while discharging its function — if you like green-tinted acrylic! See if you can audition another turntable at the same time.

As for an E300, this seems like a less suitable choice as it's no longer in production. Its successor, the E30, is an option, but given the good sensitivity of your speakers you might find that the MF X-A50 monobloks would be a good bet.



be better spent on a new player such as the Marantz CD-63 MkII KI signature?

David Cadogan, Stevenage, Herts

We weren't too enamoured of the Monitor 3s, but perhaps they've appealed to a particular faculty of your musical tastes, or possibly you haven't come across some of the speakers that we do like in that price band. Good examples include the B&W DM305, Castle Isis, Dali 104B, Heybrook Heylios and, if you can stretch to it, AVI's NuNeutron at £499. When auditioning bear in mind that at this price level, you are going to have to accept some compromise — it's a matter of sorting out which qualities are most important and focusing on them.

We can't find your Denon CD player in our records, which suggests it's not in its first flush of youth, so a new player might be best. However, if you particularly like the Denon, a Trichord Clock will certainly improve it no end, so the choice remains in your hands.



Mana Acoustics

Purveyor of equipment isolation platforms to the musically enriched.

Worthwhile outlay

My system comprises: Pro-Ject 6 turntable, Rotel RCD-970BX CD player, Naim Nait 3 amp with optional phono stage, Castle Harlech speakers, Naim speaker cable, Cable Talk Monitor 2 connecting the turntable and Chord Cobra connecting the CD player.

With nearly £500 to spend, what upgrade would improve an already enjoyable sound, to make this kind of outlay worthwhile?

RP Marston, Deeside, Flintshire

This looks like a case for serious stands and supports. You could improve CD replay with a better player but that won't enhance the reproduction of records. To get the all-round improvement you seek, you need Mana support: at present your budget will stretch to a Three-Tier Amp Stand at £450, but you may find that once you've heard what it does, the £250 asking price for a pair of Sound Bases to go under the Harlechs will seem like an absolute snip.

HINTS AND TIPS

KIMBER ATTENUATED INTERCONNECT

JIMMY HUGHES HAS SOME MORE INTERCONNECTING TRICKS UP HIS SLEEVE.

When compact disc was launched back in 1983, there was a general belief that the two-Volt output level of many CD players was excessively high for most amplifiers. To combat this, many new amplifiers were introduced with an attenuated CD input — that's to say, an input resistively buffered to reduce this high output to something more manageable. If you feed a high output voltage into a sensitive input, there's a risk of overload during peaks. Even if this doesn't happen, there's the inconvenience of having to play with the volume control set almost at the bottom of its range, allowing little scope for adjustment when quiet listening is required.

Resistively attenuating an amplifier's CD input deals with this, but subjectively changes the sound, making it tonally softer and less sharp. Perhaps for this reason, new amplifiers with attenuated CD inputs became less and less common as the '80s drew to a close. Nowadays it's quite rare. Until recently, I was firmly against resistive attenuation, feeling that it 'slugged' the sound, eroding vibrance and dynamics. But much depends on your system and personal taste; stepping back to take a wider view, there are times when a little forcefulness and immediacy are desirable.

Anyway, I was intrigued to note that Russ Andrews offers his Kimber Cable PBJ interconnects in a special attenuated version. Having been very pleased with the improved clarity and stereo soundstaging produced by Kimber's RFI-reducing PowerKord mains cables (HFC175), I wanted to sample their interconnects to

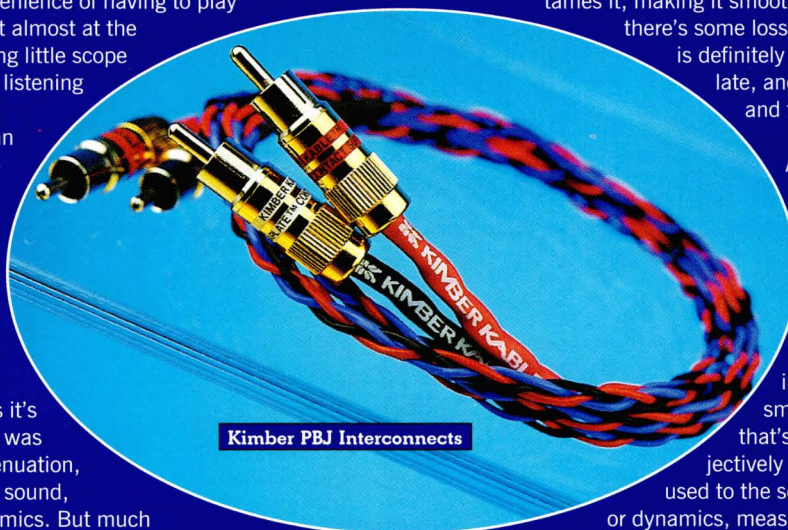
see whether these too could produce subjectively similar effects. In a word, they did. But it was especially interesting to try the attenuated interconnect which reduces level by 11dB.

Once you've increased the volume to compensate for the drop in output level, the attenuated cable sounds slightly smoother, tonally, with a warmer, sweeter balance. Dynamically it seems more integrated over the whole frequency range, and slightly cleaner too — play a brash recording, and the attenuated cable tames it, making it smoother. On the debit side,

there's some loss of bite; the standard cable is definitely more immediate and articulate, and transmits sharper treble and tighter bass.

Superficially, on a quick A/B comparison, the standard Kimber interconnect will probably strike you as 'better'. It's more impressive and extrovert, offering extra detail. Yet with extended listening, the attenuated cable comes into its own, offering a smoothness and integrity that's easy on the ear and subjectively beguiling. Once you've got used to the sound, it does not lack detail or dynamics, measured subjectively. Curious!

It's as though by losing the battle, you win the war. By sacrificing a little sharpness and immediacy, you seem to achieve a much more finely-varied range of tone colours and dynamics. Things that make the sound subtler, rather than unrelentingly forward and 'in your face', psychoacoustically seem to widen the contrast between extremes. Therefore, the impression of change is heightened, making the music appear subjectively more dynamic — even though, in reality, it isn't.



Kimber PBJ Interconnects

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Personal Messages

Paul Messenger takes off his hi-fi Homburg this month, and dons his AV baseball cap to talk about a 'high-end' widescreen TV.

While appreciating that this hi-fi magazine is primarily oriented towards audio reproduction, nowadays only the most conservative purists exclude television from the range of sources which feed their hi-fi system. I can get as much pleasure from simultaneously watching and hearing Nigel Kennedy on the *South Bank Show*, George Martin on the roots of music, or Jools Holland's *Later* shows, as from any broadcast on the radio. That's not to mention all the film and sports temptations that TV also offers.

For this reason I occasionally let this column drift over the dividing line which separates AV from hi-fi, on the odd occasion when something exceptional comes my way. As one whose reviewing encompasses both camps, hi-fi people often ask my advice on what TV to buy. It used to be a hard question to answer — until the end of last year, when I received Panasonic's latest TX-W36D3DP, a £2,500 36-inch widescreen TV. It's a pricey set in the context of the TV marketplace, true, but a lot cheaper than a high-end pickup cartridge in cost-per-hour terms.

Even though I've deliberately used such a set for the past five years, I'm still ambivalent about the widescreen issue. Given the paucity of such programmes available, as well as the hefty price premium on the sets, misers should probably stick with conventional four by three televisions. But if you're seriously into movies, want to anticipate the next 10 years of widescreen development, not to mention the imminent arrival of digital TV, I have no doubt that this Panasonic is the one to check out. *(Paul speaks from experience here, having reviewed pretty much every widescreen set released to date, for our sister magazine Home Entertainment. By his own admission though, he has yet to experience Sony's amazing 'FD Trinitron' sets, which offer a totally flat faceplate, though they employ a traditional vacuum tube. Examples include the £2,700 KV-32FD1E — Ed.)*

Three key factors put the Panasonic television well clear of the pack. Most

important of all, it's one size larger than all of its widescreen competitors apart from rear-projection sets and the like. This is crucially important, and will remain so as long as programs arrive in regular four by three format. *(A brief word of explanation. The traditional TV picture tube has width and height in the ratio of four to three. So-called 'widescreen' sets have screen dimensions in the ratio of 16 to nine — Ed.)*

Widescreen pictures are nice when you can get them, but they still only represent a tiny fraction of TV programming. To my eyes, 28-inch and 32-inch 16x9 sets are simply too small for regular 4x3-shape pictures, especially for sports viewing; and since conventional colour picture tube technology is still more than a match for rear-projectors (and the first new flat plasma displays), this Panasonic simply has no competition. This 36-incher is the only widescreen set that gives an undistorted four by three image as big as a conventional 28/29-inch set.

Then there's the superb high-resolution picture tube, based on one used

for high-definition sets in Japan. Like most current top-notch TVs, this set has a digital picture processing chassis, but unlike almost all the competition, its character is not obtrusive. I'm very intolerant of digital artefacts like pixellation and movement blurring, but I could live with the TX-W36D3DP.

Thirdly, there's a very intelligent 'picture-outside-picture' arrangement, which shifts a four-by-three image over to the left, and puts up a window in the blank bit on the right so you can keep an eye on signals fed in from other sources (VCR, satellite). It's not quite as convenient as twin-tuner sets, but works well enough with a bit of practice.

All things bright and beautiful

There's plenty of brightness, and if the colour balance is less neutral than my memory of Panasonic's 32-Wide TV, it's still acceptable. The screen might not be as flat as Sony's latest 32-incher, but flatness is only one criterion. This Panasonic has the advantage of size, and its geometry is good. The black level (and hence the ability to discriminate detail in dimly-lit scenes) should meet the same standard, though my sample did show a niggling unevenness in illumination, creating slight vertical 'shadows'.

You get the Dolby Pro-Logic system thrown in, though it's not one I'd recommend to those with refined hi-fi sensibilities. There's the socketry to integrate it with your hi-fi, and plenty of options, though the set's circuitry is less than transparent. The built-in subwoofer can't be permanently turned off, which is a real disincentive.

Just as I was about to write this piece, the TX-W36D3DP developed a fault in its fancy digital-scan circuitry.

Not good news for Panasonic, whose reputation for reliability is unequalled, but perhaps excusable since my early sample had been trucked all around the country. It did give an excuse to go back to the Philips 36-Wide set which has been my rolling reference for several years. That

emphasised how far TVs have progressed over the past five years, as I realised how much I missed the Panasonic's superior focus, sharpness and black-to-white dynamic range. Maybe I can talk them into

lending me another one soon... ▲

Panasonic ☎ (0990) 357357



Magic johnson

In three decades of business, top US high-end conrad-johnson has never made an integrated amplifier... until now. **Alan Sircom** investigates.

Having made nothing but pre/power and tube amplifiers for 30 years, conrad-johnson recently introduced an all-tube, line-level integrated amp. In this, it is following precedents set (over the past five years or so) by most of the US high-end brigade — the likes of Krell, Audio Research and Jeff Rowland, which have developed up-market integrated amplifiers to fill a market niche that did not exist before, say, 1992.

As the audiophile moves away from the inherent complications of turntables (which by their very nature are complex, enthusiast material), and gravitates towards the slick, digital convenience of CD and other similar sources, there has been greater emphasis placed upon hitherto-disregarded factors of hi-fi — such as user-friendliness. In this context integrated amps make a lot of sense, if their quality is up to the mark.

c-j's new CAV50, priced at £2,495, certainly fits the bill. It is not backwards about coming forwards to shout about sound quality. Because its circuit employs the highest-quality but also simplest circuits, the maker claims, the CAV50 sounds as good, if not better, than the pre/power combination it is based upon. As an audiophile genealogist would trace this unit's lineage to the c-j PV10A preamp (which we reviewed in *HFC* 152) and MV55 power amplifier, the solo box's claim is an audacious one.

The c-j 'ultimate simplicity' premise runs roughly as follows. As each electronic component in an audio signal path introduces its own sonic signature, no matter how inoffensive, a circuit made with the least intrusive-sounding components will denigrate the sound to a lesser degree than a complex design. It has been manifest in all of the conrad-johnson kit to have come under our scrutiny before, but the philosophy is right large in the CAV50.



conrad-johnson CAV50 "Deserves pride of place on many a hi-fi enthusiast's equipment rack"

What's under the hood

If truth be told, there is not much of a pre-amp in the CAV50. All the functions it would discharge (source selection, volume control) are performed by passive components on the amplifier chassis itself. This 'control amplifier' design, common to many good tube integrated models, requires neither an active preamp stage, nor the lengths of internal and external cabling that can obfuscate sound quality. Cost reduction is an added benefit.

Though its configuration may have saved a dollar or two, no-one has skimped on constituent parts. This product bristles with top-notch components, each chosen for optimum performance. There's an Alps volume potentiometer, precision-deposited-tin-oxide resistors, plus polypropylene and polystyrene capacitors. Industrial-quality, gas-filled relays and discrete voltage regulators populate the circuit-board. The casework and circuit board meet c-j's usual standards.

The roster of vacuum tubes will be familiar to c-j watchers. There's a 12AU7 acting as a preamp gain stage, allied to a pair of 12AX7s and 6SN7s in the driver stage, and two EL34 power tubes per side. Power output is claimed to be 45 Watts in ultralinear mode, or 22 Watts in triode-coupled mode. These ratings are conservative by today's standards (50 Watts is the norm for two push-pull EL34s a side), but the underspecification should help to prolong valve life. An estimated 2,000 hours is expected from the average tube, if biased properly.

As on the MV55 power amp, here the tubes may be biased by the user by means of a long-bladed screwdriver. Simply turn the bias screws until the bias LEDs go out. Do this every six months or so to keep the system on song, and the tubes will last longer.

On the aesthetical front, it's unfortunate that the pen-pushers down at City Hall insist we keep amplifier valves hidden inside a pro-

Desired Effect

Jason Kennedy thought he had kicked the vinyl habit – until he heard his LPs through the £7,500 Nagra PL-P preamplifier. Will life ever be the same again?

Very infrequently, in the lofty realms of ultra-high-end audio, there emerges a brand with such legendary status that it transcends matters of mere musical reproduction. Nagra is one such marque. For many years, this Swiss manufacturer has produced the most desirable reel-to-reel tape-recorders on the planet. In more recent times, equally fulsome praise has been showered upon its Nagra-D digital recorder.

Offerings from Nagra combine watchmaker standards of craftsmanship with an awesome reputation for sound quality. The company's mythical status has been maintained by prices of equally fantastic stature, and the fact that open-reel recorders are such a rarity these days.

Now comes the chance for audiophiles to test Nagra's mettle in more conventional walks of hi-fi. Behold the company's first domestic product: the PL-P tube preamplifier. It looks like one of the famous tape recorders of yore. Built into the familiar pro-style chassis, this phono-stage-equipped beauty commands a drastic £7,450 — a price guaranteed to prevent over-exposure, and therefore maintain Nagra's eclectic reputation. Because, even though there can be no question about its quality, it is a preamplifier.

Dial N for Nagra

I have struggled to imagine a more idiosyncratic component of this type. For a start, the PL-P thinks it's a tape recorder! That meter on the front panel is what Nagra calls a 'Modulometer', and it's designed to be used in conjunction with input level controls, to permit the maximum signal-to-noise ratio with a line-level or phono-pickup input.

Nagra is at pains to stress that the Modulometer is not a mere VU meter, but a peak-value meter with built-in memory. The needles stay at the maximum level long



Needles and spins... Nagra's unique Modulometer keeps your music on the level.

enough for you to comprehend it fully, even with fast-varying signals. The instrument can be used for several other purposes, for example establishing absolute input or output levels. A novel switch, decorated with sun and cloud emblems, illuminates the dial.

The two signal 'pots' (short for potentiometer; in other words a voltage attenuator) can be used independently or ganged together. The latter option is the most visually engaging: turn one knob and the other follows suit! The Select/Off switch turns on the phono stage only when the phono option is selected. There is a 15-second delay whenever you switch to the phono stage from the 'off' position or from the line-level input.

It's a pick-up

The phono stage is quite a tour de force. It is tube powered, and offers gain and EQ adjustments for both moving-magnet (m-m) and moving-coil (m-c) cartridges. Tiny step-up transformers accommodate the electrical vagaries of m-c, while input impedances are adjusted by plug-in circuit jumpers.

At the same time, however, it is possible to bypass the transformers, engage a rumble

filter and change the grounding arrangements. I did wish for more detail in some aspects of coverage in the PL-P's 36-page manual. It hints at a variety of possible operations but doesn't explain them fully.

Internal novelties include independent level adjustment for each channel's input, headphone output transformers, and fuse-like devices which indicate cumulative operation time. Armed with this information, the user knows when to replace the six valves of the line input stage, and the pair doing phono duties. (Tube spotters note that these are ECC81 and 83 respectively.)

Input and output sockets are mounted on either side of this diminutive unit (it measures 7.5cm high, 28cm wide and 23cm deep). There are three line-level inputs, one phono input, one tape/processor loop and two outputs. Hardly a generous quotient, but this is no home cinema or multi-room workstation. Our American colleagues will whinge about the lack of balanced signal connectors, but when they hear what the Nagra makes of single-ended inputs (the conventional variety, supplied via phono sockets), the XLR-obsessed Yanks may be less concerned.



Note side-mounted signal sockets. Below left: by removing the hood it is possible to adjust phono pickup cartridge loading and other user preferences; but don't forget that unless an authorised dealer does the job, the warranty may be invalidated.

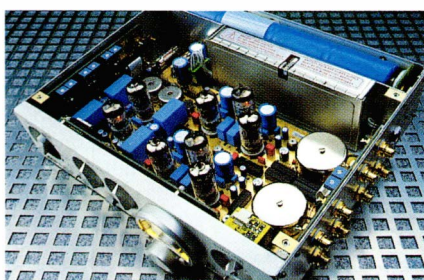
The side-mounted sockets are another echo of Nagra's professional designs, but are probably thus arranged because of the NiCad battery which is inserted at the rear of the unit. Yes, you heard right: battery operation. The concept in itself is not outlandish, but this is the first time I've ever seen it applied to a vacuum-tube product. Although the unit is plugged into the mains during use, this is only to keep the battery topped up. The latter's condition may be monitored on the Modulometer.

Ridged like a Toblerone

Compared to some high-end offerings, the Nagra is quite generous in its provision of inputs and convenience features. Indeed, the hair-shirts among us might suspect that its flexibility would get in the way of absolute sound quality. They'd be wrong. This preamp is in the Formula One class. You would expect as much, given that the dearest alternative I could muster cost barely half the price. More than being good, though, the PL-P is actually incomparable. Purchasers of this unit will have a winner on their hands.

In my first experiential encounter with the PL-P, I hooked it up to a pair of Audiolab 8000MX monoblocks, and ProAc Response 2.5 speakers. The amps are inexpensive by comparison with the Nagra, but still cost a respectable £1,800 each. They have already proved themselves in my system hooked up to the Boulder LSM preamp (*HFC* 177).

On substituting the Nagra for the



Boulder, there was an unobtrusive hike in sound quality. Suddenly there was a sense of tactile presence, uncanny naturalness and hair-raising palpability about the music: it was as if half the information on the disc had been previously blocked out. I'm no stranger to the effect of introducing tubes into an otherwise transistorised system, but I've never encountered this degree of revelation in the past.

I think it comes down to the preamp's ability to reproduce dynamic and timbral variation, to a degree that eludes more affordable competing products. Both of the aforementioned characteristics are typical valve amp signatures, but because mains noise has been eliminated from the circuit, these valves operate in conditions of electrical hygiene about which most tubes can only dream.

The Road to Nottingham

I underwent a similar Road To Damascus experience with the PL-P, in a completely different system, this time at Definitive Audio in Nottingham. Here we were listening to a combination of Living Voice Airscout and RW24 subwoofer (*HFC* 163), powered by an Art Audio Diavolo power amp, initially fed from an SJS Arcadia Model 1 valve preamp (*HFC* 169) — a staggeringly good tube and horn system. But with the Nagra in place of the SJS Arcadia, it must have literally halved the noise in what was already a quiet system. There was a sense of scale, speed and dynamics that were hard to believe.

After this, 'normal' hi-fi was a bit of a let-down. I'd borrowed a DNM 3C Twin preamp and PA-3 power amp in an attempt to rattle the PL-P's cage. Even in upmarket Twin spec the 3C is still only half the price of the Nagra, but as I revealed in *HFC* 176, it's a solid performer. I didn't expect the Nagra to give it such a hard time. Once more dynamics and tonal colour stole the show: these, combined with high detail resolution, make the Nagra apparently unbeatable.

I did not expect to hear such a difference

between the line-level and phono inputs. The latter gave such superior results, I wondered whether the line stages were an afterthought. However, being a reformed vinyl die-hard, I know in my heart that a good LP is more than a match for most CDs. Audiophiles are aware of this judging by the number of 180gm vinyl reissues. Even so, I still couldn't believe the imagery I was hearing from LPs.

Cast your bread upon the waters

To test the mettle of the line inputs, I hooked up the Pioneer DV-505 DVD player (see *Ear Waxings*, p17) and played some of the 96/24 DAD software from Classic Records. From the results, I would suggest that sound quality via the line inputs is entirely a function of the signal they are fed. Potential owners be warned: unless you have a line source of legendary quality, expect to invest in a lot more premium vinyl if you use a PL-P.

And I mean premium-grade vinyl. This unit will tell you all about the scratches and dirt in your second-hand pressing of *Close To The Edge*. However, it will also communicate the recording, lyrics and liner notes. Quite literally, it opens up recordings that had seemed compressed, and it positively feasts upon the good ones. John Fahey's *Let Go* album puts the vinyl medium firmly in the Number One slot. Even DNM's impressive phono stage couldn't lay a finger on it.

Conclusion

I'd expected the Nagra PL-P to be good. It looks fantastic, it's built like a Rolex and it uses battery-powered tubes. The odds were favourable, but I was unprepared for the transport to sonic nirvana which this handy preamp provided (when partnered with components of appropriate quality.)

It looks like this Nagra may be the reason I get out of hi-fi, and finally find a 'real job'. That'll be the only way I can afford to buy one for keeps!

Nagra ☎ (01235) 810455

En Garde!

Love 'em or loathe 'em — and no-one's going to have a neutral reaction — there's no denying that the German Avantgarde Acoustics speakers make a genuine Statement, in terms of both style and performance. It's the sort of product where a picture tells more than a thousand words, so check out the visuals before reading on.

Shrinking violets they're not. They wouldn't look out of place sounding The Last Trump, quite honestly. A serious clash with my predominantly Edwardian decor was inescapable. Avantgarde is an appropriate name, for an artefact which would better suit a large, sparsely-furnished warehouse-flat conversion, than my cluttered room with beams, fireplace and a bow window.

Reactions of visitors varied dramatically, from the downright hostile to love-at-first-sight. Everyone was curious, with the inevitable "what on earth?" being followed quickly by "why on earth?" — of which more later. One thing there's no disputing is the superb standard of finish, especially the lustrous metallic paint of our review samples, though you do pay a hefty premium of £900 for this, rather than the bare-white 'standard' finish. (Perhaps the local car body-shop might offer a better deal...) The Duo itself now costs from

Paul Messenger puts himself in the firing line of amazing German speakers. Horned to perfection?

£6,300 upwards, depending on the sub-woofer you choose to accompany it.

The model is one of four different Avantgarde models. The others are known, logically enough, as the Uno and Trio, and the latter is available in two versions. Members of the family exhibit numerous resemblances, and utter singularity. Of course, every design claims to be unique these days, but for once that soubriquet is entirely appropriate. One or two visitors spotted the Duo's resemblance to an old acoustic gramophone of the pre-war era, or the compression-driver PA speakers of post-war times.

Round the horn

The horn loading employed here is different to that of historic applications. Horn speakers go way back to the earliest days of hi-fi, having been employed by speaker pioneers like Paul Voigt in the UK and Paul Klipsch in the US. The most obvious advantage of horn-loading is the massive increase in sensitivity it brings to a loudspeaker design. That's why they were so important when old valve amplifiers only mustered a handful of Watts.

The only problem with a horn is one of size. To reproduce the full audio range a horn needs to be physically large, and what was already inconvenient in the mono era became doubly so when stereo came on the scene in the '50s and '60s.

I have reviewed three full-range horn systems for *Choice* over the years: the Tannoy Westminster Royal, the Klipschorn and the Living Voice Air Partner. All have taken up a considerable chunk of the loungescape, yet even behemoths such as these demonstrate a relatively dry and light bass balance.

The theoretical ideal dimensions for a horn, called upon to reproduce deep bass, are a length of some 20 feet, and a mouth area of around 20 square feet. In practice, the only way to construct such an object is by incorporating it into the structure of a building. That explains why only extremist Japanese enthusiasts can claim to have endowed their homes thus.

Avantgarde's alternative approach is a hybrid that uses horns to cover the broad midband and treble, while relying on conventional box loudspeakers (in the form of



Flares are back again! The Avantgarde Acoustics Duo is sure to be a talking point. The metallic paint option (shown) costs £900.

a pair of active subwoofers) to reproduce deep bass. It's still pretty bulky, but more compact than any of the three Leviathans mentioned above. Additionally, the open-frame construction, with the bass bin at the bottom and the two separate horns fixed to the tubular steel verticals, is much more elegant than any bulky wooden enclosure.

Quality not quantity

Why bother with high efficiency horns at all, in an era when amplifier power is plentiful and cheap? One obvious reason is headroom. A horn system needs only a fraction of the power required by conventional speakers, so it makes life a lot easier for the amplifier. The horn drive unit is always working well within its own mechanical limits too, since cone excursion is very low. It's an obvious partner for valve amplifiers, especially the low-power, single-ended-triode variety which are currently enjoying a renaissance among serious enthusiasts.

Horns have other advantages. One reason for high efficiency is the horn shape's propensity for acting like an acoustic 'lens'. Instead of spreading out the sound evenly in all directions (in the bass and midband at least), the horn throws it forward, which should reduce unwanted room reflections. Another factor is the horn's effect of acoustic transformation, whereby it couples the relatively heavy driver diaphragm to the extremely light air molecules in the room. At the same time the mass of air contained within the horn provides an ideal form of 'area damping' for the driver diaphragm.

These characteristics help to explain a horn system's startling ability to deliver realistic dynamics with refreshing freedom from stress and strain. However, compromises and unwanted colorations result when you contort a horn to fit within a wooden box. You end up with little glimpses of both heaven and hell.

Buttered trumpet

Here's where the trumpet-shaped Avantgarde comes into its own. Its smooth-contoured straight horns are disfigured by neither sharp edges nor folding, and are profiled in a theoretically-perfect flare to create a true spherical wavefront from the horn mouth. To achieve the right shape has required the horns to be moulded from ABS plastics, and the stainless-steel moulds needed to make the bigger examples are large, heavy and above all expensive. Therein lies one reason for the Duo's high cost.

The main horn is big enough to reach down to 170Hz in the upper bass, leaving just the bottom two octaves to be handled by the subwoofers. And because the low-end roll-off of a horn occurs as a natural function of its geometry, there's no need for any high-pass crossover components in the signal path. The main horn crosses over to the smaller treble one at around 2kHz, which means that it covers almost four octaves.

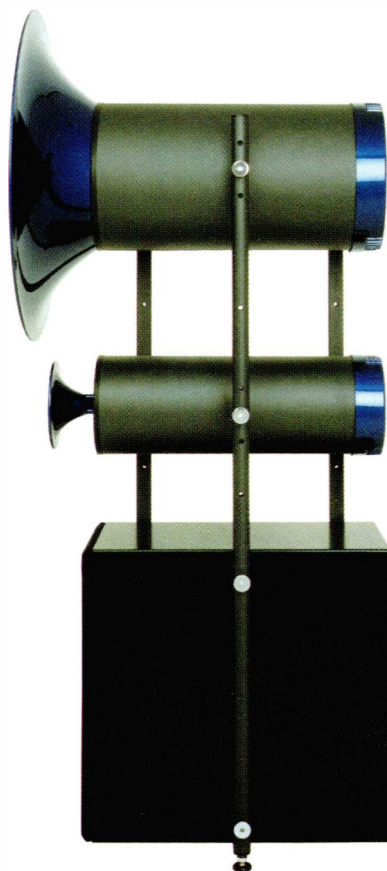
It's always gratifying when practice fol-

lows theory, and that certainly seems to be the case with the Duo.

Despite its bulk, I found it quite easy to assemble the components of this design. It wasn't long before I slipped Joni Mitchell's *Mingus* onto the turntable, lowered the stylus, sat back... and gasped. Wow! Amazing! A horn without coloration — or at any rate, one in which coloration was much lower than usual — yet with all the dynamic range, tension and punch which only true high-sensitivity speakers seem able to accomplish. The stereo depth, focus and sheer solidity are as amazing as the subtle rendition of coherent detail deep in the mix. In the midband at least, this must be about as good as it gets.

The first time around I didn't pay too much attention to the bass, such was the awesome tension and hair-curling realism of that midband. And because the midband is projected from a source 1.3m off the ground, this imposes its own unusual stature on the imagery. Step two was to swap Joni for the Chemical Brothers, and see how the Duos would cope with a few *Block Rockin' Beats*. Unfortunately, quite frankly, they didn't.

However, that was before I measured these beasts and explored the flexibility of their active sub. Performing the former revealed that the latter was delivering decidedly detached and midbass-heavy output. I pulled the speakers a couple of feet out into the room (which evened out the midbass); turned the sub level way down (the better to match the midband); advanced the upper rolloff to its highest available frequency; and reversed the phase (which rather effectively filled in the gap between bass and midband).



Duo in basic white finish — from £6,300.

This achieved a good overall in-room balance, not unduly smooth but within quite tight limits from 40Hz up to 20kHz. The top end is in the Germanic tradition of brightness, so maybe Avantgarde might consider reducing the treble output of models destined for the UK by a dB or two. Even with my pessimistic approach, sensitivity registers an exceptionally high 100dB/Watt — enough to show up amps with high background noise. However, the inability to generate serious sub-40Hz bass is disappointing considering the bulk and price of these subwoofer units.

Although the re-alignment brought a dramatic improvement, the bottom end is still this speaker's weakest area, lacking the wonderful stop/start-ability and dynamic drive of true horn bass. Like other hybrids I've encountered, the different modes of operation don't glue together seamlessly. The bass seems to follow a different dynamic agenda. Since the midband is so outstanding, and the bright treble needs to be compensated with slightly overblown bass, the bottom end deficiencies tend to be all the more obvious.

Of course, this will depend largely on an individual's taste in music and roster of partnering equipment. Even yours truly, a die-hard bass nut, could sacrifice some LF for the awesome intensity of the Avantgarde experience. Like other big horn systems, Duo breaks down barriers between performance and reproduction like no conventional box loudspeaker can. I trawled through old LPs with fresh enthusiasm, even though I'd planned to try valve amps with this rig and they didn't come through in time. Such a combination would be nigh on unbeatable with acoustic music, I reckon. ▲

GT Audio ☎ (01895) 833099

Behold the Number Cruncher

With the arrival of the TACT Millennium, the world's first digital amplifier, hi-fi has taken a massive leap forward. In this test, the first to be published anywhere in the world, our Technical Editor, **Paul Miller**, explains the concept and execution of this new technological marvel.



Imagine, if you will, a 200-Watt amplifier that can drive any loudspeaker without clipping, but weighs just a few kilos. An amplifier that is fed directly from the digital output of your CD player or DAT recorder, yet contains no conventional, integrated digital-to-analogue converter or analogue amplification.

"Imagine an amplifier whose volume control suffers no drift or deterioration in channel balance at low levels, and maintains a constant dynamic range regardless of its setting. There would be little or no waste heat, and the unit would sound as dynamic, vivid and compelling as the highest high-end hi-fi — but without the breathtaking price tag."

So began my article, *Living By Numbers*, on the 'Digital Class D Amplifier', printed at

the tail end of 1995 in *HFC* 149. In that piece I also suggested we'd have to wait only a year to see a commercial realisation of this technology. Unfortunately, thanks to the Machiavellian politics of large corporations, the end product has arrived much later than I predicted. Luckily, the Danish-based Audio Nord organisation (which has a 90 per cent stake in NAD electronics and is the parent company of DALI loudspeakers) picked up this particular digital ball and tucked it under the wing of its high-end brand, TACT. The seeds of the digital amplifier revolution, planted two-and-a-half years ago, are now sending shoots through the topsoil.

By the way, I got the price wrong, too. When it goes on sale, the TACT Millennium is expected to cost a cool £5,000!

Simplicity in itself

You might think that digital equipment is complex and hard to understand, but the Millennium couldn't be easier to use. All that's required is a digital source connected to one of the amp's signal inputs. These are both Sony/Philips Digital Interface Format (S/PDIF, phono socket) and balanced AES/EBU (XLR socket). The unit accommodates all three sampling frequencies commonly encountered: 32, 44.1 and 48kHz.

Heavy-duty binding posts clamp any choice of speaker cable in place, while on the front panel, an outrageously expensive volume wheel spins on almost frictionless, military-specification bearings.

An arbitrary volume-level readout runs from -90 to +12, the latter equating to the

full-scale digital signal level (henceforth referred to as OdBFs). As we'll discover later, this is no volume control in the conventional sense, but rather a way of directly raising or lowering the DC voltage supplied to the output stage. In a digital amplifier, your loudspeaker is *always* directly connected to the DC power supply.

Listening to the Millennium

As befitted this very special and exclusive review, I invited critical listening comments from long-standing members of my blind listening panel. I simply plumbed the amp into the system made familiar during many years of HFC CD player and amplifier tests: to wit, Theta Data Basic II CD transport and Goldmund digital interconnect (used throughout the measurement régime), and a pair of Audio Note AN/BII loudspeakers with Silver Sounds 12/2 cabling.

Christy Moore's *Live At The Point* album sounded especially 'live' during this session. His 12-string guitar strode confidently into the room with explicit, percussive detailing. It was not bright or aggressive in the 'digital sense', in fact it was even a little too restrained — "never quite letting rip", one panellist suggested.

Shock TACT-ics

The Millennium amp spared no blushes when revealing the flaws in our test speakers. It was quite easy to hear Christy's voice suffer a momentary bloom or loss of focus, that was recognised by one of our listeners (a renowned speaker designer) as a coloration in the speaker's bass/mid unit.

Indeed, this amplifier is so very clean — without being 'squeaky clean' — that it is mercilessly adept at revealing otherwise hidden colorations in the partnering speakers. However, our measurements suggest it may actually 'magnify' these colorations to some degree (see page 42).

Either way, the 'sound' of the Millennium is very, very different from that of 'conventional' amps. Different does not always mean better, of course. It takes a while for the ear and brain to re-adjust from analogue to digital amplification.

The more mature among us, weaned on the snap, crackle and hiss of vinyl, will remember a similar paradigm change on first hearing the comparative silence and cleanliness of CD. The difference between analogue and digital amplification is not dissimilar.

The sound of silence

The Hyperion 'DDD' (all-digital) recording of Nikolai Demidenko, playing Bach's *Toccat*a and *Fugue* in D minor, illustrated a fundamental feature of the Millennium's sound: its deadly silence. Put your ear by the tweeter of most moderately-sensitive speakers, and when they are connected to almost any amplifier — switched on, but not playing — you will hear a hiss.

By contrast with this, the Millennium is utterly silent. It permitted powerful strokes

TACTFUL QUESTIONS & ANSWERS



Q Is this the world's very first digital amplifier?

A To the best of our knowledge this will be the first commercial *Digital* Class D power amplifier conceived for truly 'high-end' applications.

Nevertheless, there are other design teams, in the US for instance, racing to pip TACT to the post, notably pro-audio company Apogee with what it refers to as 'DDX'.

Q What makes this amp different from previous Class D designs?

A The Millennium should not be confused with existing *analogue* Class D amplifier technology, which for reasons of efficiency, finds a ready application in many high-powered car-audio systems.

Q Does an £5,000 digital amplifier sound very different to an £5,000 analogue amplifier?

A Absolutely. Then again, we already know that the more you pay for an amplifier, the more diverse become different manufacturers' 'sound philosophies'. It's this variety that keeps the 'high end' alive and well.

Q Does the Millennium sound very different to existing hi-fi amps?

A In practice it's astonishingly clean, vivid and articulate — musical notes rise and fall into utter silence. Listening to music via the Millennium is an unforgettable experience.

Q Is it any more difficult to use than an analogue amp?

A With digital sources, the Millennium is as close as you'll get to a 'plug-

and-play' amplifier, though as we discovered, it does exhibit more than a little sensitivity to the choice of partnering loudspeaker.

Q Obviously this amp works seamlessly with digital equipment, but how do you use it with analogue sources such as LP, tape or tuner?

A TACT will be producing a four-input analogue-to-digital converter (ADC), which will be controllable via the Millennium's main module. This option will accommodate line-level *analogue* sources, converting them into the digital data required by the Millennium.

Q It's a groundbreaking product, but £5,000 is still a lot of money to pay. Will the technology get cheaper?

A The boffins behind the Millennium at Toccata Technology will be licensing this technology to third parties. With a trimmed-down power supply and greater economies of scale, it is feasible to imagine that sub-£1,000 digital amplifiers could be manufactured.

Q Tell us more about the company behind TACT.

A TACT is the brainchild of Peter Lyngdorf, the man who put the financial muscle into NAD, and Radomir Bozovic. It's an unashamedly high-end brand where innovation — particularly digital innovation — is prized. TACT also produces a digital preamp with comprehensive room-correction facilities.

Q When and where will the Millennium be available to buy?

A Production samples should be shipping in June this year to key NAD dealers in the UK. Please form an orderly queue behind yours truly!

Q Does this product's arrival make conventional amplifiers obsolete?

A Not in the short term. After all, the arrival of the transistor never quite killed off the valve amplifier, did it? In the longer term this exciting technology has a very bright future. The use of digital technology provides great scope for room and speaker equalisation.

Qs & As by SV and PMI

of Demidenko's Steinway to collapse into the blackest well of 'nothingness' we had ever experienced. And when the clash of hammers on strings rose a moment later, its explosive force was made all the more shocking by the lack of any warning. It's rather like being run over by an electric car that's just silently turned the corner!

The Millennium is fundamentally unique in its reproduction of silence. This con-

tributes to a sound that is powerful, free of obvious artifice, highly emotive, yet entirely complementary to the music being played. Regular readers will be familiar with talk of 'inky blackness' or 'darkness', to describe the crucial silences between notes. But the Millennium, for all its freedom from noise, still does not sound obviously 'dark'. This adds a whole new dimension to the perceived dynamic range of a recording; and by

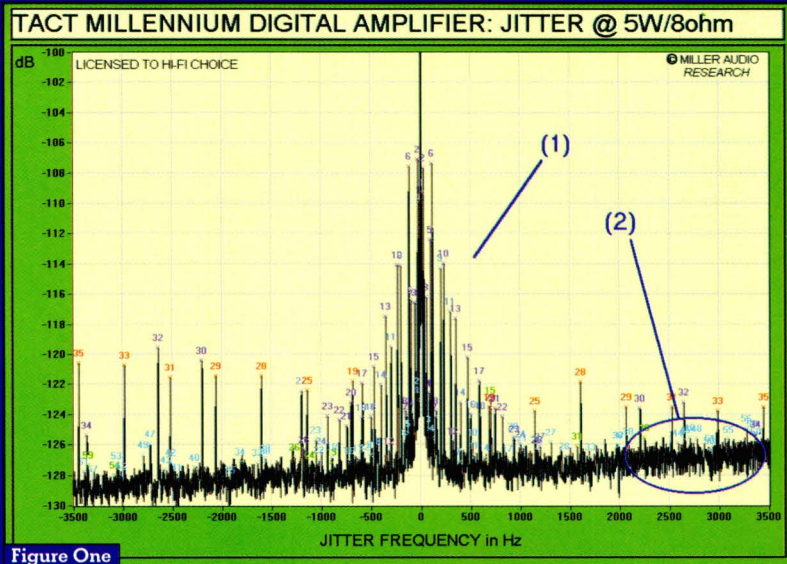


Figure One

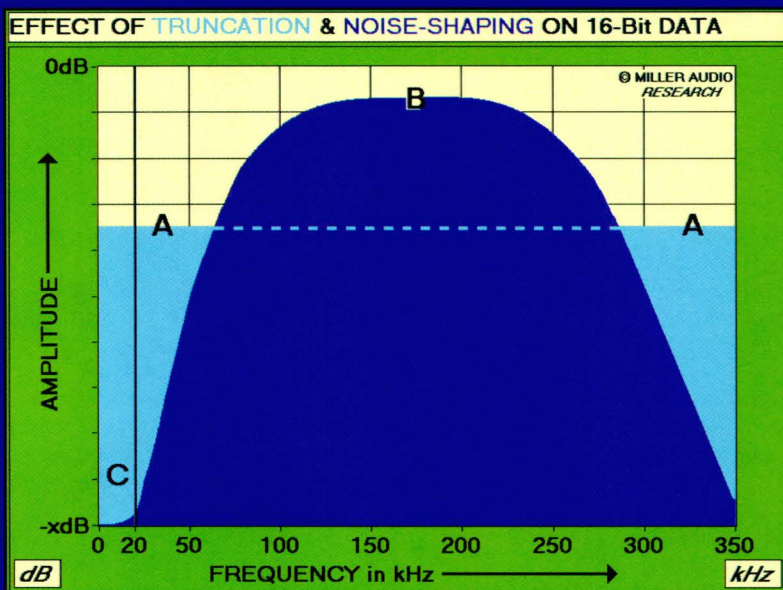


Figure Two

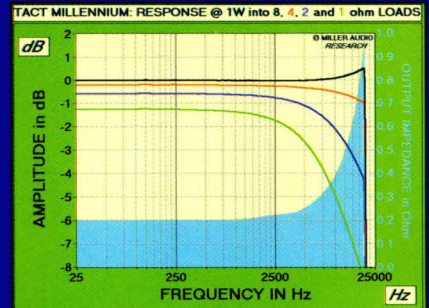


Figure Four

These Virtual Instrument plots, explained in the text, explain the workings of TACT's Millennium digital Class D amplifier, and quantify its performance. Clockwise from above: frequency response, spurious output, effect of truncation and noise-shaping, and jitter spectrum.

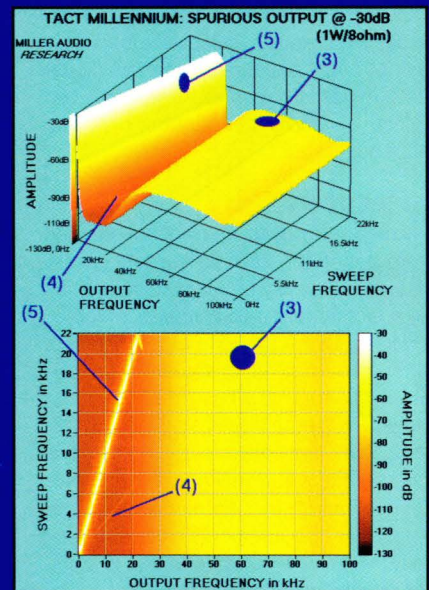


Figure Three

inference, it adds a new strand to an ongoing debate, over the relationship between amplifier power and speaker sensitivity, which has occupied my regular column (*Oasis of Sanity*) over the past few months.

The Millennium's technology

The Millennium is a digital device, and no more immune to the ravages of digital jitter than the average CD player/transport, MD recorder or DAT deck. Jitter, a form of distortion caused by errors in the *timing* of the digital data, is presently battled at the input to the Millennium by a sample-rate converter. However, on referring to Figure One (above), we can see around 500psec of low-rate jitter (1), marked-out with purple-coloured cursors, which seems to escape the process and may well lie behind the "slight loss of bass focus" reported by our listeners. TACT is addressing this issue before final production commences.

The Millennium's next step is to increase

the data *rate* from 44.1kHz to 352.8kHz via an eight-times oversampling filter, which calculates seven intermediate data 'words' for each original pair, making the data stream eight times longer, but at the same time, eight times faster.

These digital 'words' (originally 16 bits wide) are reduced into smaller eight-bit chunks by a process called truncation. So far so good, but now we require each eight-bit word to describe the same information as each original 16-bit word; clearly, an impossible task. Looking at it another way, we are asking a range of 256 binary numbers (0, 1, 10, 11, 100....11111110, 11111111) to represent the same data as the previous 65,536 binary numbers (or two raised to the power of eight rather than two raised to the power of 16).

Making a 'trunc' call

Inevitably, truncating from 16 to eight bits causes a significant error in the 'description'

of the original audio waveform. Figure Two illustrates how this would be manifest as a great reduction of the available dynamic range, as noise and distortion is uniformly increased (A) across the eight-times-oversampled frequency range. This is overcome by a technique known as noise-shaping.

Here, the eight bits shaved from the incoming 16-bit words are used to generate a corrective signal, which squeezes any extra noise and distortion within the audio range out to higher, inaudible frequencies. Importantly, noise-shaping does not reduce the total amount of noise and distortion but simply pushes it out of the way, towards the middle of the 352.8kHz spectrum.

Figure Two clearly demonstrates how the noise and distortion, produced by truncation, is concentrated at 176kHz (half the oversampling frequency, B).

One year after I proposed the idea (see *HFC 77*, December 1989) it was proved independently that the area under the

INSIDE THE MILLENNIUM

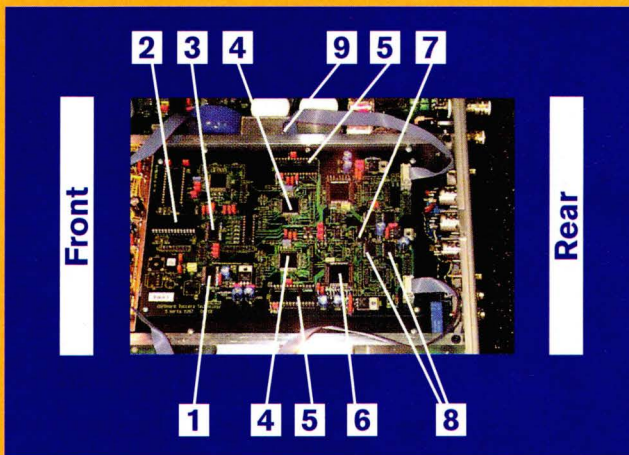


The 'brains' of the Millennium are on the circuit board shown top left in this photo. Pictured below right is an annotated plan view of this board. Beneath the PCB is a large toroidal transformer.

In the annotated diagram, right...

- (1) Incoming data is received by a Crystal CS8412 interface chip.
- (2) Data is locked to the Millennium's internal Master Clock — item (7) — using this sample-rate converter.
- (3) Data is upsampled from 44.1kHz to 352.8kHz via this eight-times oversampling filter (could be usurped by a Pacific Microsonics PMD-100 'HDCD' filter in final production models).
- (4) Motorola DSP56004 processor block produces the truncated eight-bit datastream.
- (5) Associated memory chips store the code necessary for the 16-to-eight bit truncation, fourth-order noise-shaping and distortion-correction code. (This block will be replaced by custom silicon in the production unit).
- (6) High-speed logic is employed to translate the eight-bit datastream into a PWM bitstream with 256 possible pulse

widths. This is locked on to the 90MHz Master Clock (7). (8) Latches are used to re-clock the final PWM signal before it modulates the DC power supply, which feeds... (9)...this screened module, containing four high-speed n-channel HEXFET power devices, arranged in an H-bridge. Regular readers of the magazine will know of the Radio Frequency (RF) emissions associated with bitstream CD players. Naturally, these are much more pronounced when the device in question deploys high-voltage, high-current circuits, as in the Millennium. TACT has addressed EU Electromagnetic Compliance (EMC) issues by compacting the H-bridge into a small, screened module and controlling any 'ringing' of the switched waveform at source, rather than relying on filtering at a later stage.



straight line (before noise shaping, A) and under the curve (after noise shaping, B) is equal. Ultimately, this technique realises the same signal-to-noise ratio and low distortion throughout the audioband (C), that would have been apparent *before* the truncation. It's a neat touch, but incurs the penalty of a slightly elevated HF noise floor detected during jitter analysis [Fig.2, (2)].

You might ask why it is necessary to condense those incoming 16-bit words in the first place. The reason is the incoming pulse widths could be any one of 65,536 integer (whole number) multiples of the Master Clock period. To accurately time the 'edges' of these pulses, an impractically fast clock would be required: $8 \times 44.1 \times 65,536 = 23.1\text{GHz}$. By truncating to eight bits, the clock accuracy is reduced to a feasible $8 \times 44.1 \times 256 = 90.32\text{MHz}$, or right alongside Radio 3 in the FM broadcast band. Here, a binary 0 holds the Pulse Width Modulation (PWM, see box on p42) switch on for the shortest period, while the binary number 11111111 holds it on for the longest period. The widest pulse is exactly 256 times the width of the shortest pulse.

How it works in practice

The Millennium relies on an implementation of a HEXFET output stage, in which four n-channel silicon devices must switch in pairs *faster* than the 90MHz clock rate, to ensure optimum performance. These devices are configured in what is called an 'H-bridge',

with one pair of devices either side of the speaker load. The incoming PWM signal effectively modulates the DC voltage of the power supply using the HEXFET devices, leaving an analogue LC (inductor-capacitor) filter to remove the high-frequency component (the 'square' in the square-wave) before it hits the speakers.

Examining the output

The set of images in Figure Three reveal the 'shaped' ultrasonic noise (3) discussed earlier, as it returns the audioband to its former 16-bit glory. A hint of third harmonic distortion (4), amounting to 0.06 per cent, is also exposed. TACT uses a second-order analogue LC filter to further suppress the ultrasonic requantisation noise from a frequency of 60kHz onwards.

This plot uses a full 0-22kHz audioband sweep (5) at the musically important -30dBfs level, and clearly shows the Millennium's freedom from any digitally-derived distortions and sampling images. This is a commendable result. Distortion with full-scale digital inputs (0dBfs) falls to 0.02 per cent, while the amplifier's low-level linearity is superior to 95 percent of CD players, with errors of just +0.0/-0.4dB over a full 100dB dynamic range.

TACT's dual-mono, switch-mode power supplies run at 75kHz (referenced to the Millennium's Master Clock), and have been designed for minimal ripple. Clearly, as this supply effectively constitutes the output (it is

always directly connected to the load) then it must be as 'clean' as possible to maintain the amplifier's wide dynamic range. This power supply also becomes the volume control, for the output level is directly governed by either increasing or reducing the supply voltage to the H-bridge.

Importantly, and regardless of whether the 0dBfs digital input is describing a continuous or momentary (ie burst) waveform, there is no dynamic headroom, just as there is no conventional 'clipping' point. A 0dBfs (full-scale) input is always referenced to a full-scale voltage supplied to the H-bridge: beyond this there is no margin for increase. (In digital systems there is no such thing as +1dBfs, for example.)

Thus I measured an output of 149 Watts from the Millennium, driving an eight Ohm load under either continuous or dynamic conditions. However, this does not mean the supply is infinitely stiff, and able to progressively *double* the output into four, two and then one Ohm loads, for example. In reality 214 Watts, rather than 298 Watts, is the limit into four Ohms, because there is a finite reserve of current available to sustain the *same* voltage into progressively lower loads. In practice current reserves work out to be about 11A, under continuous or dynamic conditions.

Speakers' corner

The output LC filter (described above) has another effect: it adds a reactive component to the amplifier's output impedance, which

TECH TALK: QUESTIONS OF CLASS IN AMPLIFIERS

For conventional hi-fi applications, Class A amplifiers remain in vogue, despite their inherently high heat dissipation and electrical efficiency below 50 per cent.

In Class A, high levels of 'bias' current are applied to the power transistors of an amplifier's output stage. In a complementary amplifier, the positive and negative-going portions of the signal are handled by matched pairs of transistors (called n and p-channel respectively). The high bias current ensures that these complementary transistors remain conducting throughout the entire cycle of the musical waveform.

The bias, or standing current, is reduced in a Class B amplifier, so that the complementary (or push-pull) transistors conduct sequentially, in response to the positive-going and negative-going portion of the waveform respectively. Cooler running and greater efficiency (max. 78 per cent) are gained, at the expense of crossover distortion when one transistor picks up where the other has left off.

Class D, however, is a very different proposition. Here the output transistors act as switches, which are either fully on or fully off. Since a switch cannot dissipate any heat, this system will approach 100 per cent efficiency. This is distinct from the variable 'partial conduction' of Class A and B amplifiers.

Pulse Width Modulation (PWM)

As the continuous 'curve' of a musical waveform cannot be reproduced by single on/off states, a Class D amplifier represents music by varying the length of *time* that these switches are held on and off. This is known as Pulse Width Modulation, or PWM.

The whole process is rather more elegant in a *digital* Class D amplifier, because the PWM signal can be derived directly from the digital output of your CD or MD player or other, future, digital



Class A amps, like this £690 Magnum design, are inevitably electrically inefficient, but at present remain the most cost-effective route to true high-fidelity reproduction.

modifies its response into different loud-speaker loads (see *Oasis of Sanity*, HFC 177). This output impedance is shown as the area shaded in bright blue (printers and repro permitting!) with its scale on the far right of the graph. Note how the increase in output impedance, to nearly one Ohm at 20kHz, is mirrored by changes in the treble response of the amplifier into progressively lower speaker loads, together with a net loss in dB (Volts).

The +0.7dB peak at 20kHz (black trace) has been deliberately engineered into eight Ohms. This is to ensure that, with the -0.8dB droop at the same frequency into four Ohms (red trace), the 'average' response with most speakers should even

out... with a following wind. Nevertheless, this variation in response with load impedance may, indeed, cause the Millennium to act as a 'magnifying glass' to the anomalies of different loudspeakers.

Where next?

In the effort to have this technology widely accepted, commercial reality has at least partially overridden some innate advantages of digital amplifier technology. For example, a digital Class D amplifier need not weigh half a ton, but to be taken seriously by the high-end community, following the precedents of Krell, ARC et al, expensive products need to feel as heavy as their price-tags.

Furthermore, without its inch-thick

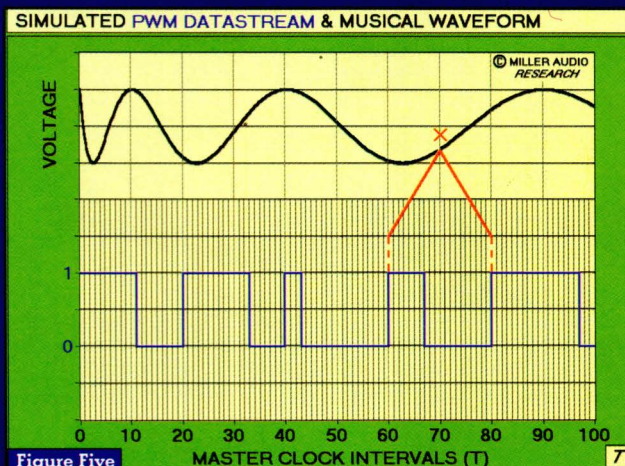


Figure Five

sources. It is also possible to provide advance correction of any distortions inherent in the switching stage, by manipulating the digital signal beforehand.

In the Millennium's case the PWM output stage switches at a rate which is synchronous with the 44.1kHz sample rate of your CD player's digital output, for example.

How PWM works - see Figure Five above

The PWM signal comprises a finite number of pulse widths, and each 'width' (whether in the '1' or '0' position) is an exact multiple of the amplifier's Master Clock. The simulated example (above) accommodates five digital samples across its horizontal axis, with a total of 20 Master Clock intervals lying within each sample. You might think of each sample representing a description of the musical waveform, its position or voltage, at one instant in time.

In this example, we are allowed one of 20 different pulse widths to describe the position of the musical waveform per sample (an instant in time). The ratio of time spent by the PWM signal at '1' compared to '0' defines the width of the pulse, and describes the position — or voltage — of the musical waveform, during that particular sample period. During the fourth sampling period on our simulation (between Master Clock intervals 60-80), the pulse width occupies seven Master Clock intervals, with the remaining 13 intervals occupied by a pause of digital zeros. The ratio of pulse and pause defines the position of that sample — that instant in time — on the final musical waveform (X).

As we have discovered (p41), each sample period used by the TACT Millennium lasts just 2.8 micro-seconds (2.8 millionths of a second, or eight times 44.1kHz); and within each sample period there are 256 Master Clock intervals available to accommodate any one of 256 different pulse widths.

milled-alloy facia and spectacularly expensive volume dial, the Millennium would have been quite a bit cheaper. Also, as the final dynamic range of the amplifier is dependent upon the residual noise of the power supply, eliminating the final few microVolts of ripple causes an exponential increase in cost.

I feel justified in reiterating my conclusion of two years ago. The Millennium is just the beginning, a signpost towards lower-cost digital amplifiers, running from practical power supplies in lightweight cases. Analogue interconnects, crossover networks and conventional, inefficient amplification *might* become a thing of the past.

I say 'might', because the development and direction of audio is driven much more



This is the Millennium's volume control wheel, which turns on military-specification bearings. The display indicates a nominal output level, ranging from -90 to +12.



EDITOR'S COMMENT

Digital techniques are becoming more and more a feature of modern existence. In my editorial column this month (p3), I discuss how audiophiles will soon benefit from digital radio and TV. The big electronics companies are desperate for consumers to replace existing analogue equipment with new, shiny digital versions of the same. You've played the game already with digital software like CD — why not play again with hardware?

However, this is not just a case of keeping up with the latest fashions. Digital technologies offer significant benefits by virtue of the way they work. While a cordless telephone is still only a telephone, a digital version is almost immune to noise and may be used at a considerable distance from its base unit.

TACT's Millennium still performs the hi-fi amplifier's traditional rôle, of turning electrical signals into musical sound waves. Its significance is in fulfilling, for the first time, CD's promise of low noise and large dynamic range. And it does this by using the same canvas as before (the loudspeaker), but an altogether different painting style (pulse width modulation).

Until now, CDs have been reproduced using technology harking back to the early days of radio. Input a small squiggly signal, out comes a bigger version. Analogue circuit-design techniques have been refined immensely over the years, just like the internal combustion engine — another old technology which some would say has overstayed its welcome! But nonetheless, it has been something of an anachronism to convert CD's digital code into an analogue waveform, just so that it can be amplified and reproduced.

The TACT Millennium finally opens the door on a new hi-fi paradigm, where music can be stored and transmitted completely digitally, all the way from microphone to loudspeaker.

I doubt there'll be another audio revolution so great, until we are born with phono sockets growing out of our foreheads...

ATW "Stan" Vincent, Editor-in-Chief



by the imperatives of marketing than by any altruistic desire to improve sound reproduction in the home.

For the fortunate few who can afford this product, the TACT Millennium amplifier offers a taste of one possible digital future. Early adopters will not be disappointed! ▲

CONTACTS

For further information on the TACT amp in the UK, please contact Audio Club on ☎ (01296) 482017. International enquiries to TACT Audio Europe on ☎ +45 86 27 75 00.

TACT MILLENNIUM: MEASURED PERFORMANCE

PARAMETERS	SIGNAL FREQUENCIES		
	20Hz	1kHz	20kHz
Max continuous power output into 8 Ohms	147W	149W	172W
Max continuous power output into 4 Ohms		214W	
Output impedance	0.195 Ohms	0.199 Ohms	0.943 Ohms
Damping factor	40.9	40.2	8.48
Response @ 1W/8 Ohms	-0.1dB	0.0dB	+0.67dB
Channel balance	0.0dB	0.0dB	0.0dB
Channel separation	135dB	130dB	106dB
THD vs level, 0dB	-78dB	-74dB	-66dB
THD vs level, -30dB	-68dB	-65dB	-44dB
THD vs level, -60dB	-62dB	-56dB	-6dB
THD vs level, -80dB	-28dB	-32dB	+15dB
Dithered, -90dB	-19dB	-23dB	+24dB
Dithered, -100dB		-22dB	
Dithered, -110dB		-13dB	
Resolution @ -60dB		0.0dB	0.0dB
Resolution @ -80dB		0.0dB	0.0dB
Resolution @ -90dB		-0.4dB	-0.4dB
Resolution @ -100dB		-0.2dB	-0.3dB
CCIR IMD, 0dB	-76dB		
Suppression of stop-band images	105dB		
S/N ratio (A-wtd), with emp, 0LSB	101.8dB		
S/N ratio (A-wtd), with emp, w/o emp, 0LSB	101.7dB		
S/N ratio (A-wtd), with emp, w/o emp, 1LSB	101.8dB		
De-emphasis accuracy, 1kHz	No de-emphasis		
De-emphasis accuracy, 5kHz	No de-emphasis		
De-emphasis accuracy, 16kHz	No de-emphasis		
Total Correlated Jitter	507psec		
Crystal Clock Accuracy	+4ppm		
Serial Number	N/A: prototype		
Projected Retail Price	≈£5,000		

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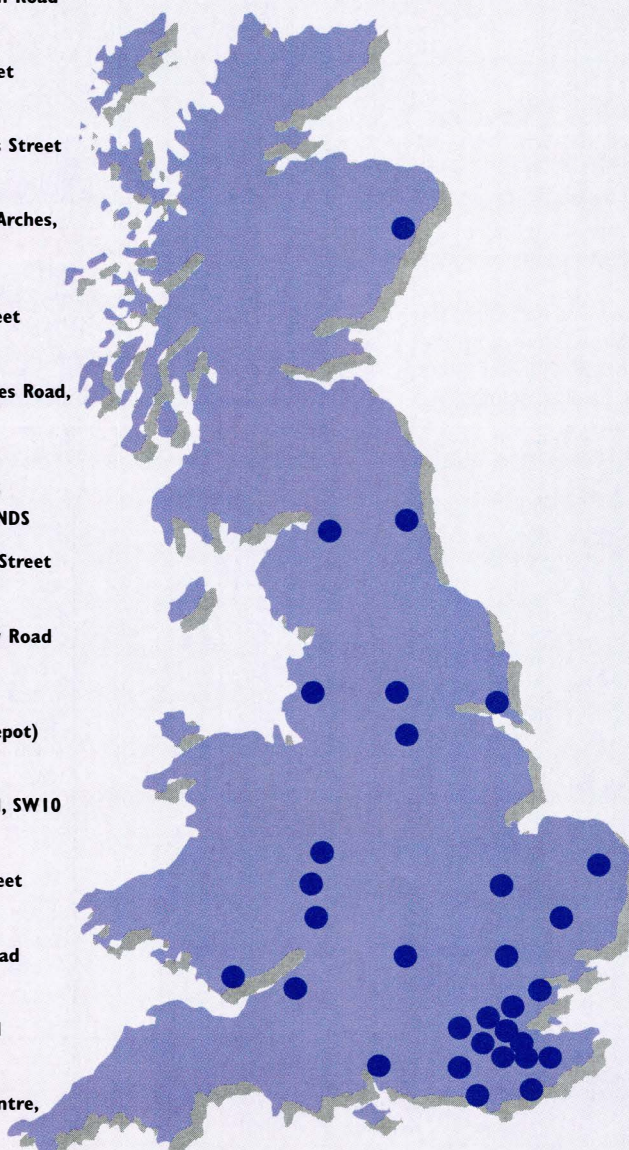
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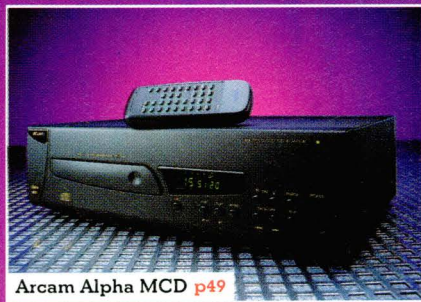
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ON TEST : MULTI-CD PLAYERS



Anthem CD1 p48



Arcam Alpha MCD p49



harman/kardon FL8300 p50



NAD 523 p51



Pioneer PD-F906 p52



Technics SL-MC410 p53



Yamaha CDC-665 p54

Ch-ch-ch-changers

Can multi-disc CD 'autochangers' compete with single-CD counterparts?

Richard Black tests seven of the best to find out.

The concept of the CD multiplayer is not new. The attractions of having records changed for you while you sat in an armchair were particularly obvious in the days of 78rpm discs. It was standard practice in the '30s, '40s and '50s to issue records in both manual and 'auto coupled' versions. The latter, say, would have sides one and 12 on one record, then two and 11 on the next and so on. This meant that a whole six-record stack could be played on the changer, then after 25 minutes the records would be turned over as a pack to give the correct sequence for the second half of the work.

Now that CDs can play for about as long as eight or nine entire 78rpm records, the need for a changer is less obvious; but, well, we all like our little bit of comfort. If you can listen all evening without getting up, so much the better! There are all sorts of situations which call for a CD player with the capacity to play uninterrupted (well, almost) for six hours. For instance in operas, which often feature single acts longer than a CD. Even if they are not longer, maybe they are laid out inconveniently to save on the total number of discs, so that breaks come in illogical places. Or you may wish to immerse yourself for an evening in an uninterrupted Zappa extravaganza, or simply provide background music for a dinner party without the repetition that a single-CD player on 'Repeat' would give.

And then you can go the whole hog and invest in one of the huge-capacity players like the Pioneer or Technics reviewed in this group, which store upwards of a hundred discs. Many people barely own more than a hundred discs, and I know that of my own collection probably less than a

THE CAST LIST		
Anthem CD1	£1,595.00	.. p48
Arcam Alpha MCD	£449.90	.. p49
harman/hardon FL8300	£299.99	.. p50
NAD 523	£249.95	.. p51
Pioneer PD-F906	£349.95	.. p52
Technics SL-MC410	£249.00	.. p53
Yamaha CDC-665	£219.95	.. p54

hundred are at any time 'in repertoire', the rest being albums whose purchase I now cannot justify, or that I just don't fancy any more, or have simply forgotten about. In that case, you might as well load your entire collection into the player and keep fingerprints off the discs. This is clearly what the manufacturers expect, and both

HOW THE TESTS WERE DONE

All of these multi-disc players were tested in exactly the same way as normal CD players, with no concessions to their lack of hair-shirts. You'll find that little mention is made of performance directly related to changing, such as how long they take to achieve it, simply because there's very little between them. Ten seconds is about the deal for most of them, hardly longer than the gap between two tracks on many discs.

Each player was used in turn — sometimes in quick rotation, sometimes for long periods — in my usual system of EAR amplifiers and ATC speakers, plus reference players by Marantz (highly tweaked) and Micromega. Music covered a wide range of styles, from solo piano to opera from rock to techno-jazz fusion to dinner jazz. Hot CD tip of this review session? *Madrigals* by Benedetto Pallavicino (distant relative of the UK hi-fi designer Tim de Paravicini!) on the 'Musica Oscura' label.

Pioneer and Technics provide a neat little wallet to store the liner notes for each of the CDs, so that you can even dispense with the jewel cases.

There is a nagging little voice that suggests to many that something so obviously convenience-driven as a CD changer can't sound any good. That was certainly true of LP changers. As a born hair-shirter, I can nevertheless lay that ghost to rest: look inside a CD changer and you will find a mechanism which is basically exactly the same as those put in normal, single-play, budget CD machines.

All that's added is the changing mechanism, which simply feeds the discs into the playing mechanism, and thenceforth it's business as usual. Now obviously some money has to pay for the autochanger components, so you can't necessarily expect a £300 changer to be the equivalent of a £300 single player. Subtract something like £50-£80 (or probably a sum in the region of £120-£150 for a 100-disc player) and you should have the measure of it.

Of course most changers are in fact fairly low-priced jobs, and that price difference means we are effectively talking about the true budget end of the market. But there have been some stormingly good CD players around the £250 region recently, and so it should follow that really good changers needn't cost much over £300, maybe even less.

It is interesting that of the players in this group, one (Arcam) is well above that 'critical band' and one (Anthem) is getting towards true high-end money, where the additional cost of a changer mechanism makes very little difference (as a percentage) to the overall figure. ▶▶



ANTHEM CD1

Although the majority of CD changers are relatively cheap machines, there's no obvious reason why a changer mechanism could not be used successfully in a high-end design. Canadian manufacturer Sonic Frontiers (the company behind the Anthem brand) obviously thinks this proposition is a sensible one. In fact, we're told, the decision to use a changer mechanism was taken on the basis that the particular item chosen (a Sony) gave the best sonic results, compared with other single-disc types. In other words, the CD1 is a normal high-end CD player, that just happens to offer the option of loading six discs. Fair enough!

It's not hard to spot the high-end background of this player, either, with its thick, solid-aluminium front panel. The other dead giveaway comes when you open the packing case and find a single valve (6922 twin triode) carefully stowed separately; before the unit can be used this must be installed by the user. So it's strictly a valve CD player, but only by the skin of its teeth since the rest of the circuitry is determinedly solid state.

In fact, it's a rather interesting design.

The mechanism is very obviously a bought-in assembly and the display driver looks pretty standard. The audio board, however, is in fact a stand-alone DAC in the same box, connected to the mechanism and display boards only by an internal S/PDIF link and the various power supply connections. Thus, providing a digital output (phono and XLR, but no Toslink) is merely a matter of buffering the signal as received on the audio board. The latter carries its own digital audio receiver chip, which feeds into a Pacific Microsonics filter and HDCD decoder chip (could this be the world's only HDCD CD changer?), connected in turn to Burr-Brown DAC chips. All quite a roll-call of high-end names, and that's a theme continued throughout the audio board, with high-quality resistors and capacitors all round.

Operation is pretty slick, although there's a rather annoying drawback with this mechanism, because it is not possible to load Disc Two, say, while playing Disc One. And because it's a stacker mechanism rather than a carousel, all the discs must be loaded sequentially. Still, once that's accomplished the discs are swapped around with no more whirring and clunking than in any other kind of changer. Anthem has gone for slightly recessed pushbuttons which are not the easiest in the world to operate, especially if you've got any fingernails at all. A standard remote control is provided, and there's a socket on the rear of the unit to allow connection of a 'remote remote receiver', so to speak, in case you want to operate the CD1 from another room, or some other such arrangement.

Sound quality

At nearly four times the price of the next most expensive machine in the group, this should be the best sounding. The good news is that it's well above the group average; the bad news, that it's not such a cut-and-dried victory. Still, that in itself does not mean that there is anything wrong with the CD1. In fact its performance is generally not out of order for the £1,000-£2,000 bracket, changer or no, with only one really annoying drawback: mechanical noise. Many CD players make a little whirr or buzz as they play, but this one must be among the noisiest ever, with a perpetual whistle clearly audible from a couple of yards away with quiet music, and even detectable in loud passages. Because it's quite a high frequency noise, it seems to be plonked right in the middle of the ear's most sensitive region and it really does detract from the performance.

That apart, the sound has considerable detail and polish throughout the frequency range, with particularly fine bass — extended yet controlled and clear. Imaging is good and the recorded acoustic is always well defined. Just occasionally, with orchestral violins and choral voices, a trace of roughness crept in but this was not a major problem. Otherwise performance is consistently on a high level with any material.

Conclusion

HDCD and high-end performance in a CD changer seems like a potent combination. If Anthem could wrap some acoustic wadding round the mechanism or otherwise quieten it, this could be a winner.

ANTHEM VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE ★★★★★

£1,595.00
(ONE YEAR GUARANTEE)

- ⊠ Unusual combination of high-end player, complete with HDCD and changer convenience. Good performance marred by serious mechanical noise.
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ARCAM ALPHA MCD

Despite being much cheaper than the Anthem CD1, the Arcam Alpha MCD exhibits some general similarities with its more expensive colleague. Both use the same six-disc stacker mechanism, encumbered with the need to load the discs one at a time, and only in Stop mode. Both Arcam and Anthem appear to be a separate transport and DAC in one box.

That's where the resemblances end. For a start, the Alpha has no valves in sight — come to that, the audio electronics are largely out of sight, being surface mounted underneath the main PCB. There's no HDCD decoding, but there are clear signs of care being taken in little details of sound quality, such as the rubber grommet on the main crystal oscillator to cut mechanical vibration, and ultra-fast rectifier diodes which generate less internal electromagnetic interference. Component quality is generally good and assembly is beyond reproach. As with many current machines, front panel push-buttons are rather small and all the same size and shape; just what is wrong, please, with big, easily distinguishable controls? It's just so frustrating to swap discs when you want to move on a track!

That apart, the Arcam's styling is cer-

tainly, well, stylish, with a few curves and non-parallel lines breaking up the appearance. And the one decided advantage of stacker mechanisms shows up in the relatively small dimensions of the unit, which is by a couple of inches the least deep of the seven reviewed here. Arcam has provided the MCD with two features not common in CD changers: a coaxial digital output (instead of Toslink) and two sets of analogue outputs. Apart from the usual infra-red remote control, there are sockets on the back for connection to multi-room remote control systems. Note that the audio output level is a little higher than average at about 2.5V — not a problem, but don't be fooled in comparative demonstrations!

Not, on the whole, that Arcam needs to resort to fooling anyone. In fact this is a good example of what a £450 CD changer should be: a good £400-odd CD player that also functions as a changer, with no special pleading. What does deserve criticism, sadly, is the mechanical noise. Not surprisingly (given that both units have the same mechanism) the Arcam's noise problem mirrors that of the Anthem. In fact the Anthem, which unlike the Arcam has a ventilated case, has slightly more noise; but the Arcam is still far from perfect.



always effortlessly extended and fully in control. This was clearly audible with orchestral cellos and double basses, and with well recorded rock drum kit.

At the other extreme, treble can be a little dry, and on the test of spoken voice the surrounding acoustic seemed at times cut short. Midband is tonally very natural and like the bass is detailed, but at times it feels as if there's more detail than integration. You can follow all the various musical threads but it's not so easy to hear how they relate to one another. This also tends to make dynamics seem a little compressed. How much this affects the overall result depends very much on the music: big romantic symphony orchestra or smoochy dinner jazz fares better than highly contrapuntal music or a busily multi-voiced jazz or rock group.

Conclusion

Overall, and in the context of the price, the Arcam's performance is good, going on very good indeed, and the MCD is — importantly — very listenable in the long term, with very little of the dreaded 'listener fatigue'. Only that mechanical noise really detracts; despite that, firmly Recommended. ➡

ARCAM VERDICT

- SOUND** ★★★★★
- VALUE** ★★★★★
- PRICE** £449.90

(TWO YEARS' GUARANTEE)

Excellent bass and natural midband, but just a touch of treble dryness, from this very listenable changer. Some mechanical noise.

Arcam, Pembroke Avenue, Denny Industrial Centre, Waterbeach, Cambs CB5 9PB
(01223) 203203

Sound quality

The Arcam's sound is not a million miles removed from that of the Anthem — not bad given the price difference. Looking at notes from the listening tests, similar comments on the bass apply to the two machines, and in fact bass is probably the Arcam's greatest strength. In the lower octaves it has a strong sound in the best possible sense of the term: not overpowering, not flabby, not showy but



HARMAN/KARDON FL8300

Like all carousel-type CD changers, this is a very deep machine, nearly as deep as it is wide. All of h/k's gear tends to be large in that direction anyway, so this unit will suit a complete one-make system. It's fairly typical of the genre, with a large tray accommodating five discs around a circle. You can load four of the five discs with no trouble, and the 'Disk Skip' button, which unfortunately is hidden (though still accessible) when the tray is out, allows you to move the carousel round to load or unload the fifth disc. As the tray retracts an optosensor checks to see which positions on the carousel are occupied and the display updates accordingly.

One useful consequence is the possibility opened up for the swapping of four discs while the fifth is playing. The potential disaster of inserting a second disc in the carousel position from which the playing disc was taken, is avoided by having that position inaccessible at the back of the tray. It is also possible to programme a track sequence across the discs in any order at all, and a useful little feature tallies total time in case you're assembling a compilation for a cassette. Of course, any programmed track sequence is lost once the tray is opened.

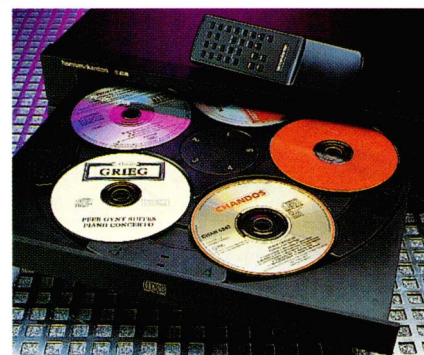
Although internal construction majors on plastic mouldings it all looks sound and robust. Operation is decent, though one might wish for more practical pushbuttons, especially to replace harman/kardon's neat but dysfunctional rockers. I hate to harp on about this, but among other things, CD is supposed to be a convenience format!

Connections are provided on the rear of the FL8300 for a system remote control, and there's a coaxial digital output. There's also a headphone output on the front, but without a volume control. This can make things rather ear-bending if you have high-efficiency headphones.

The insides of this player look pretty ordinary: the usual far-Eastern mass-market sort of thing. Just to prove that's no shame, though, it sounds really very respectable. OK, it's not devastating, and no one is likely to suspect that it costs thousands of pounds, but in the context of changers at this price (or single-play machines at, say, £200-£250), it gives a good account of itself.

Sound quality

Probably the best feature is the way the sound always holds together, whatever may be going on. All too many hi-fi components seem to separate what God and Beethoven deemed should be joined, so that you get apparently autonomous strings, woodwind and brass, or lead guitar, vocals and back-line, or whatever. At the other end of the scale, of course, you just get homogenised soup. This harman/kardon finds the middle way with a sure foot and allows the listener to enjoy the full interplay of different lines, even at full volume. Hence there is a pleasingly relaxed feel to the player which should



suit all but the most seat-of-the-pants listeners, and more than compensates for the few small weaknesses which the player exhibits.

Just sometimes, with high-frequency-rich sounds like trumpet or orchestral violins, there is a little too much brightness and a hint of strain and roughness. This can become tiring, though few recordings actually show it up enough to be really bothersome. And the bass, though generally firm, can at times lack definition, which reduces the impact of such sounds as a 'walking bass' line on a jazz double-bass. On the other hand, imaging and the sense of acoustic round a solo voice are generally good and believable, with just a little front-to-back flattening.

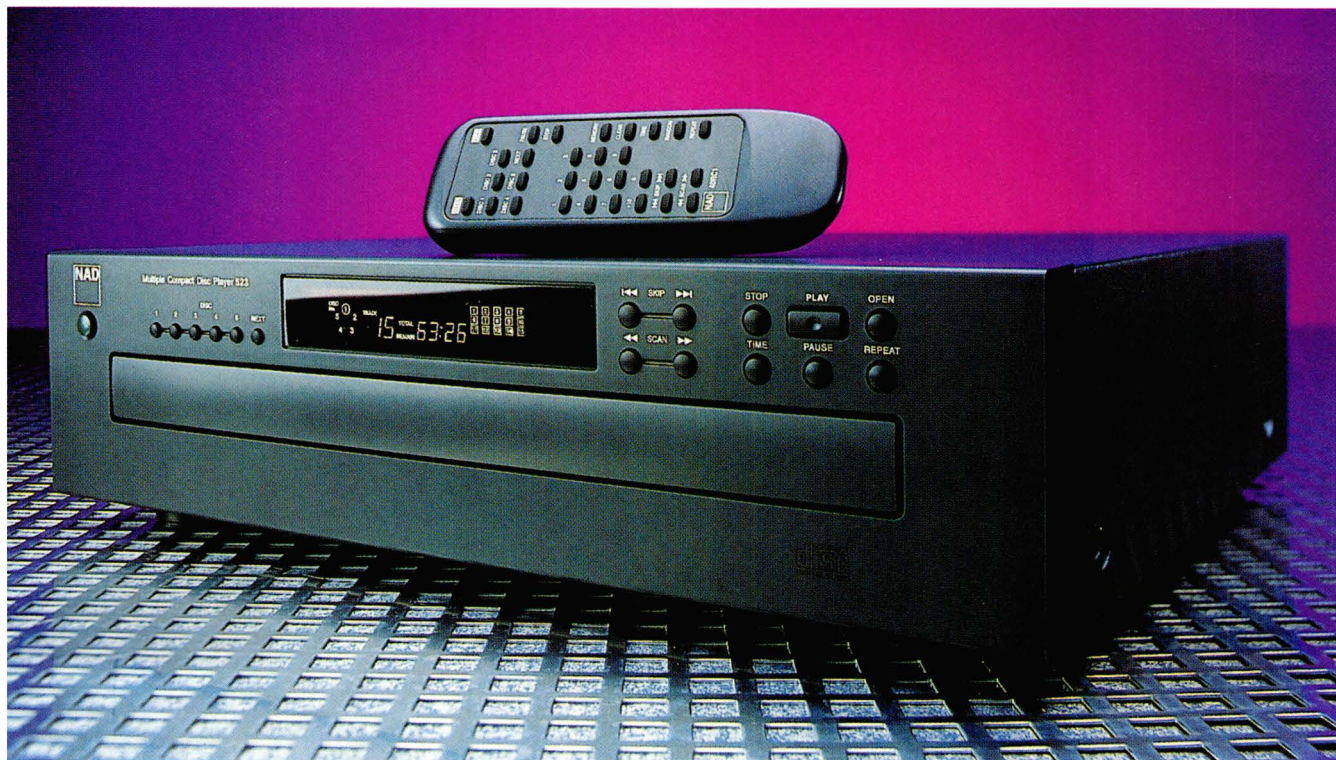
Conclusion

This seems to be a good all-rounder of a CD player; it doesn't excel or fail with any type of music but makes a good stab at all of them. It is not the most obvious choice if you like your music aggressive, but for all bar the most devoted Prodigy fans, it's likely to be an attractive proposition. Recommended.

HARMAN/KARDON VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £299.99
(ONE YEAR GUARANTEE)

☐ Generally capable player with relaxed sound and firm bass. Just a hint of roughness on occasion.
 ✉ harman/kardon, Gamepath, 25 Heathfields, Stacey Bushes, Milton Keynes, Bucks MK12 6HR
 ☎ (01908) 317707



NAD 523

Many have tried to imitate NAD's recipe of simple, no-nonsense equipment, designed in the UK and manufactured in the Far East. No pretender has pulled off the illusion with the same degree of success. NAD's products also have a distinctive 'house style' with a grey facia, simple layout and basic graphics — a theme the 523 continues. One might wish for slightly more space around the controls, but they are at least clearly labelled. NAD has also continued with the 'old-fashioned' tradition of having separate buttons for track skip and search, rather than doubling up these functions as most manufacturers do. This is immensely irritating to all those who have ever dabbed when they meant to hold down, and as a result lost their place in a long track.

The 523 uses a five-disc carousel. This is the same type as used in the harman/kardon and Yamaha players also reviewed within this group, and it behaves in pretty much the same way. It doesn't automatically check the carousel when the drawer is closed but it does immediately load the disc placed in the 'direct play' position on the carousel. Only later does it check to see if discs are present in the other positions, which makes for very convenient operation. There are the usual simple programming functions: repeat, random and memory. The last two are available

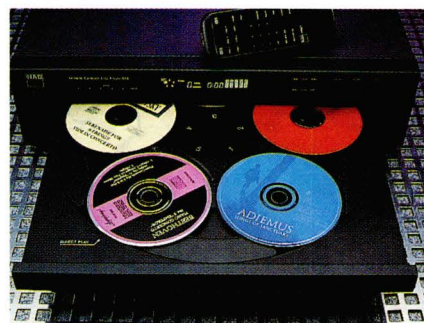
only from the remote control. Apart from the audio output, connections are limited to NAD-link system remote — there is no digital output or headphone jack. Operation is possibly slightly slower than that of the h/k or Yamaha, but adequate. It is possible to load extra discs while one is playing.

Internal construction is standard consumer grade, with a single, fairly compact board carrying all of the audio electronics. Despite appearances, the power switch operates on the low-voltage side of the mains transformer, but power consumption when switched off will be only a Watt or two and there's no implication for long-term reliability.

Sound quality

Like the construction, the sound of this player is nothing out of the ordinary, but nor is it any worse than many others. A first impression of it is likely to be coloured by the type and texture of music first heard, as its behaviour does vary quite noticeably depending on what it's being asked to do. Give it, for instance, something involving a lot of bass instruments — low orchestral strings or some rock with lots of drums and bass guitar — and it sounds positively plummy and bass-heavy, though still quite detailed and tight. On the other hand, music which features bass instruments simultaneously with higher sounds — full orchestra and so-on — is the opposite: rather bass-light. That may sound paradoxical but it's all down to how the ear interprets certain kinds of low-level distortion, and is found from time to time with all sorts of hi-fi products.

Accompanying the bass loss in loud complex music is a degree of harshness which can grate on the ear, but fortunately this lessens as the volume eases up, making for



reasonably relaxed long-term listening. In fact, with music which is not too heavily scored and tends to idle along at a moderate dynamic level the 523 is very good at portraying a sense of space and acoustic round the performers. Under these conditions, too, it does very credibly in the imaging department, giving one of the best results in the group with one difficult passage for female choir. When the dynamics become demanding, though, things are less assured and impact is some way short of 100 per cent.

Generally, detail is moderate, quite good at best but also sometimes a little fussy, with an instrument suddenly standing out to an excessive degree when it should gently make its presence felt. There is little obvious coloration and human voice sounds quite natural, singing or speaking. A little mechanical noise escapes, which can be irritating especially when levels are low.

Conclusion

Given the comments above it might seem that this player is best suited to 'background music' rather than high-octane excitement, and that's about right. Not inappropriate, come to that, for a changer. All the same, it seems just to lack that little spark that would gain it a Recommendation. ▶▶

NAD VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £249.95

(TWO YEARS GUARANTEE)

Nothing seriously amiss with this classic NAD 'no-frills' player, but it lacks that vital spark.
 NAD, Unit 15, Faraday Road, Aylesbury, Bucks HP19 3RY
 (01296) 482017



PIONEER PD-F906

Pioneer, if memory serves, was the first company to introduce a 100-disc player onto the consumer market. Others have followed, but this space-age-looking machine is instantly distinctive. Instead of the linear rack of discs used by Pioneer's earlier players (and the Technics machine also included in this review), the '906 has a carousel which stores discs upright, like photographic slides in a Kodak Carousel slide projector. It's a simple and elegant concept, making for straightforward player mechanicals.

In use, the 'bug-eye' hood opens to give access to about 20 slots at a time, the rest being reached by using the 'Disc Up/Down' buttons to rotate the carousel. Sounds simple enough: the only catch is that the machine is very stupid and doesn't know where discs are. Perhaps it would seem perverse to load just 20 discs in every fifth slot, but that's how they're easiest to unload, and of course one might fill the machine initially and partially empty it, at random, subsequently. At any rate, if you forget which slots have discs in, you'll spend an awful long time waiting while the player tries each slot sequentially to see which has a disc loaded. This plays complete havoc with random playback, too.

All of this rather dims the attractions of the other features on offer, including a 'Single Loader' slot (disc 101) for quick access to one disc, the ability to load and unload discs while one is playing (but only in the immediately accessible portion of the carousel), and the option of programming up to three custom groups of discs from among the 100. And it's a shame, because otherwise the player really is pretty neat.

A Toslink socket provides for optical digital output, while at the front there's a headphone socket with its own volume control. One function stores the numbers of the last 20 discs played, and like the programming functions this information is stored in memory even when the machine is turned off (the power switch is in fact a standby switch which leaves memory powered at all times). Internally, the carousel feeds a simple mechanism fitted into a corner, and all the circuitry is on a vertical circuit board running down one side of the case. Modest, but functional, and well thought out.

Sound quality

If this was a wonderful-sounding player, it would be easier to forgive the ergonomic oversights. Its finest moment came in the brief extract of spoken word, where it positively shone, scoring highly for intelligibility. It also performed credibly in fairly simple music at a modest dynamic level, which was generally natural and unforced.

On the other hand, when things start getting excited, this Pioneer just clams up and stops communicating. Take, for instance, Panufnik's *Sinfonia Sacra*, a piece which at various stages does just about everything to trip up recording and replay equipment.



There's a passage for low strings which generally moves quite fast, but also stops and starts a bit. The '906 reduced this by and large to a background grumble, and performed a similar trick with another section of the same work for the percussion department. When the whole orchestra gets going the effect is far more confused than exciting, and there's not even much in the way of basic animal impact to carry things along.

In any genre from rock to opera, male voice lacks body, although female vocal fares rather better and at least retains some character. Simple jazz percussion can sound quite natural but once again becomes muddled as the textures pile up. And finally, imaging is no better than moderate.

Conclusion

It's a pity to have to relate all this rigmarole, and Pioneer has demonstrated on many occasions that it can turn out some thoroughly righteous CD players. Here, though, the company seems to have taken a seriously wrong turn and the attractions sadly stop short at the attractive looks. The concept is good, let's just hope that something more solid can be made from it!

PIONEER VERDICT

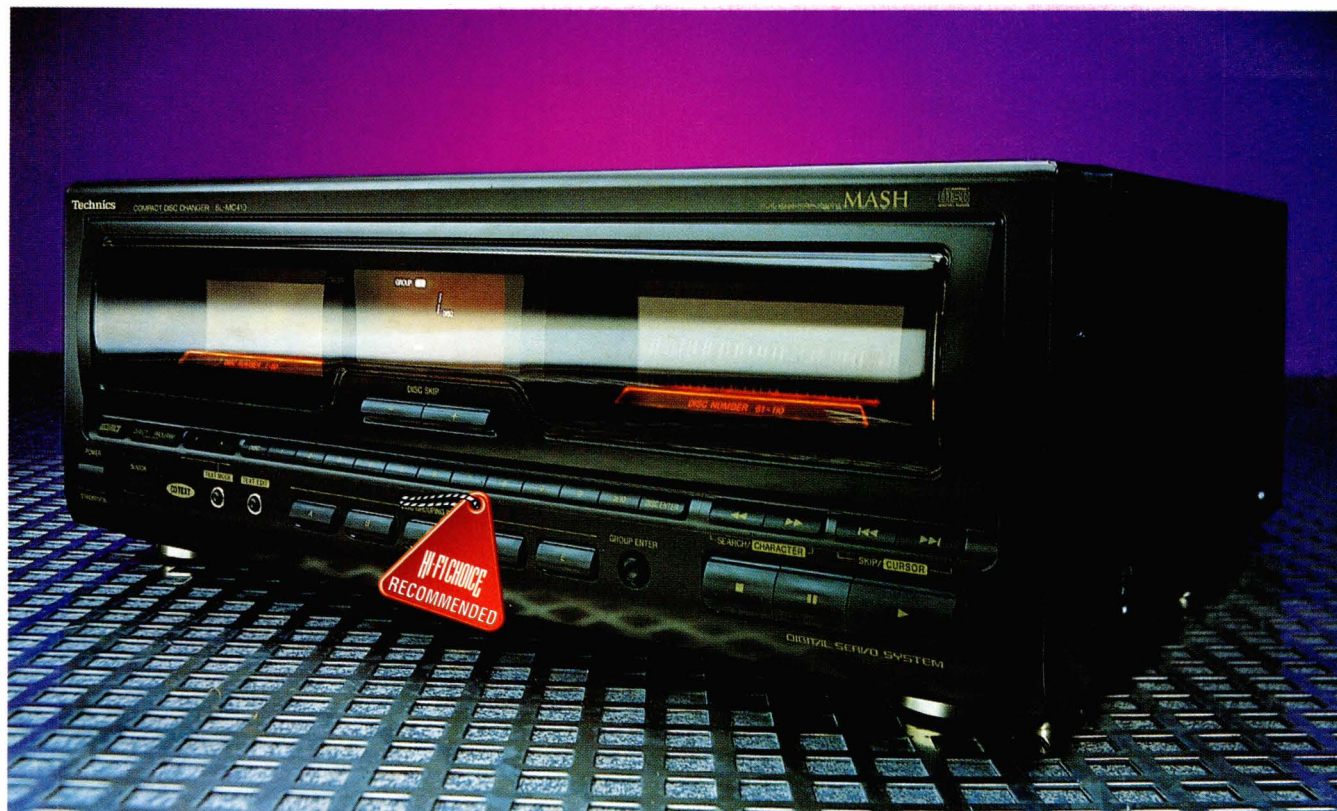
SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE ★★☆☆☆

£349.95

(ONE YEAR GUARANTEE)

Interesting appearance and concept, but sound is seriously lacklustre and ergonomics can be frustrating.

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



TECHNICS SL-MC410

Here's an impressive statistic: this player can store 111 CDs in only about 25 per cent more space than occupied by the same number of discs in standard jewel cases! It's actually pretty compact, and if anything, looks slightly smaller than its true size thanks to graceful layout.

The basic principle is simple. The entire front panel hinges down to give access to a rack of slots into which CDs can be slotted, 110 in 'regular' slots and one in a rapid access slot at the left-hand end. When the panel is hinged back up (or when power is applied) the mechanism makes a quick traverse of the rack and memorises the slots into which discs have been inserted. This lets random play and other functions work properly although for some reason the player will still attempt to play an empty slot if told directly to do so, even though it 'knows' that there's no disc there.

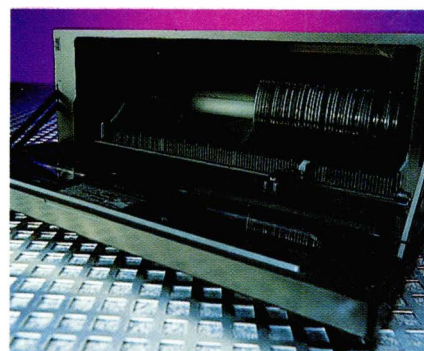
In fact Technics has given this machine (which is, after all, distinctly on the cheap side), a handy set of features all round. The front panel is admittedly pretty busy, and even then a few programming functions are only accessible from the remote control. Most important features are easily called up

with large friendly buttons, including direct disc and track access using numeric keys. Discs can be corralled in up to five separate groups, each of which can also be named. It is possible to change discs while playing one — a flashing LED indicates the slot which must be kept free for the currently playing disc. A simple mechanical disc ejector prevents you from smothering your discs with fingerprints while trying to extricate them from the rack, and the rack itself has been made of soft, smooth plastic to prevent it from scratching your CDs.

At this price, Technics has not managed to incorporate a digital output, system remote connection or headphone socket. Audio electronics are contained on a relatively small board mounted vertically at the rear of the unit, connected by a flat, flexible cable to the mechanism, which trundles up and down on a simple rack-and-pinion gear. Once or twice the player seemed to think that a vacant slot was in fact occupied, but generally it behaved well.

Sound quality

Cheap it certainly is, cheerful in some ways, but also listenable. An overall criticism could be made that it lacks subtlety, and exhibits a slight crudeness that casts a veil over fine detail, but fortunately does not affect the final result fatally. One jazz track resulted in the description 'tame' being applied, which is probably a good word for the mild lack of excitement which detracts from more involving musical numbers. For some listeners this might be the more serious flaw. Miles Davis, in one of his more frantic moods, sounded less dangerous than he can; some particularly excitable orchestral writing by Panufnik



seemed a bit understated.

Bass is well extended but not so well controlled, at times sounding floppy — but at least it's there. There's certainly some coloration present in the treble, which shows up obviously on instruments like violin or saxophone. Given the crudeness mentioned, detail is not too bad. Although in some ways the sound is perhaps muddier than that of the Pioneer, it's easier to listen 'through' to hear what's actually going on. It can be tiring making an effort to hear properly, but at least the Technics offers this option.

In loud passages the sound retains its basic character. Thankfully it loses no detail, it merely becomes a touch rough around the edges. A £249 CD changer is unlikely to be used with speakers that will show up this effect. And voices, male and female, are rather well served.

Conclusion

Altogether, then, a useful workhorse machine rather than a star. Recommended, just, for what it is. (Note: this model will be superseded by the SL-MC6 in August 1998.)

TECHNICS VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE ★★★★★

£249.00
(ONE YEAR GUARANTEE)

📄 If you fancy a CD player that holds 111 discs, this one's cheap, pretty capable, and easy to use.
 ✉ Technics, Panasonic (UK) Ltd, Panasonic House, Willoughby Road, Bracknell, Berks RG12 4PF
 ☎ (0990) 357357



YAMAHA CDC-665

Although it's the cheapest player in this group, the CDC-665 is by no means the shortest on features. On the contrary: essentially it's a basic five-disc carousel changer, and the only feature it lacks is a means of scanning the carousel to see which discs are loaded (like the harman/kardon). This said, it doesn't take long to work out where the discs are, and it does at least remember, having once found out.

Apart from that, it is really very well provided with convenience features. For a start, it has direct disc and track access via numeric buttons on the front panel. Also on the front panel is an output level control, itself quite unusual on a budget machine, and even more unusual for affecting the digital output (yes, one of those too — Toslink) as well. The only drawback is that since this is the only way of adjusting the headphone output level, you may wonder, after a headphone session, where the signal has gone when you revert to speaker listening. A small five-segment display reminds you where the level is set. Level setting, and also information on which carousel positions are loaded, are retained when the machine is switched off.

The level control can be used with another of the '665's facilities: peak search.

This scans one disc, all discs, or a programmed selection for the section with the highest signal level, and repeats that section over and over so that one can set the output level, or a tape deck's record level control to suit. If you're making a tape compilation you can tell the '665 the length of the cassette that you're using, and it will keep a tally of how long your chosen programme is, and whether it will fit on one side of the tape. It will even order a track sequence for you, to fit efficiently on a given tape. If you have a compatible Yamaha cassette deck, the remote control will synchronise the start of CD play and tape record.

Then there are the usual random, repeat and programme functions, plus a dimmable display and a 'PlayXchange' button which allows disc swapping while one is playing. All this comes courtesy of a typical set of CD player innards, of unremarkable construction but decent quality and assembly.

Sound quality

Given that Yamaha appears to have squeezed an awful lot of functionality out of the CDC-665's tight budget, has the expenditure on sound suffered accordingly? On the whole it seems not. In fact, more comments on its performance were positive than negative, pointing out such achievements as solid and tuneful double-bass pizzicato, good integration between a soloist and an accompanying choir, a good balance between bringing out detail and keeping it within the context of the whole, and a natural acoustic space around spoken voice.

Criticisms, on the other hand, were mostly minor: in various kinds of music the peak of a climax can become rather coarse and harsh, and in some circumstances bass



has an oddly hollow ring to it. This was most noticeable on low melody instruments, for instance solo cello or baritone sax, and on piano, which just occasionally developed a touch of the 'plasticky' sound so reminiscent of the dreaded electronic piano (as also made, to its shame, by Yamaha). Most of the time, however, the bass is tidy and believable, if not ultimately as extended as some. And as with many — most, even — budget CD players, instruments like trumpet, which have a spectrum rich in high frequencies, can end up sounding rather bright especially when played loud. Much the same applies to the higher-toned percussion instruments, such as triangle, snares and cymbals, which tend to be a little rough and lacking in detail. Still, the overall effect with drum kit is lively and energising.

Conclusions

Imaging is a particular forté of this Yamaha, with very good definition side-to-side and more than passable front-to-back — a tall order indeed for a budget player. All things considered, it is surprisingly capable for its price and has an impressive and useful set of features. It would be hard to award it anything less than a Best Buy.

YAMAHA VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £219.95

(TWO YEARS' GUARANTEE)

- ☑ Cheap it may be, but this player offers many useful features and a highly listenable sound, with tidy and tuneful bass, and good imaging.
- ✉ Yamaha Electronics (UK) Ltd, 200 Rickmansworth Road, Watford, Herts WD1 7JS
- ☎ (01923) 233166

Conclusions



In the introduction to this review, I mentioned that there is no reason why CD changers should necessarily be the poor relation to single-play machines. In the light of the players reviewed here, does this theory hold up?

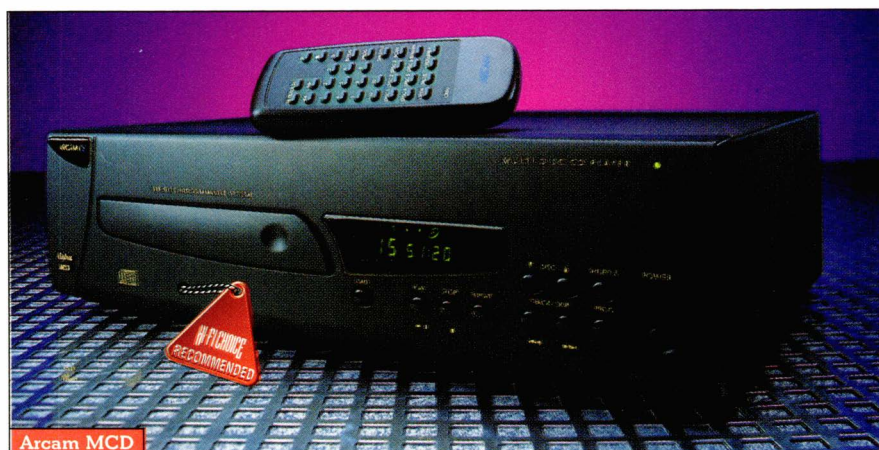
There is a slight frustration: the two most expensive — and admittedly best — machines shared a rather debilitating fault of mechanical noise. It may seem ungracious to whinge on about this, but few people have the luxury of a separate equipment room or enclosed cupboard, and a continuous whistle at a metre or two away from the listening position is both irritating and, even if you do manage to shut it out of your conscious mind, deleterious to your absorption of the music. If 90 per cent of the CD players out there can avoid this problem, why should we put up with it? Ironically, while that fault is a function of the mechanism, and the mechanism is of course a changer, the part that causes the noise is in the regular playing components, not the changer mechanism. So while this doesn't indict changers as such it doesn't let our two players off the hook.

At the other end of the scale, the cheapest player in the group could actually hold its



own, not only against cheaper single-play machines but against many at exactly the same price, and at least one of the intermediate machines made a good showing. But it would have been nice to have at least one machine here that could be recommended as a brilliant performer by any standards — and oh, by the way, it even functions as a changer. Marantz, do you feel like making a CD 63 II KI changer? I thought not....

Starting with the least successful, and working up: **Pioneer** has done pretty well with its single-play CD players, so it's not clear what went wrong with the 101-disc **PD-F906**. But whatever the cause, the attractions of this machine sadly stop short at the unusual and rather funky appearance. Sound and ergonomics are both lacking; let's just put it down to experience.



Next, however, a couple of altogether more pleasing propositions which both, for different reasons, only just failed to reach the 'Recommended' level. **NAD's 523** is basically an okay machine for a sensible sum of money, that does pretty much what it's paid to do. But if we're going to recommend a component it has to offer either something unique at its price, or at least some spark of performance that marks it out above competitive products. And unfortunately the 523 doesn't really do either. In fact, by direct comparison with the harman/kardon and Yamaha machines reviewed here (both quite similar five-disc players), it is fairly comprehensively outshone by the former for only £50 more, and somewhat embarrassed by the latter for £50 less.

The **Anthem CD1** is a thing apart from all the other machines here, of course, although if you still believe that 'a CD player is a CD player' you'll not be impressed by its £1,595 price-tag. It does offer a true taste of the high end and in most ways its performance is quite clearly a major advance on the others here. Were it not for its mechanical noise it would almost certainly be Recommended; as it is, it still warrants mention for its unusual combination of high-end sound (including HDCD decoding) and multi-disc convenience.

Technics' SL-MC410 has even more capacity than the Pioneer (111 discs) and better-sorted ergonomics. The sound isn't fabulous but it is honest and inoffensive, and for the really very modest price it does seem worthy of Recommendation. For the same price, **harman/kardon** offers a five-disc player — the **FL8300** — which, while still far from the high end, nevertheless does a good job with all kinds of music and spreads its (minor) shortcomings thin and wide. It sounds clear, detailed and relaxed and will suit most tastes. Again, Recommended.

Rather more expensive is **Arcam's MCD** at £450, which offers particularly fine bass and low fatigue for long-term listening — something which must surely be especially important for a changer! If there are some slight reservations about occasional treble dryness, and that old whinge about the mechanical noise, these are not enough to deny it Recommendation.

Finally, **Yamaha's CDC-665** belies its status as the cheapest machine here by holding its own, sonically, with all bar the Arcam and Anthem (two and eight times the price respectively). Well-featured and confident-sounding, it has all the hallmarks of a classic Best Buy. ▲

WE'VE GOT THE POWER!

Are you in the market for a mid-price amplifier? **Alvin Gold** (listening test) and **Paul Miller** (lab test) check out 13 of the latest offerings priced £120-£650.

THE CAST LIST

MODEL.....	PRICE	PAGE
Audiogram MB1	£493.00	p75
Cambridge Audio A1mk3SE	£119.95	p59
Cymbal CA1	£499.00	p77
Goodmans Delta 900A	£129.00	p61
JVC AX-A372	£199.99	p63
Monrio ASTY	£400.00	p79
Musical Fidelity Elektra E11	£299.99	p69
Orelle SA100RX	£649.00	p80
Pioneer A-405R	£249.95	p65
Rotel RC/RB971	£350.00	p71
Sony TA-FA3000ES	£499.99	p81
Technics SU-A800DmkII	£299.95	p73
Yamaha AX-492	£219.95	p67

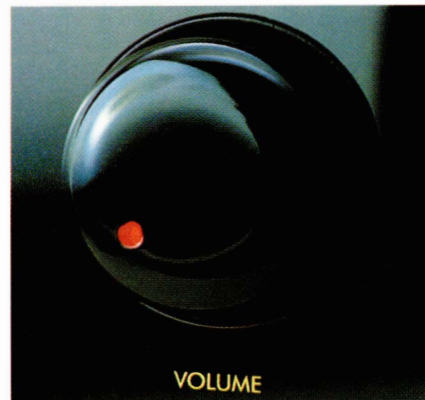
They don't come much more eclectic than this month's group, which has price-points stretching from £120 to £650, and includes both fully-featured models and purist designs from the four corners of the globe. Well, three corners actually: most of the models wave British, Italian or Japanese flags.

At the risk of giving the game away a little, we can now reveal that in our conclusions this month, we witness a broad correlation between cost and performance. Naturally that is a generalisation, not applicable to all of our test candidates, and in individual instances quality doesn't always track price. However, on the whole, the expensive amps sounded better than the cheaper ones, and the mid-price models huddled somewhere in between. *Plus ça change.*

This begs the question: do the differences really amount to much? "Will I hear the difference between a good £250 and a good £500 amplifier?" is a typical question asked by a would-be purchaser. As so often with this kind of almost rhetorical questioning, there is no simple, monosyllabic reply. On the whole, you may not always hear the benefits that a better amplifier can bring, especially if you listen mostly to horrible

compressed pop music on a low-grade CD player, and use grotty loudspeakers. Silk purses, sows ears and all that. However, if you have a good CD player and amp — needn't be expensive — and musical tastes which extend to more eclectic, uncompressed, hopefully well recorded material, differences between amplifiers become absolutely unmissable. And this is not just to the ears of paid audio hacks, but also to the least experienced listeners.

You've heard that expression: if it sounds right, it is right? Complete balderdash, promulgated by sad people who have never heard real music in their lives — but don't take our word for it. As we have said *ad nauseam* in the past, but can never stress too strongly, find a good specialist dealer



(*Dealer Directory*, p124) and listen for yourself. Be guided by our tests, the best in the business, and see how the choices stack up.

HOW THE TESTS WERE DONE

Our 13 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. Each amplifier was run in and warmed up prior to being auditioned. Once again, it is worth stressing that the *Hi-Fi Choice* test programme is by far the most searching complement 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 replay levels carefully equalised between test runs. The system used for these tests included a **Krell KAV-300cd** CD player, and **Definitive Technology BP6** floorstanding speakers. Cables included **Red Dawn** from **Nordost**. The hands-on listening was broadened to include a number of other loudspeakers, including the **TDL CF300 Cheviot**, **Tannoy Precision P30** and **Rogers LS5/9**. Other source components included **Meridian 508** and **Pioneer PD-S505 Precision** CD players, plus an **Electrocompaniet ECI-1** amplifier as a point of reference.

WHAT MUSIC DID WE USE?

Jennifer Warnes: *Song of Bernadette* from *Famous Blue Raincoat* — RCA PD90048
Mozart: *Clarinet Concerto, 3rd Mvt: rondo allegro*; Anthony Michaelson, clarinet, Michaelangelo Chamber Orchestra — Musical Fidelity MF018

Enrique Granados: *La maja dolorosa I*, Teresa Berganza (mezzosoprano), Juan Antonio-Parejo (piano) — Claves CD 50-8704

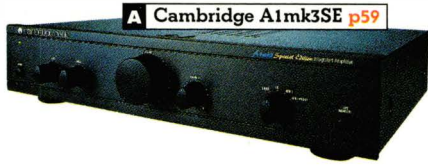
Michelle Shocked: *Quality of Mercy* from *Dead Man Walking* — Columbia 483534 2

This was the formal test sequence for the panel test only. Various other titles were used for hands-on testing.

THE LISTENING PANEL

Our usual sincere thanks go to those who contributed their listening skills and time for our unsighted panel tests. This month they were: **Abbas Hussein** (Orelle Hi-Fi), **Steve Cross** (Ruark Loudspeakers), **Keith Haddock** (Gamepath), **Robin Marshall** (Mission Electronics), **Roger Bachelor** (Hayden Laboratories), **Russell Kauffman** (Densen), **Jason Kennedy** (*Hi-Fi Choice*) and **Stan Vincent** (*Hi-Fi Choice*).

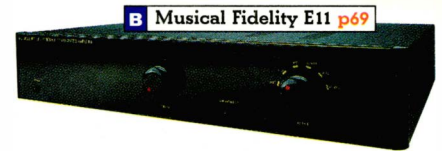
ON TEST: AMPLIFIERS



A Cambridge A1mk3SE p59



A Yamaha AX-492 p67



B Musical Fidelity E11 p69



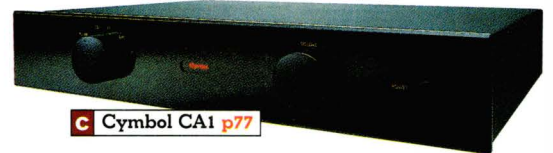
B Rotel RC/RB971 p71



B Technics SU-A80DmkII p73



C Audiogram MB1 p75



C Cymbol CA1 p77



A JVC AX-A372 p63



C Orelle SA100RX p80



A Goodmans Delta 900A p61



C Sony TA-F3000ES p81



A Pioneer A-405R p65

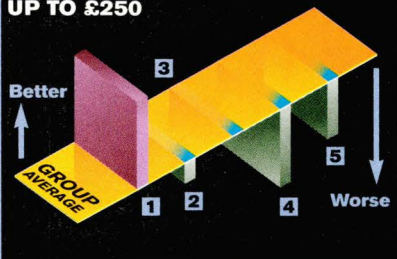


C Monrio ASTY p79

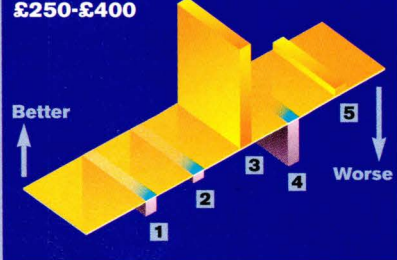
UNDERSTANDING OUR BAR-GRAPHS AND GROUP AVERAGES

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:

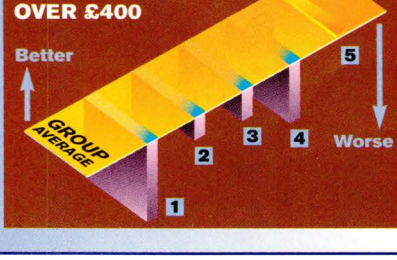
GROUP A EXAMPLE UP TO £250



GROUP B EXAMPLE £250-£400



GROUP C EXAMPLE OVER £400



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 high output today's CD players.

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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*On selected items only. Sale price not available with any other offers. ** Subject to availability of stock

Cambridge Audio A1mk3SE

This revised and improved version of the A1mk3 will be familiar to Richer Sounds fans as the house 'entry-level' integrated amp. Maker the Audio Partnership says the Special Edition version has been extensively enhanced. It claims the power supply's smoothing capacitors now have greater capacity and reduced impedance thanks to a paralleled configuration. The preamplifier, likewise, is now fully regulated and screened to reduce noise. The company claims further to have inserted higher-quality components at various points in the circuits, these including upgraded op-amps in the preamplifier. The main circuit board has been relaid, allegedly, particularly with the aim of reduced noise and distortion.

From the user's point of view this is a very simple product, with just five inputs (including a tape circuit with a monitoring facility), and one line input which, for £20 extra, will handle phono pickup signals. (This option was not fitted to the test amp.) It's neatly presented, in a slimline case, with a simple alloy front panel which has slightly rough edges. There's an outsize rotary vol-



ume control and other knobs for balance, bass and treble. Another rotary selector handles source selection in conjunction with a tape-monitor switch. The oval-shaped smaller controls are both attractive and practical, offering superior purchase for a twiddler's fingertips. The paintwork offers little resistance to marks or abrasions, however, and probably won't wear well.

Sound quality

Though test candidates in our unsighted listening panels are auditioned in comparably priced groups, the listeners themselves never know how much the tested products cost. In this context, the average overall scoring given to this second-cheapest amplifier was pretty impressive. The little A1mk3SE was generally felt to be credible, perhaps a little distant and even vague at times, but also airy, spacious and relaxed. In short, this amplifier made listening an enjoyable experience, though there were adverse comments about "slow" timing.

The character of the listening comments showed a broad consensus: this was a likeable amplifier which presented music comfortably rather than with a real sense of clarity and purpose. "This amplifier started off sounding natural and relaxed, with good vocals in the Jennifer Warnes track, but the

Mozart recording sounded defocused and vague," was a typical comment. Another pointed to the "believable tonality", and to the way that the amp reproduced a sense of space around the clarinet in the Mozart and the piano in the Granados, though he also felt stereo imagery was "vague". Loss of control over Teresa Berganza's crescendo in the same Granados song, however, was all too obvious to this listener, and others too described the same piece as "shouty" and "lacking refinement".

I enjoyed using this amplifier on the whole. It seemed well defined and believable, with quiet backgrounds between the notes helping acoustic material to stand out. The sound did become a bit congested at moderately high volume levels with some material, and the bass sometimes appeared weak and indeterminate.

Conclusion

Modestly specified it may be, but the A1mk3SE is even more modestly priced, and seems to me to mark more than a favourable compromise between clarity and euphony, given the unexact kind of system in which it is likely to be used. *AG*

VERDICT

SOUND ★★★★★☆
VALUE ★★★★★★
PRICE £119.95 (ONE YEAR GUARANTEE)

- ☑ Warm and open, but slightly lossy and unexciting sound will help make the best of low cost source components and loudspeakers without underlining their weaknesses. Offers superlative value.
- ✉ The Audio Partnership, Richer House, Hankey Place, London SE1 4BB
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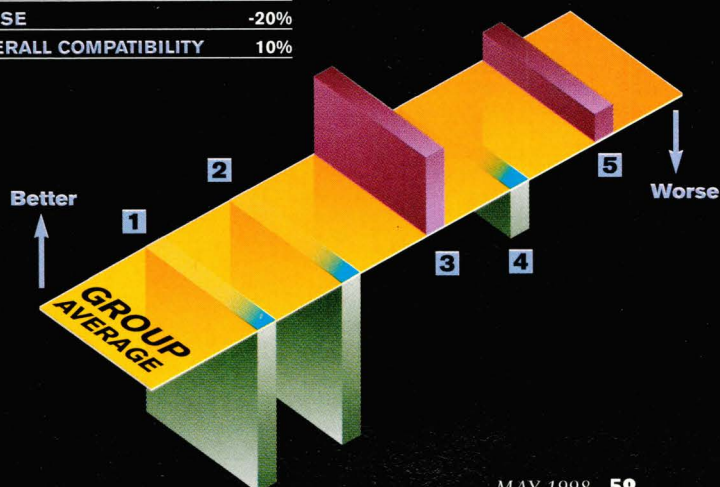
THE LAB REPORT

The performance offered by the A1mk3SE, considering its price, is remarkable in itself. The minimal 1.3dB error in channel balance at -60dB indicates the volume control is of good quality, while distortion remains below 0.1 per cent across the audioband and right over its 30W (into 8 Ohm) power output. And yet there's a very gentle bass shelf from 500Hz to 20Hz where the response falls by a uniform 0.4dB, while the noise spectrum shows an unusual emphasis towards the presence region, peaking at 3kHz.

More crucially, however, its use of an integrated (Philips-based) output stage exacts a price. Specifically, though the A1mk3SE behaves very stoically indeed into 8 and 4 Ohm loads, with a dynamic delivery of 38W and 66W, respectively, then it comes over all wobbly and collapses very abruptly with just 8W and 3W into 2 and 1 Ohm loads (to 1 per cent THD). The maximum 4.1A current delivery is optimised for 4 Ohm loads and above, restricting the A1mk3SE to sensitive speakers with an essentially non-reactive, 8 Ohm minimum impedance trend. If this amp is asked to drive a difficult speaker, you'll be acutely aware of its struggle! *PMI*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	-65%
2	SPEAKER LOAD TOLERANCE	-65%
3	AUDIBLE DISTORTION	30%
4	NOISE	-20%
5	OVERALL COMPATIBILITY	10%



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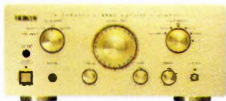
T-H500 TUNER



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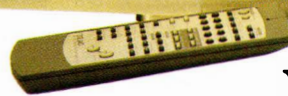
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Chief Musical Officers' Warning

TEAC

Goodmans Delta 900A

Since the sales figures for separates hi-fi equipment still describe a regrettable downwards trend, I was more than pleased to receive a press release trumpeting a new range of high fidelity separate components from Goodmans, once known for British-built speakers but now an offshoot of the electronics conglomerate Alba plc. Audiophiles may curl a lip at this marque's frankly non-aspirational market positioning, with the concomitant low selling price of this unit under our scrutiny.

However, the Delta 900A, when considered in conjunction with its partnering CD player, tape deck *et al*, should offer a mass-market alternative in the High Street multiples and out-of-town retail sheds, for those consumers who would otherwise walk out with a packaged audio system.

Initial impressions were favourable. The Delta 900A is heavy enough at 6.5kg, and the 100 Watts-per-channel power rating is impressive, even if it is referenced to an unrealistically high 10 per cent THD (one per cent or even 0.1 per cent is the norm). It looks the part, too, with the front panel combining brushed aluminium and blacked-out Perspex, with a neatly clustered control

scheme. Shoddy, small-gauge spring-terminal speaker connectors blot the copybook — they appear none too robust. Fire up the unit, and straightaway you'll discover how the maker has saved the cost of heatsinks with the required dissipation capability: a non-thermostatic cooling fan which cuts in at full speed even when the unit is cold. In a quiet listening room, the fan generated ambient noise levels of 57dBA at one metre — an intrusive amount of noise.

Features include tone controls, and rear-panel links for Goodmans-brand CD players, tuners, record decks and cassette decks. A full-system remote control is provided, and a discreet but uncalibrated switchable power display. Inputs accept m-m phono pickup and tape, but there's no tape-monitor loop.

Sound quality

The Delta 900A delivers a tremendous amount of raw (sometimes too raw) power for the price, or even twice the price, and sound quality is by and large maintained as the volume level is cranked up. However, this doesn't enable it to take command of every eventuality. The manufacturer specifically warns against use with sub-eight Ohm loudspeakers, ruling out a number of popular models. Also, for what it's worth, the Goodmans sounded uncomfortable with some of my test speakers, including the Rogers and TDL models. Hum harmonics

and noise are just noticeable under some conditions — not only with headphones, but also with speakers — though this was often drowned out by the fan's mechanical thrash.

The panel was unenthusiastic to a man, giving a remarkably consistent average score, describing the sound variously as "strident" "harsh", "coloured" and "muddy", though there was general recognition of the amp's good timing and enthusiastic power capabilities. This was despite the fact that volume levels were strictly maintained between test runs, which makes the latter comment one on the amp's unconstrained power delivery rather than absolute power yield. Several comments talked of an "artificial" edge, and of a "lack of sparkle". Amen.

Conclusion

Complete with remote control, powerful but rather raw, coloured and lacking in resolving power, the Delta 900A fails principally because of its intrusively noisy cooling system, which is reminiscent of that found in many PCs. In my view this amplifier would unacceptably noisy at any price. *AG*

VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £129.00 (ONE YEAR GUARANTEE, EXTENDABLE AT EXTRA COST)

Good looks, tons of power and a remote control at a previously unprecedented price, but quality is no match for quantity. The 900A sounds raw, coloured and lacks clarity, and the non-thermostatic fan cooling is intrusively noisy.

Goodmans Industries Ltd, Unit 2-3 Mitchell Way, Portsmouth, Hants PO3 5PR
 (01705) 391100

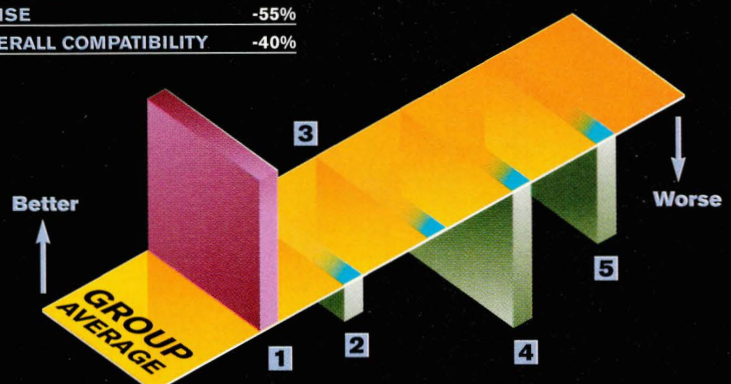
THE LAB REPORT

Rated at 100W into eight Ohms, the Goodmans Delta 900A actually achieves a full 120W into eight Ohms and even increases to a prodigious 157W/240W/202W/118W under dynamic conditions into 8/4/2/1 Ohm loads respectively. We can see from this trend that the 900A is optimised towards 8-4 Ohm loudspeakers with increasing distortion evidence of VI limiting into lower (tougher) loads. Nevertheless, have no doubt, this 900A has orders of magnitude more capability than the Goodmans amplifier of yesteryear, even if this power lacks a certain 'couth'.

For example, even with the tone controls at 'zero', there's a gentle but colourful bass boost of +0.5dB from 10-100Hz while distortion shifts from a low 0.005 per cent (midband, 1W per eight Ohms) to as much as 0.16 per cent at higher frequencies. Odd-order intermodulation distortion also creeps up to 0.1 per cent while, more importantly, the noise floor is at least 10dB higher than the pack at -73.9dB (re. 1W per 8 Ohms). This most certainly contributes to the 900A's poor showing in Alvin's tests, just as its very low input overload margin ensures the Delta 900A is clipped (regardless of power output) by line level inputs in excess of 2.6V. A higher figure than the Yamaha, certainly, but still sailing pretty close to the wind. *PM*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	60%
2	SPEAKER LOAD TOLERANCE	-15%
3	AUDIBLE DISTORTION	0%
4	NOISE	-55%
5	OVERALL COMPATIBILITY	-40%



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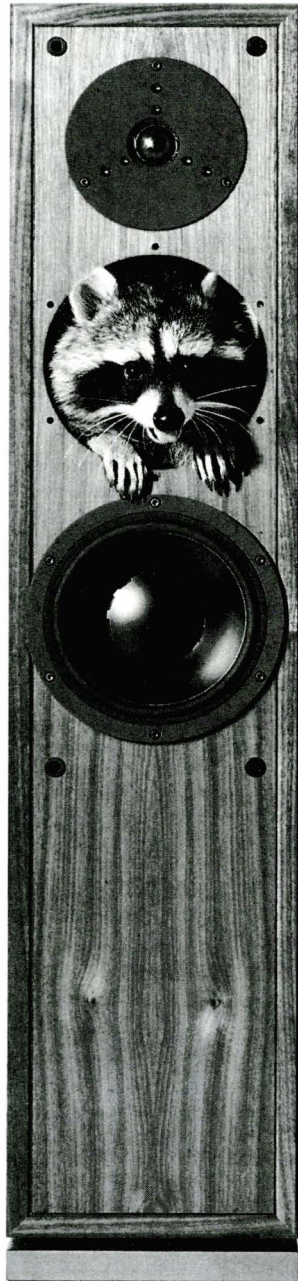
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JVC AX-A372BK

There are three models in this test from Japanese multinationals, priced at or below £250. Of this trio, the model from JVC is the least expensive at a penny short of £200. It is well equipped, too, but the design makes good use of the space available, and is clean, uncluttered and easy to comprehend. To my eyes, it is extremely attractive. Two sets of speakers can be connected independently via 4mm binding posts on the rear (prize out the plastic blocking plugs, but don't tell the EU I suggested it). Front panel furniture includes the usual: bass, treble, loudness and balance controls, plus a source-direct switch to bypass all of the above, whose use I strongly recommend. A phono (m-m) input is available, along with three line inputs and two tape circuits, one allowing tape monitoring. Power output is rated at 40 Watts per channel.

Technology highlights are said to include a solid, low-resonance structure, with mechanically-damped heatsinks and improved shielding ('Z Chassis Concept'). There's a new proprietary 'sliding bias' output configuration ('Advanced Super-A'), which claims to be based on the original Super-A circuit. The latter tackled switching



and crossover distortion, but introduced some other subtle distortions of its own, and reduced the ability of the amplifier to drive low impedance loads. A new pre-driver topology provides the means to resolve these ills — allegedly.

Sound quality

I found this a distinctive, even curious-sounding amplifier. It was not always easy on the ear, though it has some strong points which helped it to stand clear of the sub-£200 models in this month's group.

The AX-A372BK has a crisp, dry presentation that extracts a wealth of detail from suitably endowed recordings, and presents that detail in a forthright, almost clipped manner. It does nothing to conceal the complexities of densely-scored musical passages, but its dryness was somehow unreal, and tended to be tiring in the long term with orchestral and acoustic vocal material. Conversely, it did a lot to tame the excesses of some commercial rock recordings. This, however, was more a case of using two wrongs constructively, rather than demonstrating the JVC's excellence. Yet there was something compelling about the sheer resolving power of this deceptive amplifier.

Something of this duality was also apparent in the panel's responses: "it started off

nicely, sounding rather lush — too lush with the Mozart; the Jennifer Warnes recording sounded rather nasal, too, and I lost interest," said one. Others talked of a "hissy, wispy orchestral quality", and a "breathy edge" on vocals, though in a second presentation the vocals were more often characterised as "strong", and even, by one, as "sweet". The scoring was pushed up to a high average across both presentations. In *après listening* discussions, all agreed that there is something about this amplifier that engaged the senses yet which failed to engage the emotions.

Conclusion

It's the classic Curate's Egg of an amplifier, this JVC: its distinctive quality marries strong detail with a rather dry, mechanical sense, that wouldn't allow music to sing organically. It responded well to changes in partnering equipment, and exhibited particular synergy with detailed, high-sensitivity speakers like the Tannoy P30. (*Editor's Note: At the time of going to press, we learned that the AX-A372 is about to be discontinued, though retailers will hold limited stocks for a while longer.*) **AG**

VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £199.99 (ONE YEAR GUARANTEE)

Well-equipped, well-presented amplifier with modest power yield... clearly works best using the Source Direct option. Extremely detailed sound, can be smooth and sweet with some material. Overall impression of a rather literal, sometimes plain, fatiguing performer. About to be discontinued.

JVC UK Ltd, JVC Business Park, Priestley Way, London NW2 7BA
 (0181) 450 3282

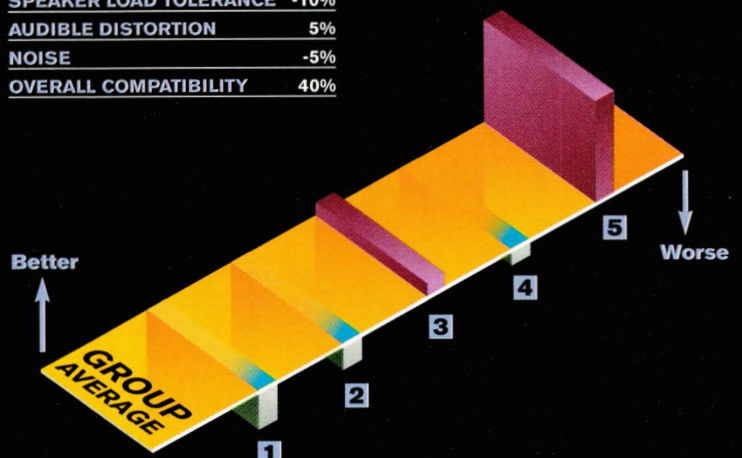
THE LAB REPORT

This looks to be a very proficient amplifier, designed as much for reliable operation (in most if not all circumstances), than for an attempt on the highest peaks of the hi-fi mountain. For example, the AX-A372 is current-limited to precisely 7.1A over 10msec regardless of speaker load, yielding 101W into 2 Ohms and 50W into 1 Ohm. By contrast, the dynamic output(s) of 63W and 111W into 8 and 4 Ohms, respectively, are restricted by voltage clipping ahead of it running out of current. Still, not bad for an amplifier conservatively rated at 45W into eight Ohms, but we can see that it's still best suited to moderately sensitive boxes in the 4-8 Ohm impedance range.

Otherwise all is well. The channel balance remains true to within 0.7dB over a full 60dB range, noise is low at -83.4dB (re. 1W/8 Ohms) and distortion exceptionally low at less than 0.001 per cent midband(!) even if it does increase to 0.006 per cent at HF. Nevertheless, this does suggest that there's plenty of compensation (feedback) at work in the AX-A372 and this, in turn, has been demonstrated not to always have an entirely positive impact on sound quality. The 'mechanical' delivery, mentioned by Alvin's panel, is evidence of this. *PMi*

HOW IT COMPARES

- 1 DYNAMIC POWER OUTPUT -15%
- 2 SPEAKER LOAD TOLERANCE -10%
- 3 AUDIBLE DISTORTION 5%
- 4 NOISE -5%
- 5 OVERALL COMPATIBILITY 40%



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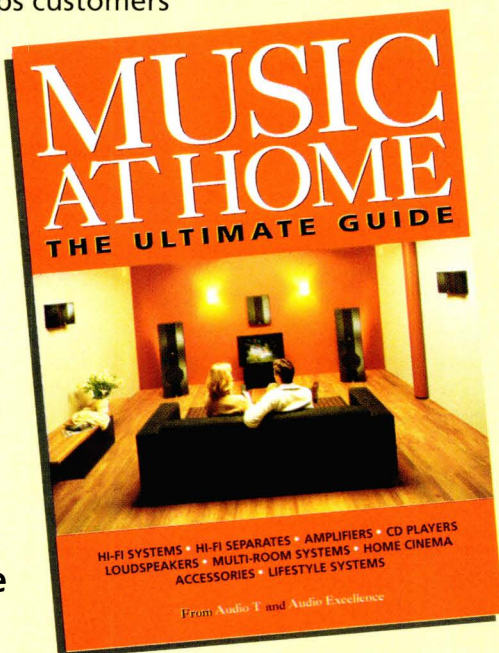
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Pioneer A-405R

This model is one of a pair from Pioneer which has been launched quite recently, and which sports novel technology. The other is the A-605R, which we tested in *HFC* 168.

This lower-power version is rated at 45 Watts per channel into eight Ohms, though our measurements indicated greater capability. Like most commercial Japanese amplifiers in this price area, it is fully equipped. The features include plumbing for two pairs of speakers (using non-4mm-compatible bare-wire clamps); tone and loudness controls; a 'direct' switch to give the option of circumventing them; and the usual phono, three line and two tape inputs, with monitoring possible on one tape circuit. The source selector takes the form of a continuous indented rotary control, while a second mechanical control provides independent record-source selection (the options being to follow the input selection, or select CD, Tuner and off, which offers a subtle sonic advantage). The Pioneer's spec also includes a simple, system type remote control.

Power efficiency seems to be the name of the game here, thanks to the inclusion of such measures as non-scanning microprocessors, which are normally promoted on the basis of their reduced RF noise when not actually



scanning. (This benefit appears to have been overlooked by Pioneer.) Also there are S-MOS silicon devices, which are claimed not to need a base current, and local 'power off' circuits (tone, phono etc are switched off when not used, rather than being merely bypassed). Multiple smaller heatsinks are claimed to avoid high-frequency interference in the output stages. Finally, the A-405R uses Pioneer's new proprietary HEX power MOSFETs and 'Wide Range Linear Circuit', said to reduce power consumption, enhance damping and improve linearity. Apart from the obvious benefits of reduced power consumption, any such reduction means a simpler power supply.

Sound quality

Despite — or perhaps because of — its lower price, the A-405R turned out a rather better set of test results than the A-605R reviewed previously. This was certainly the view of our hyper-critical panel, which gave this amplifier a strong score. The scoring was consistent, too, as were most comments on sound quality. The following quotes are representative: "Strong vocal intonation" (Teresa Berganza), "good timing and integration of instruments" (Mozart) and "sweet strong sound — a little dry perhaps?" (Warnes).

Good timing was a consistent thread in the comments, which also made much of the Pioneer's "natural timbre", shown on piano music, for example. One chap declared this amp his favourite of that day's listening, while the most negative comment was that the Pioneer "did not tell me much about the performance".

I also found this to be a satisfying amplifier, a little ragged *in extremis* perhaps, but also bold, outgoing and colourful, with an adequately taut and tuneful bass which only occasionally fell into the trap of sounding shallow or lightweight. Dynamics and stereo imagery were notably good, with clear separation of individual instruments.

Conclusion

I am confident that this likeable design is the kind of amp one can Recommend almost unreservedly. The only surprise was that such a straightforward amplifier manages to hold its own among some of the 'tweaked' amplifiers supplied by other manufacturers. An embarrassing number of the latter cost rather more than this one... AG

VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £249.95 (ONE YEAR GUARANTEE)

- ☑ Fine, middle-of-the-road performance which seems decently disciplined and oblivious of loudspeaker loading within its adequate volume limits. We like!
- ✉ Pioneer High Fidelity (GB) Ltd, Pioneer House, Hollybush Hill, Stoke Poges, Slough, Bucks SL2 4QP (01753) 789500

THE LAB REPORT

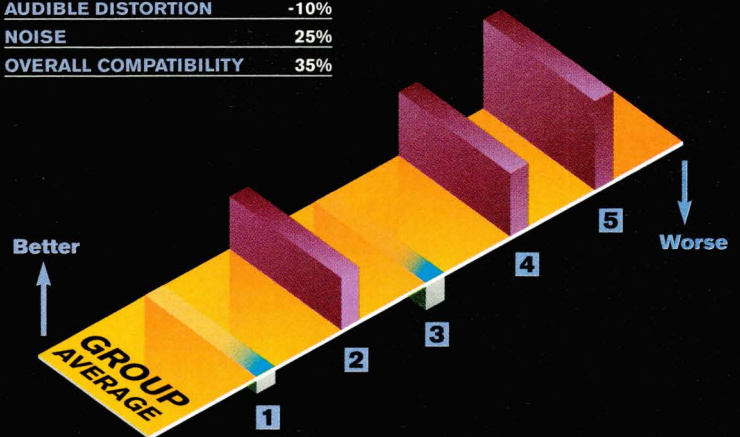
To all intents and purposes, you might as well ignore the 90W+90W badge adorning the A-405's fascia. Even Pioneer's own literature refers to a more realistic 45W into eight Ohm specification! In practice, a 65W/8 Ohm capability is nearer the mark, with a momentary increase to 73W/134W under dynamic, music-like conditions into 8 and 4 Ohms, respectively.

Nevertheless, the A-405R's output is severely restricted into low one Ohm loads where, even momentarily, it will not exceed 55W (or 7.4A). The maximum current delivery actually occurs into two Ohm loads where its 10.5A reservoir is sufficient to maintain some 220W! This is a sensible compromise for such a modestly-priced amplifier.

In other respects, the A-405R looks to be a very compatible design. The 44 kOhm input loading will not stress any CD players, for example, while the 11.4V headroom will prevent premature input overload. The low 0.068 Ohm output impedance also guards against variations in response with different loudspeakers, provided a low-loss cable is employed, and the excellent rejection of RFI helps encourage a smoother overall sound. Distortion still varies quite a bit, however, from 0.003 per cent through the midband to 0.04 per cent at HF, as the amplifier's compensation starts trailing off. Otherwise, the A-405R looks to be a good all-rounder. *PM*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	-5%
2	SPEAKER LOAD TOLERANCE	20%
3	AUDIBLE DISTORTION	-10%
4	NOISE	25%
5	OVERALL COMPATIBILITY	35%



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Yamaha AX-492

Halfway between the price of the JVC AX-A372 and the Pioneer A-405R, you'll find this Yamaha amp offering a roughly similar package of goodies, except that it boasts roughly twice the power output (85 Watts per channel). There are also further, unqualified claims for high dynamic power, and for this amp's ability to drive low-impedance loads, though this is achieved in part by the artifice of an impedance selector switch which optimises the output for current (or voltage) appropriate to four-Ohm or eight-Ohm loads respectively. Even so, this makes the AX-492 an obvious front-runner in larger rooms, where high volume levels and/or insensitive loudspeakers are involved, and where the budget won't stretch further.

The Yamaha is also unusually well equipped, with bass, treble and variable loudness controls, the usual range of inputs, but independent record-source selectors. These allow either of two tape inputs to be monitored. There are two independent loudspeaker circuits, using bare-wire clamps rather than 4mm sockets. Yamaha also takes greater care than usual to make this amplifier user-friendly, by fitting a swing-down cover to conceal all but the most basic controls. The icing on the cake is not one,

but two bypass facilities. One, ('Pure Direct') is designed to bypass the bass, treble, loudness and balance controls; the other ('CD Direct Amp') additionally bypasses the input selector, and can be used with any line-level source connected to the CD input. (See *the Lab Test for further comment on the latter - Ed.*) A system remote control is supplied.

Sound quality

"I like this one — everything sounds 'right'," said one listener. "What more is there to say?" Actually, there is quite a bit more to say, but our panellists returned a positive consensus view of this amp. And its above-average scoring was all the more impressive for resulting from comparisons with a £2,000+ amplifier used as a yardstick.

The word "competent" raised its head several times, but more positive virtues were also identified, including "clean and relaxed" in relation to the Jennifer Warnes track, and "big, bold and plenty of scale" (Mozart). Another described the Yamaha as "transparent" and as having "plenty of subtlety", while a different listener identified "dynamics and timing" as the principal virtues. A loss of attack and weight was noted by one

'golden ear', however, with the piano accompaniment to the Granados song, and a "screechy, scratchy" quality also came in for some criticism in the same track.

I felt this amplifier had quite a lot in common with the Pioneer A-405R, which has much the same bold, outgoing quality, but with a rather more upfront feel, and superior high-volume dynamics. Indeed, it has an easier, more relaxed and therefore more telling character when called upon to deliver at high volumes. The bass sometimes sounded a bit insubstantial (not uncommon with mainstream amplifiers of the type), but its tunefulness, depth and propulsive timing more than compensated.

Conclusion

Lab testing revealed a potential overload problem with the CD Direct circuit, which will pose a problem for CD players with boisterous peak outputs. In all other respects this amp is Best Buy material; for now, though, Recommended will have to suffice. *AG*



VERDICT

SOUND ★★★★★☆
VALUE ★★★★★★
PRICE £219.95 (TWO YEAR GUARANTEE)

☐ This amplifier is probably as well equipped as any at the price, and also offers an unusually powerful output stage, without sacrificing sound quality. Problem with 'CD Direct', but otherwise great value.

✉ Yamaha Electronics UK Ltd, 200 Rickmansworth Rd, Watford, Herts WD1 7JS
 ☎ (01923) 233166

THE LAB REPORT

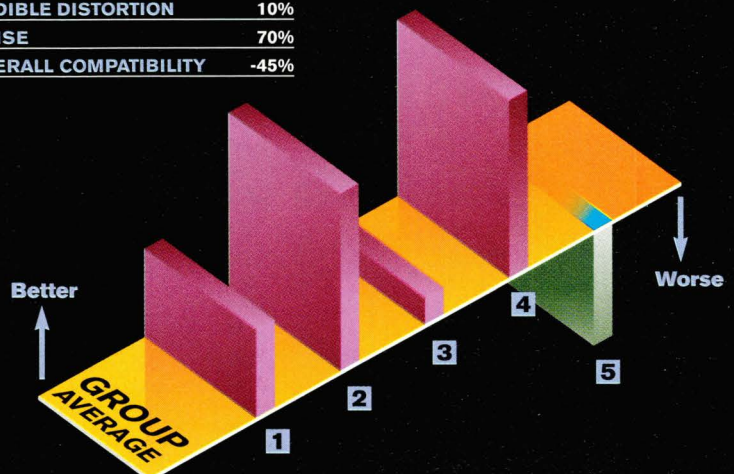
Sadly, this is an example of a very fine amplifier that has been somewhat hamstrung by its designers' lack of 'real-world' foresight. For example, the low 0.02 Ohm output impedance is a real boon, just as the 117W/203W/275W/237W dynamic power output, into 8/4/2/1 Ohm loads respectively, show the AX-492 is no under-fed weakling.

Without CD Direct there's a mild 0.3dB loss in overall gain and no appreciable effect on distortion levels, but the amplifier's S/N ratio (a measure of background noise) deteriorates from 94.8dB to 84.6dB re. 1W per eight Ohms. This 10dB difference in noise will undoubtedly impact on the sound of the AX-492 as you toggle the 'CD Direct/Pure Direct' bypass facility.

There's a downside too. With CD Direct engaged, the AX-492's input overload margin falls from >15V to just 2.4V, which is the kind of peak output voltage generated by many a CD player. If present at the input it will cause instant clipping and gross distortion when any recorded music comes close to the OdBFs limit of CD. This will effectively preclude the use of 'CD Direct' with many CD players or DACs. As we cannot anticipate individual choices of CD player, I have to qualify any recommendation of the AX-492 on technical grounds. *PMI*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	35%
2	SPEAKER LOAD TOLERANCE	70%
3	AUDIBLE DISTORTION	10%
4	NOISE	70%
5	OVERALL COMPATIBILITY	-45%



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Musical Fidelity E11

The Elektra E11 is probably the most 'middle-ground' amplifier that Musical Fidelity produces. Its clean lines and ultra-simple control system — a volume control, input selector and tape-monitor switch — give it an unusually purposeful air, and of course simplicity usually contributes to sound quality in its own right.

The thick, high-gloss fascia, familiar from other MF E-series components, looks good, and the amplifier as a whole has a touch of class. This extends around the back, which features proper 4mm binding posts, unlike most of the sub-£300 crowd.

Honed down to its essentials it may be, but the Elektra E11 is not without the odd surprise. Although there is no phono input, the complement of six line inputs (including tape) is generous. There is also a preamplifier output, which facilitates bi-amplification with any Musical Fidelity power amp, all of which have appropriate input sensitivity. Finally, the E11 is covered by a two-year parts and labour warranty (non-transferable).

The power amplifier output stage (quasi-complementary, they say), indeed the whole power amp circuit, is alleged to be a



close relative of the X-A50 monoblok power amp (HFC 169). Only minor differences are said to have resulted from the need to house two power-amp circuits within one case. That said, rated power output is slightly greater than the X-A50 at 60 Watts per channel, and the pre-amp is quite different to its X-PRE counterpart, which is a valve design.

Sound quality

On the whole, the panel didn't go for this model — on either of two presentations. For my own tests, a second E11 sample was available and checked side-by-side to ensure there were no sample-related problems, but both sounded similar. The comments made by the panel were also similar in nature, focusing on what was perceived to be blandness and some coloration, and a lack of scale caused, it seems, by a loss of low frequency presence. The mid bass was fuller, even slightly blurred. A "slightly below average performance — vocals sound nasal and sibilant, with marginal stereo depth; and the bass is soft and lacks impact," wrote one listener in his general sum-up comments, while another identified upper mid-band colorations which had a particular effect on the portrayal of female voice.

There was one dissenter, who felt that

the E11 offered "good instrumental and vocal timbre, and a convincing performance overall, even through the quieter passages" (Granados), and a "strong rhythmic quality" (Michelle Shocked), but he too complained of a diminished image scale and some hardening through the peaks.

I also noticed both of these latter effects in hands-on listening, especially with less sensitive speakers. In general, the E11 is not an ideal match for such speakers when used at high volume levels, but I was happier than the panel with its handling of varied classical and acoustic material at everyday volume settings. There its neutral tonality and good midband resolution helped provide a clear picture of the recording. Still, somehow the music lacked the electricity that transforms the mundane into the essential.

Conclusion

The E11 is a promising, stripped-down mainstream design, that is well built and uncomplicated in use. But despite a clean, accurate midband, this amp sounds oddly constrained, with a congested quality when pushed towards its limits, and some loss of definition through the bottom octave. AG

VERDICT

SOUND ★★☆☆☆

VALUE ★★☆☆☆

PRICE £299.99 (TWO YEAR GUARANTEE)

Both the lack of superfluous gimmickry and good build quality are plus-points, but somehow the E11 fails to clear the way for the music, has some dynamic and low-frequency limitations, and occasionally noticeable coloration artefacts.

Musical Fidelity Ltd, 15/16 Olympic Trading Estate, Fulton Rd, Wembley HA9 0TF
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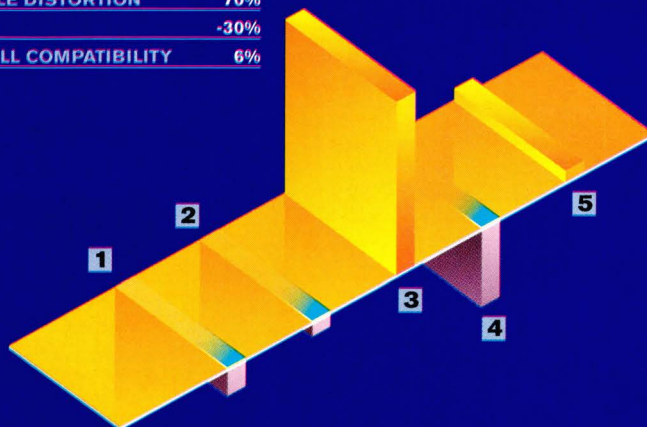
THE LAB REPORT

Compared with recent and similar-looking E-series amplifiers from the MF stable, this E11 model appears free of any anticipated 'quirkiness'. The response is completely flat, for example, input loading has been raised to 47 kOhms, while the low 0.057 Ohm output impedance and maximum 16.8A reservoir of current augur well for the handling of insensitive or difficult loudspeakers. Ironically, MF itself manufactures one of the world's most sensitive loudspeakers (Kelly Transducers KT-3), with which the E11's 118W/203W/326W/252W dynamic output (into 8, 4, 2 and 1 Ohm loads, respectively) would be way over the top!

Distortion is very well controlled, settling at a low 0.0022 per cent through the midband from 1W to two-thirds output, and only increasing marginally to 0.008 at HF (1W/8 Ohms) and then to 0.03 per cent as the power output is increased. Nevertheless, I doubt whether this is the root cause of the hardness identified by Alvin's panel during loud musical passages. The mild susceptibility to RFI, on the other hand, could be a contributory factor if there was a case of 'unfortuitous coincidence' at Alvin's premises. Otherwise, the relatively poor 80.7dB S/N ratio (re. 1W per 8 Ohm) might mask such indiscretions, if not limiting the degree of musical 'silence' achievable in practice. Otherwise, the E11 looks good. *PM*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	-10%
2	SPEAKER LOAD TOLERANCE	-5%
3	AUDIBLE DISTORTION	70%
4	NOISE	-30%
5	OVERALL COMPATIBILITY	6%



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Rotel RC-971/RB-971

To the external observer, Rotel amplifiers barely seem to change from one year to the next. The four-square look should sit well with a wide range of room furnishings, and if it doesn't look like a fashion accessory right now, it probably won't look dated in five years' time either. Build quality is good, and the controls are well shaped and easy to use. Through they are distributed rather unevenly across the fascia, as though mirroring some unseen internal plan.

The RC-971 is equipped with a bass and treble tone-control network and 'tone off' switch, but instead of a balance control, the volume control is split and friction coupled. To adjust balance, one part of the volume knob is held still while the other is rotated. The gain circuit should be more benign thanks to the lack of a separate balance control 'pot'. However, it makes channel imbalances vary with volume setting, so this type of control only suits temporary adjustments.

There is a headphone socket, and the amp has individual record and listen selectors, with tape monitoring available for one of two decks that can be connected. Three line-level inputs are also available, and two sets of preamplifier outputs add to the Rotel's flexibility, allowing speakers to be bi-



amplified if an extra power amp is added. The RB-971 power amp has single pairs of in- and out-puts (4mm binding posts), but there are no controls or displays other than a mains indicator. A true black box. However, it can be used in bridged mode, simply by repositioning a jumper on the circuit board. This boosts power from a claimed 70 Watts stereo to 180 Watts mono (eight Ohms).

Sound quality

The Rotel combination has an even, natural tonality and strong dynamics, but also suffers from a grubby, congested overlay that worsens as volume increases and the music becomes more complex. This was particularly apparent with complex orchestral and other material (I used a Mozart symphony recording, No. 38/Orchestra di Padova e del Veneto/Peter Maag on Arts LC2513, among others); but it was less of a problem with mainstream pop and rock (for example my son's Spice Girls album), where the bold and capable power amp really came into its own and the preamp wasn't under too much pressure to parse complexity.

Sure enough, the preamp turned out to be the culprit, and the power amp on its

own (driven by other pre-amplifiers) turns out to be very capable. If you look at the price split between the two units, it's £150 for the preamplifier and £200 for the power amp, which tends to support my suspicions.

The panel gave this amplifier a low average score, but there were diverse views. "Unexceptional... sounds bland at low levels," was one sum-up comment, although another listener concluded that it was "quite pleasant at low levels" in the Mozart, and credited "good bass/dynamics and a tight sound" in the Michelle Shocked track.

Conclusion

I believe the somewhat schizophrenic character of this beast was reflected in the erratic auditioning observations it inspired. In any case, the hands-on listening was unequivocal in pointing to a loss of resolving power and transparency in the preamplifier. A pity, this, as the power amplifier is more than routinely competent, and deserves a more accomplished partner. *AG*

VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE RC-971-£150.00, RB-971-£200
(TWO YEARS' GUARANTEE)

- ❑ Solid-looking two-boxer packs a clean, mean (bridgeable) power amplifier, but the preamp often sounds coarse and congested, at least with more complex types of music.
- ✉ Gamepath Ltd, 25 Heathfields, Stacey Bushes, Milton Keynes, Bucks MK12 6HR
- ☎ (01908) 317707

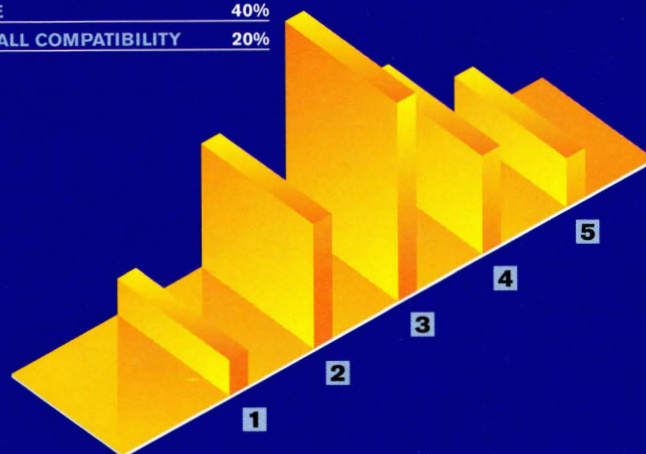
THE LAB REPORT

With a current reserve of 24.1A and an incredibly low 0.0075 Ohm output impedance, Rotel's power amp amounts to the most powerful and speaker-tolerant model in this entire test, regardless of group. It is rated at a conservative 70W/8 Ohms but will actually deliver some 95W into 8 Ohms and 158W into 4 Ohms with a *dynamic* capacity that extends to 120W/214W/353W/445W into 8, 4, 2 and 1 Ohm loads, respectively. Nevertheless, though the amplifier is exceedingly powerful, there are hints of momentary instability under dynamic conditions before it reaches its true clip point into 4 Ohms and lower impedances. I must stress that the amplifier will not go 'pop' but it may start to sound strained at the top of its range.

The pair's response is utterly flat through the audioband, combined noise is very low at -86.3dB (re. 1W/8 Ohms) and distortion is very tightly maintained at 0.0035-0.01 per cent through midband and higher frequencies. Laudable stuff, no doubt, but there's more than a suggestion of compensation at work here — judicious use of feedback that's also reflected in the low output impedance mentioned earlier. It's a case of swings and roundabouts, but what is gained in terms of speaker tolerance may have been dashed in the subjective impression of 'loss of life and vitality'. *PMI*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	15%
2	SPEAKER LOAD TOLERANCE	50%
3	AUDIBLE DISTORTION	80%
4	NOISE	40%
5	OVERALL COMPATIBILITY	20%



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Technics SU-A800Dmk2

In our last amplifier test (*HFC 175*), we included another model from Technics, the SU-A900Dmk2, which costs £400 — over 30 per cent more than the SU-A800Dmk2 tested here. The two amplifiers are close relatives and share the same pre-amplifier, but the 800's power amplifier has a lower power rating — 55 Watts per channel — and lacks the outsize moving-coil power meters of the senior model. The pairing still looks good enough to eat, with a typically high-class front-panel moulding complete with what appear to be heatsinks. Though in reality, most of the heat is transported away from the back panel by a quietly unobtrusive cooling fan. Relay switching controls two pairs of speakers, independently connected through bare-wire terminals, and a headphone output is derived from the main output stage.

We described the preamp in the aforementioned review, but in short, I'll reiterate that it is not a true preamplifier, as it is pow-

ered from the power amp through an umbilical lead. All switching is logic controlled, and there is a good range of inputs, including m-m phono and two tape circuits



selected with a large 'continuous' rotary control.

Completing the package are tone controls and a bypass switch. A system remote control is included in the package.

Inexpensive it may be, but the SU-A800DmkII boasts several proprietary Technics technologies, including 'Master Series Také' capacitors and an output stage in which, it is claimed, a Technics MOSFET voltage drive circuit is linked to a bipolar current drive stage with what is described as a 'Special Class AA Bridge Connection'. The aim is to mimic the benefits of Class A operation, apparently.

Sound quality

The Technics received a higher and more consistent score on the second presentation, the first took place near the start of day one's

listening, which from experience can turn up anomalous results (the reason for having repeat presentations, of course). Plus points included a "dynamic, even exuberant" quality with female vocals, and an "expansive and expressive" midband. Against this, the Technics was marked down for "loose" imaging, and for "losing it" at frequency extremes. Although power output seemed pretty generous, some hardening was noted on peaks.

I recognised in the '800 some qualities for which the '900 was marked down. It sounded rather 'shouty' and thin when extended, with little of the solidity and stability that distinguishes the best from the rest, and a rather flat, dimensionless stereo image. Its liveliness and midband clarity

helped, though, and from what I could judge without having the two amps side by side, the junior model is by no means inferior to the senior one except in the area of raw output power.

Conclusion

It's hard to argue against an amplifier that looks like a grand's worth, but which in fact costs just £300, or that sounds so exuberant and open, even if it suffers somewhat at the frequency extremes. The Technics SU-A800DmkII is a respectable amplifier, which neither benefits strongly nor suffers particularly from its two-box packaging. Except that the availability of two preamplifier outputs permits a second power amp to be added, to biampify suitable speakers. **AG**

VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £299.95 (ONE YEAR GUARANTEE)

The SU-A800DmkII proved itself the equal of its bigger brother, the SU-A900DmkII. The two-box format is a slight red herring as the preamp is not self-powered, but it offers advantages over integrated amps in flexibility.

✉ Panasonic UK Ltd, Panasonic House, Willoughby Road, Bracknell, Berks RG12 8FP.
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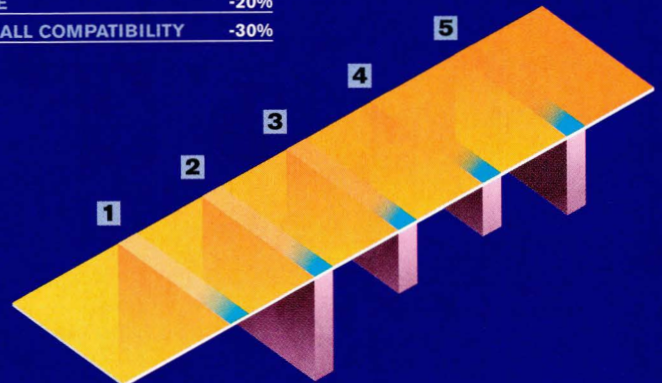
THE LAB REPORT

Unlike the Rotel pre/power amps (p71), which are genuine 'separates', in the preamplifier section of Technics' duo, electrical power derives from the matching power amp, the SE-A800SM2. The power profile also suggests the amplifier is optimised for loads as low as 2-4 Ohms with its dynamic output reaching 110W, 178W and 219W into 8, 4 and 2 Ohms respectively, but falling back to 145W into 1 Ohm. The maximum current available works out as 13.2A, which is not at all bad for what is, notionally, a '55W amplifier'.

Distortion is very low at 0.002 per cent midband but then increases, along with output impedance, to 0.025 per cent as feedback begins to 'wear off' at higher frequencies. Furthermore, there's also a fairly sudden increase in THD with output currents in excess of 6-7A, of typically 0.4 per cent into low impedances — another 'feature' of the Technics combination that will add to the 'colour' of its performance. The S/N ratio of 81.6dB (re. 1W/8 Ohms) should serve to disguise certain harder-sounding distortions while the superbly minimal 0.3dB channel balance error at -60dB helps maintain a high level of performance at low listening levels. *PMI*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	0%
2	SPEAKER LOAD TOLERANCE	-40%
3	AUDIBLE DISTORTION	-25%
4	NOISE	-20%
5	OVERALL COMPATIBILITY	-30%



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Audiogram MB1

This is not the prettiest amplifier I have ever tested. I'm not prejudiced against amplifiers that look like this, but here the execution is plain naff. The textured facia material looks and feels rough, and is probably very difficult to clean. No less crude is the central strip, which indicates the current selection of signal input and other data. And if you lose the remote control, you're sunk. The MB1 has no front-panel controls of its own.

To insert batteries into that remote handset, you'll need a screwdriver, but with just four buttons, you don't need to be a rocket scientist to operate it. Especially as the quartet of controls is arranged in an arc defined by the swing of your right thumb.

Controls are limited to volume, source selection and tape monitor. The volume control is an eight-bit digital device, capable of resolving 256 levels. However, when you turn on the amp, it defaults to zero, rather than returning to the last level set, or slowly ramping up to it. There is no signal level display of any kind, which as you might expect, makes for some unexpected surprises in the volume department. There is not even a mute switch — surely this is essential in the absence of a proper volume control to grab



and twist. Inputs are available for phono (MM), tape, and three other line level components. There is significant crosstalk between inputs, and you should find, as I did, that sound quality improves if unused signal sources are disconnected.

Sound quality

The maker's spec lists output impedance as 0.16 Ohms, which is by no means negligible, especially when you are using low impedance loudspeakers. There was clear auditioning evidence that this amp prefers the easy life: nice, largely resistive speaker loads, preferably with a highish sensitivity. Not too sensitive though; sound quality deteriorates when listening at low settings of the volume control, which was particularly noticeable through headphones.

There were other oddities, most worrying the sudden massive output level steps at a particular volume setting via the phono input. Additionally, I believe that the minimum volume setting is too high, and that the level changes by an excessive proportion at the lowest volume settings.

It was hard to get a clear handle on this amplifier. As one listener put it succinctly, this design was hard work. There were posi-

tive assessments, though.

A "solid bass" was identified by a couple of listeners, for example, but the panel score was quite low. The negatives, which tallied with my results based on hands-on listening, included the following: "Soprano just on the edge of shrieking" (Granados), "Clarinet not well defined spatially" (Mozart) and a general complaint that the amp sounded "mechanical". I found the amplifier was often muddled and incoherent, with clear level-related variations, and a messy bass with some of the speakers chosen for this test — the TDL especially.

Conclusion

I can't keep the words 'shed', 'garden', 'built' and 'looks as though it was' from springing to mind, when pondering this amp's overall performance. If this was the extent of its problems, there'd be no matter; but though this amp is erratically engaging, mostly it is messy-sounding, and moreover it is unusually fussy about the equipment it is partnered with. The panelist who wrote "hard work" got it about right. *AG*

VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £493.00 (TWO YEAR GUARANTEE)

Italian design is usually a byword for style, but not here: this one looks odd, and its sound only satisfies infrequently. There are particular problems at the frequency extremes.

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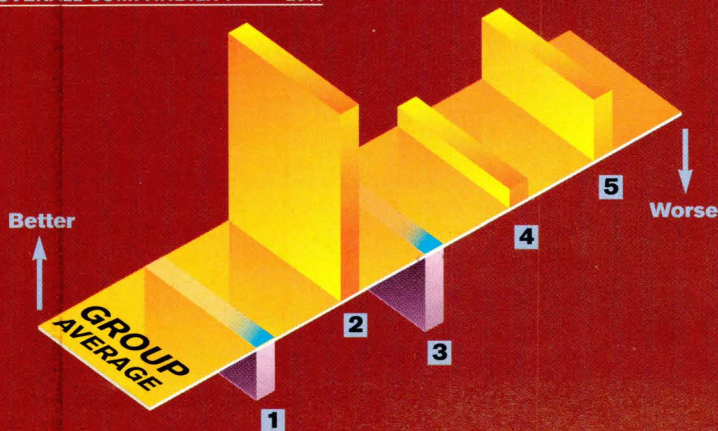
THE LAB REPORT

Veteran readers may recall an earlier outing for the Audiogram MB1, back in *HFC* 116. Now, as then, it is an unusual amplifier, which does not appear to have been substantially altered in the intervening five years. The eight-bit volume control remains, but though it offers 256 very fine steps its dynamic range is limited to 48dB. This is some 20-30dB short of the specification typically achieved by a familiar analogue volume control. The MB1 still has a 45W/8 Ohm maximum output, but this is reinforced by a substantial 17.6A reservoir of current that maintains some 310W under dynamic conditions (5msec or 222W over 10msec) into 1 Ohm. Hence, the amplifier's excellent tolerance of difficult speakers.

Audiogram's claims of 0.01 per cent distortion are laughably optimistic. In practice, 0.06-0.4 per cent is closer to the mark, contributing to an extended pattern of distortion harmonics that inevitably adds to the Audiogram's sonic 'colour'. Its response also demonstrates a tailored treble which, along with low levels of noise and a limited susceptibility to RFI, encourages a dark, sweet but hardly neutral overall balance. So the MB1 is certainly a distinctive product, but all the indications are that this 'musical flavour' will hold sway almost regardless of partnering equipment. *PM*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	-20%
2	SPEAKER LOAD TOLERANCE	75%
3	AUDIBLE DISTORTION	-30%
4	NOISE	8%
5	OVERALL COMPATIBILITY	25%





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Q Magazine, Robert Mills, May 1997



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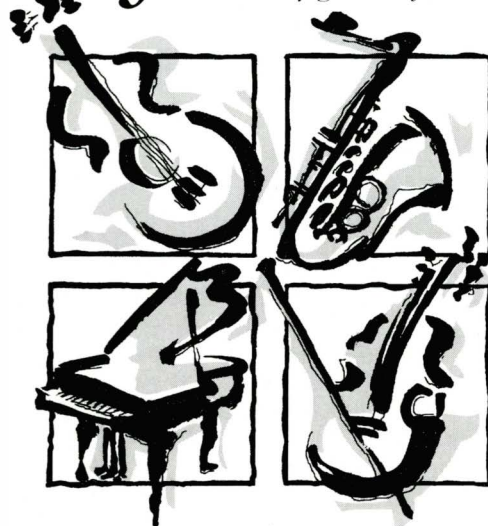
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Cymbol CA1

Now here's a most self-effacing amplifier. But its low-key appearance will attract the majority of customers, for whom high fidelity is a functional necessity rather than a means of scoring points over those pesky folk next door. The black painted aluminium front panel has a 'hammered' finish.

The minimalist story continues with the user interface, which is limited to just two controls, these being a massive and well-signposted source selector and a volume knob. A discreet, red-illuminated makers' name-badge doubles as a power indicator in between the two rotaries.

The back panel hints that this amp is more versatile than its appearance would suggest. Pre-amplifier output sockets permit the Cymbol to be used as a standalone pre-amplifier, for example to bi-amplify suitable speakers when used with the Cymbol CPA2 power amp (50 Watts per channel).

The CA1 — which is the entry-level model in Cymbol's range — was tested here in its basic line-level-only form, but it can be upgraded to amplify m-m/m-c phono pickup



cartridges for an additional cost of £89.

The circuits owe something in heritage to products from the now-defunct hi-fi company, Onix. Cymbol products are very much spiritual successors to the latter line. Rated power output is 40 Watts per channel, and the ability to field seven inputs is impressive, but with the low input impedance we measured, high frequency signal losses are possible with some combinations of partnering equipment.

On the plus side, the amplifier appears to have been happy with all the loudspeakers I had available, exhibiting no noticeable differences with changing musical dynamics at the chosen volume setting, at least within the Cymbol's relatively modest power ceiling.

Sound quality

I would not like to suggest that the CA1 escaped scot-free at the hands of our intrepid listening panel. "OK on simple rock material — it has a good bass, and is quite dynamic, but it sounds shrill and harsh on the classical material," said one. Another was more direct in his criticism. He thought Jennifer Warnes sounded "nasal — as though she has a head-cold", and that imaging was "two-dimensional". There were persistent criticisms of bass quality, which was felt to be rather slow and heavy-handed, and

of the treble which two listeners independently described as "wispy".

In the hands-on listening sessions, I found the Cymbol rather 'dark' and enclosed. The treble lacked air and space, and the bass was a little heavy-handed in character, though not excessive in level — this is a quality issue, not a quantity one. Instrumental timbre was clearly a little coloured. As so often with results of this kind, it was purportedly naturally-recorded acoustic instruments, and vocal recordings in natural-sounding acoustic spaces, that were reproduced best, while intensively-produced studio offerings were affected in ways that might or might not accord with personal tastes. Either way, the Cymbol seemed happier imposing its control over straightforward compact speakers than some of the larger floorstanders like the test TDs.

Conclusion

The Cymbol CA1 was low-key to a fault, clearly coloured and sounding rather compressed in some system-component combinations. On the whole it appears qualified to wear the hi-fi mantle, but in the final analysis we found it did not have the presence to shine brightly in this group. AG

VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £499.00

(TWO YEARS' GUARANTEE)

Not a star, but still a likeable design that sometimes sounds a little soft and coloured, and which happens to be up against some strong competition from other models in this month's group.

Cymbol Electronics Ltd, 4 Kendal Court, Railway Road, Newhaven, Sussex BN9 0AY
 (01273) 517358

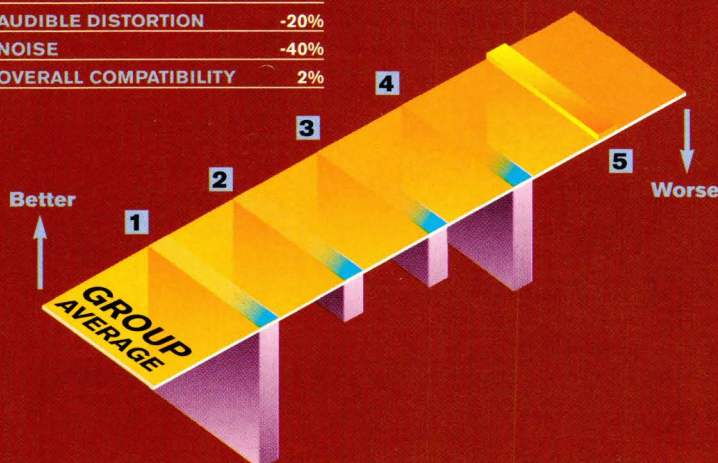
THE LAB REPORT

Despite the customary requests on my part, there was no information forthcoming from Cymbol on either the design or ideals behind Cymbol's CA1, though its performance gives us plenty of clues. Power output, for example, is limited to 35W midband/8 Ohms, and falls away at the frequency extremes, particularly at HF where 27W/8 Ohms proves to be the limit. Distortion increases tenfold from mid to high frequencies (<0.1 per cent) while its response drops away by nearly 1dB. Under dynamic, music-like conditions, it will achieve 42W/69W/61W/31W into 8/4/2 and 1 Ohm loads respectively, and demonstrates that when pushed, it will buckle rather than come out fighting. Subjectively, this is manifest in the coarse-sounding treble described by Alvin's listening panel.

There are other issues to be resolved. Channel balance deteriorates to 7dB at -60dB, for example; noise is a little high at -81.6dB re. 1W/8 Ohms and the 10 kOhm input impedance will prove more stressful for inadequately-specified CD players than, say, a conventional 47 kOhm load. In general terms then, it's easy to see that the performance of the CA1 is readily exceeded by less costly amplifiers — but undoubtedly it offers the potential for improvement. PM

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	-55%
2	SPEAKER LOAD TOLERANCE	-15%
3	AUDIBLE DISTORTION	-20%
4	NOISE	-40%
5	OVERALL COMPATIBILITY	2%



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Monrio ASTY

Monrio has long been an upmarket Italian manufacturer, whose initial reputation was made in solid-state amplifiers, some with sculpted and cast-chassis parts. Of late Monrio has begun to spread its wings with lower-cost products, including a MOSFET power amp and a valve preamp. The collective noun for this range is ASTY, and the central rôle within it played by this integrated amp is evinced by its lack of a suffix identifier. Monrio's export ambitions have been boosted recently by the progressive fall in the exchange rate between the Italian lire against pounds Sterling.

For an entry-level model, the ASTY is quite powerful, being rated at 55 Watts per channel (into eight Ohms). It is solidly built, with good-quality rear-panel socketry, a solid 'slab' fascia and an excellent feel to the four front-panel controls. The latter include a source selector for five inputs including tape — real-time tape monitoring is not on the agenda here. Volume, balance controls and an on/off switch complete the feature count.

There is no preamplifier output, and no headphone socket. One of the inputs can be converted to m-m/m-c phono operation for the premium of £75; the unit can be pur-



chased, with this option fitted, for the sum of £475.

Sound quality

On the whole, the listening panel reacted positively to this amplifier, awarding it a high score in three separate presentations. On the Jennifer Warnes track, one wrote that the Monrio "resolves reverberation well", and that it was "lightweight, but still involving", while Teresa Berganza's singing was "expressive" (a bit like saying salmon is fishy, but we'll let that pass). Another praised the Monrio's "image scale", and its "nice balance and timing", but he also thought that it sounded louder than usual, which relates to its particular voicing rather than any real difference in loudness.

Using the ASTY in several of my own system combinations, I heard a different side to it, and I would have placed it rather lower in the rankings than some panellists. The speaker used in the unsighted tests (from Definitive Technology, in part chosen for its relatively resistive, high-sensitivity load) made an excellent partner for the Monrio; but the amp was clearly less happy driving other loudspeakers, including floorstanders like the Tannoy Precision P30 and the TDL, which at best sounded uneven. Even with

the Def Tech, one listener felt that the bass was "dull and thuddy". The Monrio also turned out to be more than usually sensitive to cable types: stranded wires clearly sounded more open and punchy through the bass, at the expense of a more wiry, congested midband.

Spacious, dynamic and exuberant it may be, but I remain unimpressed by an amplifier that seemed unrefined, even rather coarse textured, especially with strings and female voice. Those sounds lay particular emphasis on the integrity and resolving power of the amplifier through the upper midband area.

Conclusion

This Italian design works well in some combinations, and impressed the listeners on test, but it is difficult to give it *carte blanche* because of its rather ill-disciplined, even messy sound in other system component permutations that I tried. Just before our press deadline, Monrio revealed plans for a significantly revised model, which they claim will address the criticisms we have made here. Now is probably not the time to jump in with both feet... AG

VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £400.00 (TWO YEAR GUARANTEE)

Curiously up-beat amplifier with a rather uneven sound in different combinations. The Monrio is at least well built and reasonably priced.

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

THE LAB REPORT

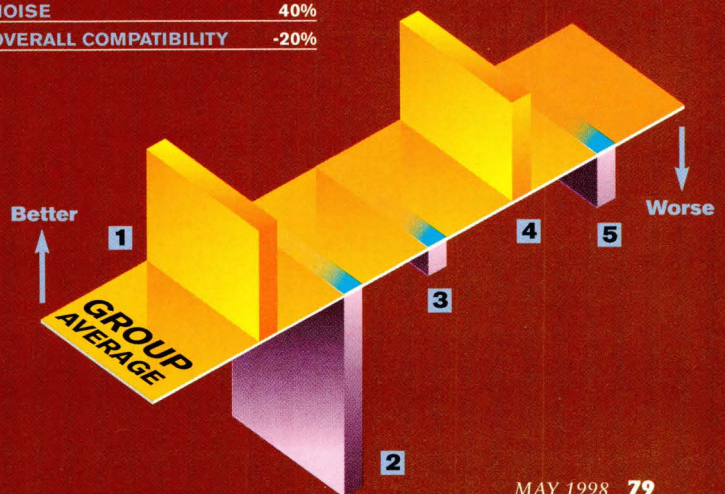
Low distortion is not a feature of the ASTY. It hovers at around 0.25 per cent: at just 1W/8 Ohms, at 20kHz. At higher output, its 57W HF limit is defined by the point at which THD climbs to 1 per cent rather than a true 'clip', which occurs closer to 75W/Ohm through bass and midband frequencies. Distortion continues to increase into lower impedance loads where the power output struggles to reach 86W into 4 Ohms.

Noise is very low, however, at 89.4dB/1W — just nudging ahead of the Orelle and Pioneer. The low 0.039 Ohm output impedance is worthwhile but the 8.2 kOhm *input* loading is perhaps a little too fierce for all CD players. More importantly, I was not able to obtain any sensible result for peak current or power output under dynamic conditions into low loads. Under these realistic, dynamic conditions, distortion would jump alarmingly from 0.5-4 per cent, reflecting the impaired stability margins of the ASTY.

A phone call to Italy confirmed that the ASTY's PCB layout is, in the company's own words, "very bad and currently being re-drawn". An improved, symmetrical layout and new circuitry will be available from April '98 onwards — not a lot of use to us here and now! *PMI*

HOW IT COMPARES

1	DYNAMIC POWER OUTPUT	45%
2	SPEAKER LOAD TOLERANCE	-80%
3	AUDIBLE DISTORTION	-10%
4	NOISE	40%
5	OVERALL COMPATIBILITY	-20%



Orelle SA-100RX

As a newly-upgraded variation on the SA-100 theme (Best Buy, HFC 154), the RX version claims to employ a larger toroidal transformer (275VA rather than 225VA, allegedly), better quality van den Hul internal wiring (significant, but this is a single PCB design, with very little wiring to start with), and power output increased to 75 Watts per channel, (50 Watts previously). Power supply reservoir capacity has also been increased, they say, but there have been no parallel enhancements to heat sinking, which may limit steady-state power output.

To give a little background information for non-veteran readers, the SA-100 has been Orelle's only integrated amplifier for three years. The RX version looks almost identical to its stablemate, and shares its ALPS volume control, a six-input line selector, a pre-amplifier output and a tape monitor selector. The volume control and source-selector have internal LEDs which indicate angular position and 'power on' status. The RX's remote handset is the only visible difference. Build quality and finish are on the cusp between good and exceptional, with attrac-



tive detailing to lift the amp clear of the crowd.

Design highlights include a control micro-processor which is said to be electrically 'silent' when not in use. There are short signal paths and a single gain block in the power amp; the preamp is passive apart from the active preamp output and the tape buffer. The power devices are, apparently, UK-sourced MOSFETs with relatively high current capability, and the power amp is claimed to be direct-coupled.

Sound quality

During our unsighted panel tests, different listeners held widely-varying opinions of this amp's merit. Regrettably, the bottom line was a thumbs-down. Typical complaints were of a "mechanical, unreal, metallic" sound, a "high-frequency buzzing" effect, a "quacky"-sounding clarinet and a shrill edge and bloom with female voice.

However the panel's results, made on the basis of listening to a single system combination, were not vindicated by the hands-on listening sessions. Here the amplifier came under scrutiny with different permutations of hi-fi components — and with the Pioneer Precision CD player and Tannoy, Rogers and TDL speakers, the Orelle seemed smoother, more open and transparent. The bass was of

better quality all round, with little to suggest the compression that was also apparent to me in the panel tests. The hardness and edgy treble quality were largely ameliorated, and there was a much greater sense of transparent and enjoyable music making — minus the synthetic edge.

What can account for the differences we heard? A plausible explanation would be the amp's claim for a relatively high damping factor, but Orelle was quick to deny this, suggesting instead that there had been an 'exotic' interaction with some US-sourced CD players used for hands-on listening. My experience would tend to accord with this view, but it is possible that the amp's larger power-supply reservoir capacity could have been responsible for a similar effect.

Conclusion

Its musical effect is not in dispute, but the SA-100RX is more system-dependent than ideal, and potential users should take care in system matching. However, we believe the Orelle is intrinsically more than good enough to make such efforts worthwhile. Recommended, subject to these caveats. *AC*

VERDICT

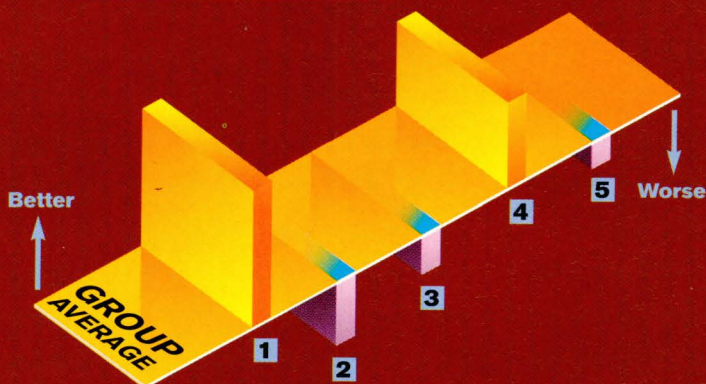
SOUND ★★★★★☆
VALUE ★★★★★☆
PRICE £649.00 (ONE YEAR GUARANTEE)

Another amplifier that is highly system-dependent, but with sympathetic partnering components, the SA-100RX is a sharp, articulate and finely detailed amplifier in every sense.

Orelle Hi-Fi, Unit 12 IMEX House, 6 Wadsworth Road, Perivale, Middlesex UB6 7JJ
 (0181) 810 9388

HOW IT COMPARES

- 1 DYNAMIC POWER OUTPUT 55%
- 2 SPEAKER LOAD TOLERANCE -25%
- 3 AUDIBLE DISTORTION -15%
- 4 NOISE 35%
- 5 OVERALL COMPATIBILITY -10%



THE LAB REPORT

Appreciating that the SA-100RX will be used with modern, high-output line sources, Orelle has evidently opted for a sensible combination of moderate gain and low noise. Indeed, at -88.9dB re. 1W/8 Ohms, the SA-100RX only just falls short of the Monrio and Yamaha in the noise department, though its near-DC bass extension (-3dB at 1.6Hz) is probably excessive. Particularly so, I am bound to say, with its high 0.23 Ohm output impedance. This may well explain the 'loss of bass control' reported in Alvin's tests while also being responsible for modifying the response of the amp at HF with different speakers (see *Oasis*, issue 177).

Otherwise, Orelle has successfully engineered a pattern of distortion that remains fairly independent of power output, even though it does increase with frequency, from a typical level of 0.018 per cent midband to 0.3 per cent at high treble frequencies. The spread of harmonics also increases with frequency, further modifying the sound of the amp at HF. Meanwhile, the rated 75W/8 Ohm output is just exceeded at 85W/8 Ohms under continuous conditions, and increases to 109W/145W/100W/51W into 8/4/2 and 1 Ohm loads respectively, under dynamic conditions. Clearly, difficult loudspeakers are best avoided. *PMI*

Sony TA-F3000ES

This champagne-gold integrated amp from Sony matches the CDP-X3000ES CD player, which received a Best Buy in *HFC* 169. Products with this level of fit and finish are all too rare in the UK at this price level. The design of the rotary controls, and the precision with which they rotate in their rebates, is closer to camera standards than anything the hi-fi industry can muster normally.

It's a MOSFET amplifier, rated at a modest 35 Watts into eight Ohms, or 50 Watts into four Ohms. The technical features seem mundane at first glance: a bipolar drive stage operates in Class A (they usually do); while 'twin mono architecture', 'proprietary toroidal transformer' and 'individual power supply system for voltage and current power amplifier stages' are routine for quality amplifiers. Other features are a little more unusual, though they are not necessarily unique to this model, or even to this marque. We're talking here of tone controls that automatically switch out of circuit at their centre-detent position, leaving input signals to pass unfettered through the power amp stages.

A rotary stepped control selects the input, while a matching volume control restores front-panel symmetry. Three smaller rotaries take care of bass, treble and balance; which is about the lot, apart from an m-m/m-c switch at the back, and a stick type remote-control handset. Oh, and the

or excess — and a taut, crisp treble, sometimes to a fault. Dynamics are simply devastating within the power ceiling, though the latter is a little lower than average, and is the only area in which the Sony might be considered lacking.

I was most impressed by the absence of the usual solid-stage amplifier signatures.

There was neither noticeable granularity, nor congestion, nor aggression, apart from an increased hardness, amounting to a metallic quality if the output rating was exceeded. The Sony simply sang, and its quality was obvious with all music I used.

The panel simply lapped it up. "I though this was a great amp; really quite dynamic; good treatment of all types of music; tight, controlled, doesn't lose it, though it did get a bit rattly when the volume was high," came one sum-up comment. "Very even-handed, no flaws," was another. However each listener noticed the lack of headroom, as in the comment above, and one triggered by the dynamic Granados track. That drew attention to "a definite envelope beyond which everything sounds a bit raucous".



Sony does include a headphone socket, and yes, it is equipped with proper 4mm loud-speaker output binding posts.

Sound quality

Well, looks aren't everything, and all that attention to the wrapping means comparable attention cannot have been lavished internally? Right? Wrong! Unlike some of Sony's recent amps, the TA-F3000ES runs rings around any competition it might face in this month's group, and provided the benchmark for some of the critical comments that have been wheeled out elsewhere.

Quite simply, the TA-F3000ES is exceptional. It is quick, focused and assured, with a tight, tuneful bass — no hint of overhang

Conclusion

The Sony TA-F3000ES is the star of the show this month, and resolutely proves the maxim that otherwise-competent amplifiers don't all sound the same. Though not recommended for use in big rooms or with insensitive speakers, otherwise in all respects it is a Best Buy. *AG*

VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £499.00 (ONE YEAR'S GUARANTEE)

It looks great, is superbly built, and sounds even better, albeit within a relatively modest envelope of volume. A 'must-hear' product.

Sony UK Ltd., The Heights, Brooklands, Weybridge, Surrey KT13 0XW.

(0990) 111 999

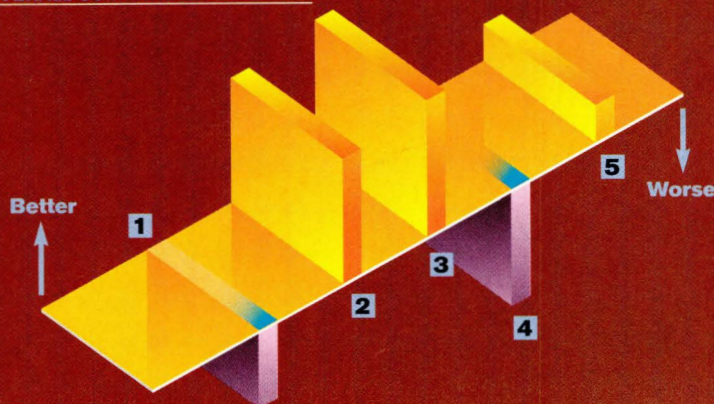
THE LAB REPORT

Evidently conceived to match the CDP-X3000ES CD player, Sony's TA-F3000ES amplifier relies more on back-to-basics engineering than out-and-out innovation. It's rated at 35W/8 Ohms but will deliver closer to 42W/8 Ohms in practice, increasing to 50W/8Ω/130W/139Ω into 8, 4, 2 and 1 Ohm loads respectively, under dynamic conditions. Importantly, though this model is not as powerful as the TA-F448 (reviewed in *HFC* 157, then in 171 as the Brooklands Edition), it doesn't exhibit the violent clipping behaviour that I detected on those occasions. So the TA-F3000ES should sound just as clear and articulate as its bigger brother without the descent into harshness that was sometimes experienced with musical peaks in the TA-F448.

The power amplifier utilises complementary pairs of 'SEPP' MOSFET power transistors, with evidently moderate levels of feedback judging by the low-ish 0.067 Ohm output impedance and exceptionally low levels of distortion. Indeed, the midband THD of, typically, 0.001 per cent only increases to 0.003 per cent through the highest frequencies. This is probably a bit excessive but looks good on paper! The 81.1dB A-wtd S/N ratio (re. 1W per 8 Ohms) looks less impressive and is over 10dB behind the 'best' in this group, but may well have the effect of disguising any harshness otherwise caused by radio-frequency interference (RFI). *PM*

HOW IT COMPARES

- 1 DYNAMIC POWER OUTPUT -30%
- 2 SPEAKER LOAD TOLERANCE 50%
- 3 AUDIBLE DISTORTION 55%
- 4 NOISE -45%
- 5 OVERALL COMPATIBILITY 15%



Conclusions

Once again, a comparative test of amplifiers has served to demonstrate a fundamental hi-fi truth. Specifically, that all amplifiers sound different, even apparently competent models whose performance in the lab is nothing if not exemplary. In fact, we were surprised at just how gross sound-quality differences could be.

If one is willing to accept a reasonably limited power output, there are credible

amplifiers available that don't cost a fortune. But others tested here were much less satisfactory, and we were disappointed by models in which we had high hopes — and vice versa.

There were several specialist designs from audiophile manufacturers: high-quality, stripped-down offerings, in which, quite clearly, sound quality was top of the agenda. Regrettably, they simply didn't deliver on their promise.

However, some of the more gadget-laden amplifiers did surprisingly well, as did some of those which betrayed an emphasis on packaging. The Sony TA-F3000ES is a particularly good example of an amplifier that is dressed extremely expensively, yet which performed at or near the top of this group.

● **EXCLUSIVE** Don't miss the dawning of a new Millennium — the TACT Millennium, to be precise. The world's first fully-digital amplifier is reviewed on p38.

GROUP A (BELOW £250)

Cambridge Audio A1mk3SE	£119.95
Goodmans Delta 900A	£129.00
JVC AX-A372	£199.99
Pioneer A-405R	£249.95
Yamaha AX-492	£219.95

Once upon a time, hi-fi manufacturers justified feeble, underachieving amplifier designs on the grounds of ruinously low selling prices. No longer is that a suitable alibi. This 'budget' group provides two opportunities to see how you can have your cake and eat it. The **Goodmans Delta 900A** is £130 worth of pure muscle (100 Watts per channel, no less!). Its sultry black Perspex smile is adorned with flashy aluminium trim; only the permanently-engaged cooling fan lets it down. The **Cambridge Audio A1mk3SE**

offers about one third of the Goodmans' rated power, but shaves another £10 off the price. The Cambridge Audio won by a KO in the first round. It is by far the most listenable and musical of the two, as the Goodmans is inclined to sound rather raucous, and the clincher is that darned noisy cooling fan. If it had been thermostatically controlled we'd have been onto something.

Notification came late in the day that the £200 **JVC AX-A372** has been discontinued. Shame; it's not a bad amp, and was passed over only reluctantly for Recommendation, the clincher being the strength of the field as a whole, and a rather synthetic quality of the JVC's sound that made itself intermittently apparent. Look out for remaindered stock of this model at bargain prices.

We're on much stronger ground with the **Yamaha AX-492**. This model offers an imposing combination of power, flexibility and musical integrity, at a more than attractive £220. The only caveat concerns the CD Direct facility, which has a low overload margin, and will cause catastrophic distortion of some discs' peak levels when these are played on a high-output CD player (see review, p67). It's not an issue if you don't use the CD Direct facility, but the amp sounds at its best with the facility engaged.

Slightly more expensive than the Yamaha is the £250 **A-405R** from **Pioneer**. It is not quite as powerful an amplifier, but it should cope with most speakers at more than social volume levels, and doesn't suffer from the Yamaha's 'CD Direct' foible.

GROUP B (£251-£400)

Musical Fidelity Elektra E11	£299.99
Rotel RC/RB971	£350.00
Technics SU-A800DmkII	£299.95

The **MF Elektra E11** is something of a mystery. Though technically proficient, and with a clean, attractive presentation, Musical Fidelity's mid-price, mid-spec amplifier simply failed to impress either the panel or in hands-on testing. It has its good points, notably a clean, detailed and realistically-

layered midband, but everything fell apart towards the frequency extremes. The bass lacked focus, and the treble developed an edge of hardness when pushed. It could still sound very satisfying at times, however.

The other two models in this price group are both pre and power-amplifier combinations, and both offer high perceived value. The **Rotel RC/RB-971** is the more costly of the two at £350, but significantly less satisfactory in its musical performance, thanks to

a comparatively primitive preamplifier. The power amplifier works well, and it is worth noting that the Rotel range includes other matching preamps.

The **Technics SU-A800DmkII**, which is sold as a complete entity, is a better balanced product. It can sound a little over-lyrically, but still offers impressive performance at the price. It is not a true pre/power amp, however: the preamp draws its power from the power amp, so can't be used on its own.

GROUP C (OVER £401)

Audiogram MB1	£493.00
Cymbol CA1	£499.00
Monrio ASTY	£400.00
Orelle SA100RX	£649.00
Sony TA-F3000ES	£499.99

Group C, a curiously disparate bunch, includes a couple of obscure audiophile amplifiers from Italy, and a mainstream high-tech model from Sony, among others. What's interesting is the way the mass-manufactured product from Sony walks all over the specialist models, which will upset an appercator or two. Hair-shirts, consider switching to Egyptian cotton.

The most affordable model of this group, the £400 **Monrio ASTY**, has some good

points, but lacks the consistency and musical discipline required to acquire a viable Recommendation. Evidently Monrio agrees, as the technical criticisms arising from the lab-test programmes were accepted by the maker, and a revised model is in the offing, apparently featuring a new board layout and other performance-related enhancements.

The **Audiogram MB1** is another amp of Italian origin, and, regrettably, another which failed to shine. The listening panel summed it up well as "hard work". Unfortunately, it is not even redeemed by its looks — we found the aesthetics lacking.

Two British-built amplifiers turned in better results. The **Cymbol CA1** is the picture of English understatement, but failed to shine

out in this patchy field. The **Orelle SA-100RX** is better, as it should be at £649. It is a quick and entertaining amplifier, and impressively packaged to boot. Our tests threw up some compatibility issues, however, that would require the user to be more than usually careful over the choice of partnering source components and loudspeakers. A classic case of the need to team up with a capable specialist hi-fi dealer.

Finally, the **Sony TA-F3000ES** is a star, nothing less. It is an abundantly capable and articulate amplifier, and serves as persuasive advocate for virtually any kind of music, no matter how obscure or difficult the composition. It also looks the part, a real tour de force, and the price is just £500!

BEST BUY

The £500 **Sony TA-F3000ES** is stunning, both in the elegance of its sound and the refined fit and finish which underpin its sleek looks. Styled to match Sony's CDP-X3000ES CD player, itself an *Hi-Fi Choice* Best Buy, this amp offers a modest power output but belies it with a quick, focused, above all assured sonic performance. Frequency extremes are rendered crisply and there is a notable freedom from granularity. Easy to use and easy on the ear.



Sony TA-F3000ES

Hi-Fi CHOICE
BEST BUY

RECOMMENDED



Orelle SA-100RX



Cambridge Audio A1Mk3

Five players are awarded the *Hi-Fi Choice* Recommended tag. The cheapest, at £120, is the new **Cambridge Audio A1mk3 Special Edition**. This is a simple, workman-like amplifier, with low noise and strong dynamics so long as the volume setting is kept in check. The next Recommended model is the £220 **Yamaha AX-492**, which only just missed Best Buy status thanks to a design oversight that makes it potentially incompatible with some CD players. The £250 **Pioneer A-405R** is a fine-sounding amplifier, which should be compatible with a wide range of CD players and speakers. It can sound a little ragged, but it does the



Technics SU-A800M2

important things correctly, and represents good value. The same is true of the £300 **Technics SU-A800mk2**, which is a pre/power combination or a two-box integrated, depending on how you define a preamplifier.

Again, pricing is attractive, and this model represents excellent value.

Finally, the £649 **Orelle SA-100RX** is the most costly model to receive a Recommended flag, but you can see and hear where the money went. There were problems with this amplifier concerning its compatibility with some sources and loudspeakers, but in a well-matched system the Orelle is a particularly enjoyable component.



Pioneer A-405R



Yamaha AX-492

BEST OF THE REST

Repeating the opening sentiment from our last *Best Of The Rest*, there is no shortage of credible talent in the price band covered this month.

Arcam lists no less than three amplifiers between £260 and £500, the **Alphas 7, 8 and 9**, which offer flexibility and good sound, though only the 9 achieved Recommendation in our tests. **Audiolab** is another key

player here with two contenders: the £500 **8000A**, which has been improved in the last year or so; and the stripped-down (and ironically more expensive) **8000S**, which costs £700 and will give the **Orelle SA-100RX** a run for its money. Also check out the £695 **Roksan Caspian**, and at a much lower price, the £200 **Denon PMA-350SE**.



Arcam Alpha 7

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 magazine, 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	★★★★★
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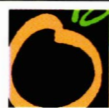
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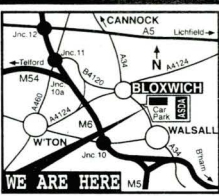
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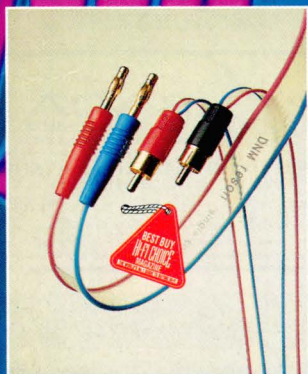
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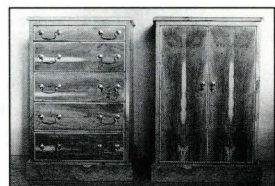
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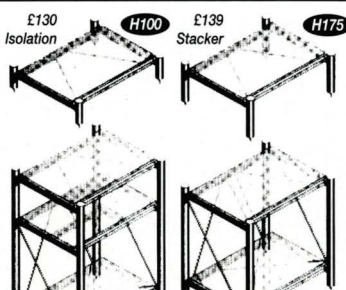
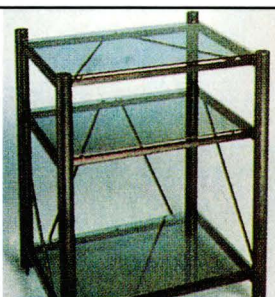
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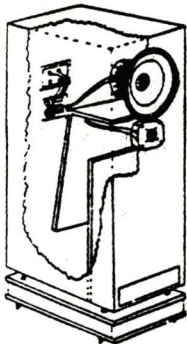
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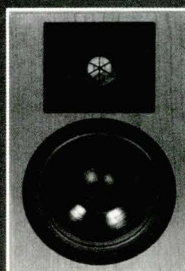
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STEP 2

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.

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

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

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

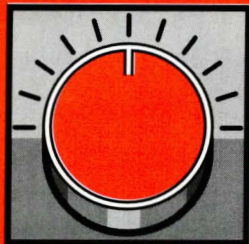
Using Best Buys and Recommendations to buy hi-fi

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



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AMPLIFIERS INTEGRATED

KEY

Ⓢ - number of line-level inputs.
 '20W' - output power per channel into nominal load of 8 Ohms.

Up to £250

Akai AM1100	Ⓢ	50W	230
AMC 3020	Ⓢ	20W	100
AMC 3025A	Ⓢ	30W	130
AMC 3050A	Ⓢ	45W	170
Ariston AX900	Ⓢ	30W	80
Ariston AX910	Ⓢ	30W	100
Cambridge A1 Mk III	Ⓢ	40W	100
Cambridge A1 Mk III SE	Ⓢ	40W	120
Cambridge A3i	Ⓢ	60W	200
Denon PMA-250SE	Ⓢ	30W	160
Denon PMA-350SE	Ⓢ	50W	200
Denon PMA-425R	Ⓢ	45W	230
Denon PMA-100M	Ⓢ	80W	240
Goodmans Delta 801	Ⓢ		
H/K HK610	Ⓢ	30W	180
H/K HK620	Ⓢ	40W	250
JVC AX-V4BK	Ⓢ	30W	200
JVC AX-R5BK	Ⓢ	45W	200
Kenwood KA-1080	Ⓢ	60W	140
Kenwood KA-3080R	Ⓢ	70W	170
Kenwood KA-3020SE	Ⓢ	50W	200
Marantz PM-47	Ⓢ	40W	150
Marantz PM-57	Ⓢ	50W	200
Marantz SR-47	Ⓢ	40W	200
Marantz PM-66SE	Ⓢ	50W	230
Musical Fidelity E1	Ⓢ	30W	199
NAD 310	Ⓢ	20W	100
NAD 312	Ⓢ	25W	200
Pioneer A-105	Ⓢ	30W	130
Pioneer A-204R	Ⓢ	25W	160
Pioneer A-300R	Ⓢ	50W	200
Pioneer A-305R	Ⓢ	50W	200
Pioneer A-405R	Ⓢ	60W	250
Rega Brio	Ⓢ	30W	229
Rotel RA921	Ⓢ	20W	100
Rotel RA-931	Ⓢ	35W	150
Rotel RA971	Ⓢ	70W	200
Sansui AUX-410R	Ⓢ	50W	150
Sansui AUX-510	Ⓢ	50W	230
Sherwood AX 4050R	Ⓢ	50W	150
Sherwood AX-7030R	Ⓢ	95W	250
Sony TA-FE210	Ⓢ	45W	130
Sony TA-FE310R	Ⓢ	45W	150
Sony TA-F248E	Ⓢ	40W	200
Sony TA-F448EB	Ⓢ	55W	250
TEAC A-R300	Ⓢ	45W	200
TEAC A-R500	Ⓢ	90W	250
Technics SU-V300	Ⓢ	25W	150
Technics SU-V500	Ⓢ	30W	180
Technics SU-A600 Mk3	Ⓢ	30W	200
Technics SU-V620	Ⓢ	70W	230
Technics SU-A700 Mk3	Ⓢ	45W	250
Yamaha AX-390	Ⓢ	60W	170
Yamaha AX-492	Ⓢ	85W	220

£251 to £500

Alchemist Maxim	Ⓢ	30W	319
AMC CVT 3030A	Ⓢ	30W	400
Arcam Alpha 7	Ⓢ	40W	260
Arcam Alpha 8	Ⓢ	50W	360
Arcam Alpha 9	Ⓢ	70W	500
Audio Analogue Puccini	Ⓢ	40W	450
Audiogram MB1	Ⓢ	35W	493
Audiolab 8000LX	Ⓢ	60W	470
Audiolab 8000A	Ⓢ	60W	500
Aura VA-100 II	Ⓢ	70W	350
CR Dev CR324	Ⓢ	100W	499
Creek 4330	Ⓢ	35W	279
Creek 4340	Ⓢ	35W	279
Creek 4330R	Ⓢ	35W	355
Creek 5250	Ⓢ	50W	450
Denon PMA-725R	Ⓢ	65W	350
EMF Audio Sequel	Ⓢ	50W	450
H/K HK640	Ⓢ	55W	400
Kenwood KA-5090R	Ⓢ	65W	300
Kenwood KA-7090R	Ⓢ	85W	400
Magnum IA120	Ⓢ	85W	265
Magnum IA170	Ⓢ	96W	330
Magnum IA170SE	Ⓢ	90W	430

Marantz PM-68	Ⓢ	90W	300
Marantz PM-66 KI Sig.	Ⓢ	50W	400
Micromega Minium	Ⓢ	40W	350
Mission Cyrus SL	Ⓢ	50W	398
Monrio Asty	Ⓢ	60W	440
Musical Fidelity E11	Ⓢ	60W	300
Musical Fidelity X-A1	Ⓢ	50W	480
Musical Fidelity A2	Ⓢ	25W	500
NAD 314	Ⓢ	35W	260
NAD 317	Ⓢ	80W	470
Onkyo A9210	Ⓢ	40W	260
Onkyo A921	Ⓢ	50W	350
Onkyo A922	Ⓢ	70W	400
Orelle SA-100	Ⓢ	50W	499
Pioneer A-400X	Ⓢ	50W	300
Pioneer A-605R	Ⓢ	80W	400
Pioneer A-300R Precision	Ⓢ	35W	400
Pro-Ject Model 7	Ⓢ	40W	300
Rega Elex	Ⓢ	50W	398
Shearpe 2.5	Ⓢ	35W	489
Sony TA-FA3ES	Ⓢ	70W	400
Sony TA-F3000ES	Ⓢ	60W	500
Talk Electronics Storm 1	Ⓢ	50W	500
TEAC A-H500	Ⓢ	50W	280
Technics SU-A800D Mk2	Ⓢ	55W	300
Technics SU-A900D Mk2	Ⓢ	70W	400
Yamaha AX-592	Ⓢ	100W	280

£501 to £700

Alchemist Kraken APD6A	Ⓢ	55W	579
Alchemist Nemesis	Ⓢ	80W	700
Audio Analogue Puccini SE	Ⓢ	50W	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
Dansen Beat B-100 MkII	Ⓢ	60W	650
DPA Renaissance int.	Ⓢ	40W	595
Exposure XX Super	Ⓢ	55W	700
Fase Evoluzione Performance 2.0	Ⓢ	40W	570
Gamma Gemini	Ⓢ	12W	699
H/K HK660	Ⓢ	65W	700
Hi Q Sound MCI	Ⓢ	30W	565
JoLida 202	Ⓢ	40W	695
LFD Integrated 0	Ⓢ	50W	549
Linn Majik (Line)	Ⓢ	33W	650
Lynwood Opal	Ⓢ	80W	685
Magnum IA200	Ⓢ	100W	599
Magnum Class A	Ⓢ	85W	690
Mission Cyrus IIIi	Ⓢ	50W	598
Musical Fidelity A220	Ⓢ	50W	700
Myrrad 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	949
Audio Note Oto Line PP	Ⓢ	12W	950
AVI S2000MI	Ⓢ	100W	999
Copland CSA8	Ⓢ	60W	945
Credo IMP702	Ⓢ	70W	850
Credo IMP703	Ⓢ	70W	1,000
Electrocompaniet ECI-2	Ⓢ	50W	995
Exposure XV Super	Ⓢ	55W	800
Fase Evoluzione Performance 1.1	Ⓢ	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
Pioneer A-07	Ⓢ	80W	999
Primare A20	Ⓢ	60W	800
Rega Elicit	Ⓢ	70W	730
Shearpe Phase 2 Reference	Ⓢ	50W	799
Sonnesteer Alabaster	Ⓢ	50W	900
Stemfoort SF100	Ⓢ	100W	849
TEAC AB-X10	Ⓢ	100W	1,000
Unison Simply Two	Ⓢ	12W	995

£1001 to £2000

Art Audio Integra	Ⓢ	30W	1,499
ATC SIA2-150	Ⓢ	150W	1,984
Audio Note Soro Line PP	Ⓢ	20W	1,200
Audio Note Oto Line SE	Ⓢ	12W	1,200
Audio Note Oto Phono SE	Ⓢ	12W	1,500
Audio Note Soro Line SE	Ⓢ	18W	1,699
Beam-Echo SA-50	Ⓢ	50W	1,950

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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
Credo LIM 702	Ⓢ		1,191
Credo LIM 703	Ⓢ		1,249
EAR 834	Ⓢ	40W	1,999
Graaf Venticinque	Ⓢ	20W	1,995
LFD Integrated 1	Ⓢ	65W	1,099
Meracur Intrare	Ⓢ	60W	1,095
Monrio MC-205	Ⓢ	80W	1,545
Primare 301	Ⓢ	80W	1,800
Rogers E-20a	Ⓢ	20W	1,229
Rogers E-40a	Ⓢ	40W	1,900
Sonic Frontiers Anthem Integrated	Ⓢ	25W	1,295
T+A PA1200	Ⓢ	90W	1,350
T+A R1200R	Ⓢ	90W	1,495
T+A PA1500	Ⓢ	135W	1,650
T+A R1500R	Ⓢ	135W	1,895
Unison Simply Four P	Ⓢ	24W	1,555
Unison Simply Four T	Ⓢ	11W	1,595
Woodside ISA230 Line	Ⓢ	30W	1,099
Woodside ISA230 Disc	Ⓢ	30W	1,249
YBA Integre DT	Ⓢ		1,650

Over £2000

Adyton Opera	Ⓢ	50W	2,595
Audio Note Meishu Line	Ⓢ	9W	2,750
Audio Note Ongaku	Ⓢ	26W	56,000
Audio Research CA50	Ⓢ		3,990
Cary CAD-300SE1	Ⓢ	11W	3,995
Conrad-Johnson CV-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
Krelli KAV300i	Ⓢ	150W	2,550
Meracur Onesta	Ⓢ	75W	2,595
Musical Fidelity A1001	Ⓢ	200W	2,500
Pioneer A-09	Ⓢ	45W	4,000
Tube Tech Unisis Sig. Int.	Ⓢ	30W	2,300
Tube Tech Synergy PPS	Ⓢ	150W	6,900
Unison Performance One	Ⓢ	25W	4,500
Unison Absolute 845	Ⓢ	40W	11,995

Preamps

Alchemist Kraken Pre	Ⓢ		1,995
Alchemist Forseti Pre	Ⓢ		519
Art Audio Headline	Ⓢ		919
Art Audio VPL	Ⓢ		700
Art Audio Conductor Phono	Ⓢ		741
Art Audio VPL	Ⓢ		750
Art Audio VP1	Ⓢ		952
Art Audio Conductor	Ⓢ		1,250
Art Audio Conductor Export	Ⓢ		2,000
Audio Note M1 Line	Ⓢ		550
Audio Note M1 RIAA	Ⓢ		999
Audio Note M2 Line	Ⓢ		999
Audio Note Discovery	Ⓢ		999
Audio Note M2RIA	Ⓢ		1,099
Audio Research LS7	Ⓢ		1,750
Audio Research LS3	Ⓢ		1,997
Audio Synthesis Pro Passion	Ⓢ		595
Audio Synthesis Passion	Ⓢ		695
Audio Synthesis Passion 8S	Ⓢ		1,295
Audio Synthesis Passion 8M	Ⓢ		1,695
Audiolab 8000C	Ⓢ		580
Audiolab 8000PPA	Ⓢ		1,000
Audiolab 8000Q	Ⓢ		1,250
Aura CA-200	Ⓢ		700
AVI S2000MP	Ⓢ		949
AVI S2000MP + P	Ⓢ		1,199
Beam-Echo SP-21	Ⓢ		1,116
Bryston 4	Ⓢ		642
Bryston BP5	Ⓢ		889
Bryston BP20	Ⓢ		1,126
Bryston BP-25	Ⓢ		1,326
Cary SLP-50	Ⓢ		995
Cary SLP-74	Ⓢ		1,795
Cary PH-301	Ⓢ		1,795
Chord CPA 1800	Ⓢ		1,774
Concordant Exhilarant	Ⓢ		900
Concordant Exquisite	Ⓢ		1,950

£501 to £2000

Ph	445
Ph	200
Ph	450
Ph	149
Ph	449
Ph	499
Ph	345
Ph	345
Ph	330
Ph	500
Ph	500
Ph	149
Ph	249
Ph	349
Ph	120
Ph	130
Ph	200
Ph	400
Ph	270
Ph	430
Ph	350
Ph	470
Ph	398
Ph	395
Ph	450
Ph	130
Ph	150
Ph	225
Ph	500
Ph	300
Ph	375
Ph	375
Ph	499

Conrad-Johnson PV-10AL	Ⓜ	995	Trilogy 902	Ⓜ	1,595	Mission Cyrus XPA	50W	298	Moth 60 Stereo	60W	599
Conrad-Johnson PV-10A	Ⓜ	1,295	Tron Retro	Ⓜ	1,000	Mission Cyrus Power	50W	498	Moth 30 Mono/100	100W	879
Conrad-Johnson PV-12AL	Ⓜ	1,990	Tron Nucleus Phono	Ⓜ	2,000	Moth 30 Series Power	30W	249	Muse Model 100	100W	1,490
Conrad-Johnson EF-1	Ⓜ	1,990	Tron Nucleus	Ⓜ	2,000	Moth 30 Mono/40	40W	469	Musical Fidelity X-A200	200W	1,000
Conrad-Johnson PF-2	Ⓜ	1,990	Tube Tech Seer Line	Ⓜ	935	Musical Fidelity X-CANS	0.1W	130	NAD 218THX	200W	850
Copland CSA303	Ⓜ	1,199	Tube Tech Mac Phono	Ⓜ	1,150	Musical Fidelity E30	100W	500	Naim NAP140	45W	750
Copland CT301 MkII	Ⓜ	1,399	Tube Tech Prophet	Ⓜ	1,970	Musical Fidelity X-A50	50W	500	Naim NAP180	60W	1,060
CR Dev Carmenta	Ⓜ	659	Unison Mystery One	Ⓜ	1,750	Myrrad MA 120	60W	450	Naim NAP135	75W	1,655
CR Dev Argento	Ⓜ	699	Unison Phono One	Ⓜ	1,995	NAD 912	30W	200	Naim NAP250	70W	1,655
Credo CMP004	Ⓜ	1,246	Van Den Hul Pre-amp	Ⓜ	1,700	NAD 214	80W	370	Papworth TV450	50W	1,425
Credo CMP005	Ⓜ	1,876	Wilson Benesch Stage One	Ⓜ	995	NAD 216THX	125W	470	Prime Design P-150	150W	650
Densen DM-20	Ⓜ	1,200	Woodside SC27 Line	Ⓜ	949	Naim NAP90/3	30W	450	Quad 77 Power	85W	600
DNM 3 Start	Ⓜ	1,000	Woodside SC26 Line	Ⓜ	1,557	Rotel RB971	70W	200	Quad 707	140W	800
DNM 3A Start	Ⓜ	1,650	XTC PRE-1	Ⓜ	1,250	Rotel RB981	130W	300	Rega EXS	70W	598
DPA Enlightenment pre	Ⓜ	795	Yamaha CX-2	Ⓜ	650	Rotel RB991	200W	500	Rega Exon	125W	1,196
DPA DSP500S	Ⓜ	2,000	YBA 3	Ⓜ	1,199	Shearpe 3.5	35W	469	Roksan Caspian	70W	595
Dynavector L200	Ⓜ	1,195	YBA Integre	Ⓜ	1,199	Talk Electronics Tornado 1	50W	450	Roksan ROK-SL5	100W	1,495
Dynavector P100	Ⓜ	1,495	YBA 2	Ⓜ	1,999	Technics SE-A1000 Mk2	70W	350	Rose RP-190 (Dual Mode)	75W	550
Dynavector L100	Ⓜ	1,995	Over £2000			£501 to £2000			Shearpe Phase 3	50W	619
Earmax Pre	Ⓜ	1,895	Adyton Temper	Ⓜ	2,495	Alchemist Kraken pwr	60W	529	Shearpe Phase 3 Reference	50W	729
ECA Vista S	Ⓜ	760	Adyton Modus	Ⓜ	2,695	Alchemist Forseti Pwr	150W	1,309	Shearpe Phase 5 Mono	100W	1,500
ECA Vista HD	Ⓜ	880	Alchemist The Alchemist pre	Ⓜ	4,995	AMC CVT 2100A	80W	600	Sonic Frontiers Anthem Amp 1	100W	1,195
ECA Prisma	Ⓜ	880	ATC SCA2	Ⓜ	2,499	Art Audio Quintet	15W	1,393	Sonographe SA250	125W	1,195
Electrocompaniet EC-4.5	Ⓜ	1,195	Audio Note M3Line	Ⓜ	2,650	Art Audio Quintet SE MB	-W	1,500	Sonographe SA400	125W	1,695
Electrocompaniet EC-4R	Ⓜ	1,495	Audio Research LS15	Ⓜ	3,399	Art Audio Concerto	50W	1,669	Sumo Polaris III	164W	950
Electrocompaniet EC-4.6	Ⓜ	1,750	Audio Research LS22	Ⓜ	4,391	Audio Analogue Donizetti	60W	575	Sumo Model Five	60W	1,975
Exposure XIX	Ⓜ	800	Audio Research LS5 MkIII	Ⓜ	6,435	Audio Note The P	40W	550	Sumo Andromeda III	240W	1,975
Exposure XVII	Ⓜ	850	Audio Research REF 1	Ⓜ	9,900	Audio Note P	9W	599	T+A A1200	110W	845
Fase Evoluzione Controlsourc 2.0	Ⓜ	625	Boulder L3AE	Ⓜ	2,100	Audio Note P1	12W	750	T+A A1500	140W	1,495
Fase Evoluzione Controlsourc 1.0	Ⓜ	1,395	Boulder L5AE	Ⓜ	3,400	Audio Note P1SE	12W	999	Talk Electronics Tornado 2	65W	600
Golden Tube Audio SEP-1	Ⓜ	990	Boulder L5M	Ⓜ	3,800	Audio Note P2	20W	1,000	Talk Electronics Tornado 3	100W	750
Graaf WFB Two	Ⓜ	1,195	Boulder 2010	Ⓜ	19,995	Audio Note P2SE	18W	1,499	Talk Electronics Tornado 4	110W	1,100
Graaf WFB One	Ⓜ	1,895	Cary SLP-98L	Ⓜ	2,595	Audio Note Conqueror	8W	1,599	Technics SE-A2000	100W	1,100
Henley HMC200	Ⓜ	750	Chord CPA 2200	Ⓜ	2,355	Audiolab 8000SX	60W	550	Thorens TTA-2000	30W	599
Heybrook Signature II Pre	Ⓜ	555	Chord CPA 2800	Ⓜ	3,246	Audiolab 8000PX	100W	850	Trilogy 948	50W	1,895
Hi Q Sound MCB2	Ⓜ	545	Chord CPA 3200	Ⓜ	3,320	Audiolab 8000MX	125W	1,800	Trilogy 948T	22W	1,895
Hi Q Sound MCL2	Ⓜ	645	Chord CPA 4000	Ⓜ	6,210	Aura PA-100	100W	700	Tube Tech Syrinx	45W	1,150
Jadis DPL2	Ⓜ	1,790	Conrad-Johnson PF-R	Ⓜ	2,490	Aura PA-200	110W	1,200	Tube Tech Unisis Sig. Pwr	30W	1,900
LFD MC1 PhonoStage	Ⓜ	949	Conrad-Johnson PV-12A	Ⓜ	2,590	Aura PA-200 C	100W	1,250	Woodside SA240	40W	1,199
LFD L51 LineStage	Ⓜ	999	Conrad-Johnson Premier 15	Ⓜ	3,995	AVI S2000MM	150W	1,399	Woodside MA100	100W	1,733
LFD MC2 PhonoStage	Ⓜ	1,499	Conrad-Johnson Premier 14	Ⓜ	4,495	Bryston 2B-LP	75W	750	Woodside ST450	50W	1,880
LFD L52 LineStage	Ⓜ	1,599	Conrad-Johnson Art	Ⓜ	14,995	Bryston 3B-ST PRO	150W	1,160	XTC POW-2	150W	1,450
LFD L5B LineStage	Ⓜ	1,999	CAT SL1 Sig. Mk2	Ⓜ	6,500	Bryston 3B-ST	150W	1,160	Yamaha MX-2	150W	750
Linn Wakonda	Ⓜ	750	CR Dev Kastor	Ⓜ	2,995	Bryston THX3B	150W	1,262	YBA 3 stereo	129W	1,299
Linn Linto	Ⓜ	850	Credo LPR 001	Ⓜ	2,815	Bryston 7B-ST PRO	500W	1,545	Over £2000		
Linn Kairn	Ⓜ	1,400	DNM 3C Primus	Ⓜ	2,550	Bryston 4B-ST PRO	300W	1,756	Adyton Cordis 1.6	120W	3,495
Lumley LV1.5	Ⓜ	895	DNM 3C Twin	Ⓜ	3,800	Bryston 4B-ST	300W	1,756	Adyton Cordis 3B	280W	12,995
Lumley LV1	Ⓜ	1,150	DNM 3C Six	Ⓜ	5,050	Bryston 7B-ST	500W	1,815	Alchemist The Alchemist pwr	220W	3,995
Lumley PV1.5	Ⓜ	1,700	EAR 802MC	Ⓜ	2,599	Bryston THX4B	300W	1,850	Alchemist The Alchemist mono	55W	8,995
Lumley PV1	Ⓜ	1,700	EAR G88	Ⓜ	9,999	Bryston THX7B	500W	1,886	Art Audio Tempo	30W	2,499
Matisse Atom	Ⓜ	1,000	EAR P52	Ⓜ	15,999	Carver A-500X	250W	949	Art Audio Quintet SE	-W	2,500
Meracur Ingredi	Ⓜ	925	Gamma Era Ref	Ⓜ	7,999	Carver A-760X	380W	1,299	Art Audio Maestro	100W	3,524
Meridian 501	Ⓜ	695	Graaf GM13.5B	Ⓜ	3,950	Chord SPM 400	100W	1,325	ATC SPA2-200PRO	200W	2,056
Meridian 562	Ⓜ	765	Jadis DP50L	Ⓜ	2,800	Chord SPM 600	130W	1,720	ATC SPA2-150	200W	2,500
Meridian 562V	Ⓜ	995	Jadis DPL	Ⓜ	3,190	Conrad-Johnson MV-55	50W	1,995	Audio Note P3	9W	2,150
Meridian 502	Ⓜ	1,295	Jadis DPMC	Ⓜ	3,190	Copland CT4501	30W	1,750	Audio Note Quest	9W	2,750
Michell Argo	Ⓜ	730	Jadis JPL	Ⓜ	4,720	CR Dev Amphion	1,749	1,920	Audio Note Yubi	18W	3,850
Michi RHC-10	Ⓜ	795	Jadis JPP200	Ⓜ	4,998	Credo PMP 804	12W	1,876	Audio Note Conquest	18W	4,450
Michi RHQ-10	Ⓜ	1,150	Jadis JP30MC	Ⓜ	5,978	Creek A52SE	80W	599	Audio Note Tomei	30W	8,500
Michi RHA-10	Ⓜ	1,150	Jadis JPS2	Ⓜ	7,900	Crimson CS630C	100W	800	Audio Note Neiro	7W	11,360
Micromega Tempo P	Ⓜ	1,250	Jadis JP80MC	Ⓜ	11,989	Densen DM-30	100W	1,200	Audio Note Ankoru	60W	14,500
Mission Cyrus Pre	Ⓜ	648	Krell KRC3	Ⓜ	3,250	DNM PA Start	45W	1,000	Audio Research D130	130W	2,299
Monrio ADN	Ⓜ	625	Krell KRC-HR	Ⓜ	6,949	DNM PA1 Start	45W	1,650	Audio Research VT60	35W	2,395
Monrio Pluri-L	Ⓜ	960	LFD Disc Preamp	Ⓜ	4,499	DPA Enlightenment pwr	100W	995	Audio Research D300	300W	4,678
Muse Model 3	Ⓜ	1,990	Mark Levinson 25S	Ⓜ	2,950	Earmax Power	25W	1,895	Audio Research VT100	100W	4,995
Musical Fidelity F25	Ⓜ	1,500	Mark Levinson 380	Ⓜ	3,995	ECA Lactarn S	50W	880	Audio Research D400 MkII	400W	6,850
NAD 118	Ⓜ	1,000	Mark Levinson 380S	Ⓜ	6,495	ECA Lectern HD	50W	1,480	Audio Research VT130 SE	130W	8,500
Naim NAC92R	Ⓜ	630	Matisse Fantasy	Ⓜ	2,500	Electrocompaniet AW60B	60W	1,095	Audio Research VT150 SE	150W	17,000
Naim NAC72	Ⓜ	725	Matisse Reference	Ⓜ	3,500	Exposure XVIII Super	70W	850	Audio Synthesis Desire Decade	200W	2,495
Naim NAC102	Ⓜ	1,050	Meracur Pretare	Ⓜ	2,195	Fase Evoluzione Powersource 2.0	65W	860	Beam-Echo DL7-35	30W	3,525
Quad 77 Pre	Ⓜ	850	Naim NAC82	Ⓜ	2,160	Fase Evoluzione Powersource 1.0	100W	1,670	Border Patrol 300B SE	10W	3,495
Rega Hal	Ⓜ	998	Naim NAC52	Ⓜ	3,350	Golden Tube Audio SE-40	40W	1,100	Boulder 102AE	100W	2,800
Roksan ROK-L2.5	Ⓜ	1,250	Naim NAC2S	Ⓜ	2,250	Golden Tube Audio SE-300B MkII	8W	1,490	Boulder 102M	100W	3,100
Rose RV-23S	Ⓜ	525	Roksan ROK-L1.5	Ⓜ	2,250	Golden Tube Audio SE-100	100W	1,995	Boulder 500AE	150W	4,995
Rotel RC995	Ⓜ	525	Sonic Frontiers Line 2	Ⓜ	2,995	Graaf Venticinque P	25W	1,250	Boulder 500M	150W	5,500
Shearpe Phase 6 Pre	Ⓜ	899	Sonic Frontiers Line 3	Ⓜ	4,995	Heybrook Signature II Pwr	120W	1,045	Boulder 2060	600W	19,000
Shearpe Phase 1 Pre Ref	Ⓜ	1,399	T+A Pre DA3000	Ⓜ	2,800	Hi Q Sound MCM	70W	715	Boulder 2050	999W	35,000
Siemel MC20	Ⓜ	650	Tesseract TAP-A	Ⓜ	5,300	Jadis DA5	40W	1,997	Bryston THX8B	150W	2,385
Siemel MM20	Ⓜ	650	Trilogy 918	Ⓜ	2,775	Lexicon 212	120W	1,850	Cary CAD-572SE	20W	2,495
Siemel TU10	Ⓜ	1,599	Unison Dream	Ⓜ	11,995	LFD PA1 Powerstage	60W	999	Cary CAD-300SE	12W	3,995
Siemel TR20	Ⓜ	1,599	Woodside SC26 Line & Phono	Ⓜ	2,233	LFD PA2 Powerstage	75W	1,599	Cary 300SE Sig	12W	4,795
Sonic Frontiers Anthem Pre 1P	Ⓜ	895	YBA 1	Ⓜ	3,500	LFD PA2M Powerstage	90W	1,999	Cary CAD-805	50W	8,995
Sonic Frontiers Anthem Pre 1	Ⓜ	1,495	Power Amps			Linn LK100	50W	650	Chord SPM 800	160W	2,265
Sonic Frontiers Phono 1	Ⓜ	1,995	KEY			Linn LK240	120W	750	Chord SPM 1000B	200W	2,785
Sonic Frontiers Line 1	Ⓜ	1,995	'20W' - output power per channel			Linn AV5105	100W	1,200	Chord SPM 1200B	250W	3,525
Sonographe SC26	Ⓜ	965	into nominal load of 8 Ohms.			Lynwood Ruby	120W	985	Chord SPM 1200C	315W	3,915
Sumo Athena II Line	Ⓜ	767	Up to £500			Magnum MF330	150W	685	Chord SPM 1600	200W	4,718
Sumo Athena IIB/II LS	Ⓜ	987	AMC CVT 2030A	Ⓜ	30W	Magnum MF660	125W	825	Chord SPM 1400B mono	380W	7,830
Sumo Athena III	Ⓜ	987	Arcam Alpha 8P	Ⓜ	50W	Magnum A500SE	200W	1,485	Chord SPM 5000	415W	13,544
Sumo Artemis uP	Ⓜ	1,595	Arcam Alpha 9P	Ⓜ	70W	Magnum A50SE	200W	1,595	Conrad-Johnson MF-2300A	250W	2,990
T+A P1200R	Ⓜ	890	Arcam Delta 290P	Ⓜ	75W	Meracur Ciere	60W	1,095	Conrad-Johnson Premier 11A	70W	3,500
Talk Electronics Hurricane 2	Ⓜ	650	Creek A43	Ⓜ	50W	Meridian 555	60W	750	Conrad-Johnson Premier 12	140W	6,900
Talk Electronics Hurricane 3	Ⓜ	900	Creek A52	Ⓜ	70W	Meridian 556	100W	895	Conrad-Johnson Premier 8XS	150W	17,000

DNM PA3S	23W	3,750
DPA DAP500S	250W	3,000
Dynavector HX75	75W	2,195
Dynavector HX1.2	130W	3,995
EAR 861	32W	3,299
EAR 508 Mk II	100W	3,699
EAR 519	100W	4,699
EAR 549	200W	6,499
Electrocompaniet AW100DMB	100W	2,095
Electrocompaniet AW120DMB	120W	2,695
Electrocompaniet AW250DMB	250W	3,995
Electrocompaniet AW180MB	180W	4,595
Exposure IV	80W	2,199
Exposure XVI	125W	4,000
Gamma Aeon	20W	4,999
Gamma Space Ref	18W	7,999
Gamma Aeon Ref	70W	49,999
Graaf 5050	50W	2,150
Graaf GM20	60W	2,750
Graaf GM100	100W	4,490
Graaf GM200	200W	8,000
Jadis DA8	80W	3,333
Jadis DA7	100W	5,290
Jadis JA30	30W	5,980
Jadis JA300B	10W	9,000
Jadis JA80	60W	9,912
Jadis JA200	160W	15,518
Jadis JA500	400W	21,500
Krell KAV500/2	100W	3,485
Krell FPB200	200W	6,490
Krell FPB300	300W	9,500
Krell FPB600	600W	12,900
Krell KAS2	200W	20,000
Lexicon 225	250W	2,500
Lexicon 501	500W	5,000
Linn Klout	80W	2,400
Lumley M125	120W	3,750
Lumley M250	250W	7,500
Magnum 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
Meracur Tentare	75W	2,245
Meracur 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
Shearance Phase 1 Pwr Ref	100W	2,199
Siemel TA20	110W	2,350
Sonic Frontiers Power 1	55W	2,495
Sonic Frontiers Power 2	110W	4,995
Sonic Frontiers Power 3	220W	9,995
Sumo Model Ten/M	240W	4,200
Sunfire Sunfire	300W	2,170
T+A A3000	190W	3,000
Talk Electronics Tornado 5	200W	2,100
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	3,250
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 100X03	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	30.00
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
SonicLink Blue Nickel	150.00
Sonic Link Vermillion	195.00
Sonic Link Red earth	300.00
Sonic Link Black earth	450.00
Sonic Link Blue earth	695.00
Sonic Link Black Rhodium	995.00
Straightwire Chorus	40.00
Transparent Cable Musichord Int	48.00
Transparent Cable The Link	92.00
Transparent Cable Music Link	119.00
Trichord 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 D102 III	69.99
Van Den Hul Thunderline HB	130.00
Van Den Hul First	210.00
Van Den Hul Second	240.00
Van Den Hul MC Gold	400.00
Van Den Hul MC Silver IT	1,240.00
Van Den Hul MC Silver IT Bal	1,560.00
Wireworld Orbit	30.00
Wireworld Solstice II	40.00
XLO Type 150	50.00
XLO Type 0.1	180.00



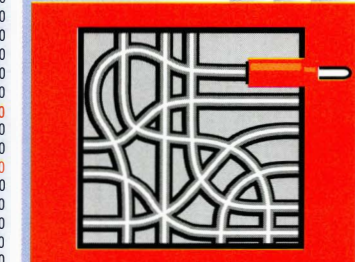
DIGITAL INTERCONNECTS

KEY
⊗ - stranded construction.
⊙ - solid-core construction.

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

Apertura Model B	139.00
Apertura Model A	255.00
Apogee Digital Wyde Eye	20.00
Apogee Digital Wyde Eye Bal.	30.00
Art Yam Church 5000	275.00
Audioquest Digital/video 1	30.00
Audioquest Digital/video 2	60.00
Audioquest Optilink X	90.00
Audioquest Digital PRO	100.00
Audioquest Optilink Pro	149.00
Audioquest Optilink Z	179.00

Cable Talk Digital 2	78.00
Cardas Audio Lightning	190.00
ChordCo Codac	36.00
ChordCo Prodac	50.00
DNM-Reson DIG100	26.00
DPA Opti-link	20.00
DPA Digi-link	28.00
Insert Audio Dataline 500	24.95
Insert Audio Dataline 700	39.95
Insert Audio Image 5.1	44.95
Ixos 105	25.00
Ixos 106	30.00
Kimber Opti-link	50.00
Kimber Illuminati DV-30	70.00
Kimber Illuminati D-60	325.00
Kimber Illuminati DX-50	350.00
Kimber Illuminati Orchid	750.00
LAT International DI-20-D	79.00
Moth Leyline Datalink	140.00
Nordost Moonglo	155.00
Precious Metals Silver Dig 35	20.00
Precious Metals Silver Dig 100	50.00
Precious Metals Silver Dig 200	110.00
Precious Metals Silver Dig 202	145.00
QED DigiFlex	20.00
QED Optiflex	25.00
Roksan ROK-Intercon	45.00
Shiny Digital	265.00
Siltech HF-6	145.00
Sonic Link Green	60.00
Transparent Cable PDL	199.00
Trichord Pulsewire 75D	75.00
Trichord Pulsewire 110D	145.00
Vampire Wire D/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

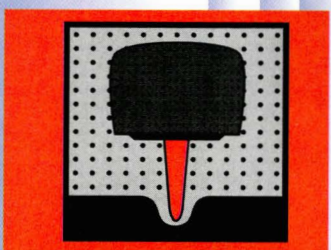
KEY
⊗ - stranded construction.
⊙ - solid-core construction.

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
Brandridge LC7409	4.00
Brandridge LC4110	28.00
Brandridge LC3410	40.00
Brandridge LC3210	75.00
Brandridge LC3219	75.00
Brandridge LC3220	90.00
Brandridge LC3310	95.00
Brandridge 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
BPA Black Sixteen	100.00
Electrocompanion 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
box 607	2.00
box 6004	3.00
box 6003	3.00
box 605	3.00
Kimber 4PR	3.90
Kimber 4VS	9.00
Kimber 4TC	19.60
Kimber 8TC	32.70
Kimber 4AG	394.00
Kimber 8AG	656.00
LAT International SS 800	21.00
LAT International BIWIRE	27.00
LAT International SS 1000	42.50
Lieder Pad	340.00
Lieder Bel Canto	450.00
Lieder Spoor	580.00
Lieder Straat	1,000.00
Lieder Weg	1,400.00
Linn K20	4.00
Linn K400	10.00
Linn K600	15.00
Lumley Silver 12/2	35.00
Lumley Silver 14/4	40.00
Mission Duet	1.90
Mission Quartet bi-wire	3.90
Naim NACA 5	5.50
Nordost Octava	3.00
Nordost 4-Flat	12.00
Nordost Blue Heaven Spkr	55.00
Nordost Red Dawn	110.00
Nordost SPM	325.00
Ortofon SPK100	3.00
Ortofon SPK200	5.00
Ortofon SPK300	8.00
Precious Metals Silver L'r 32	7.50
Precious Metals Silver L'r 102	10.00
Precious Metals Silver L'r 34	15.00
Precious Metals Silver L'r 104	20.00
Precious Metals Silver L'r 106	30.00
Precious Metals Silver L'r 108	40.00
Puresonic OFC 7892	1.20
Puresonic OFC 7844	1.65
Puresonic OFC 7845	1.95
Puresonic OFC 7891	2.85
Puresonic OFC 7816	3.75
Puresonic OFC 7832	3.75
Puresonic OFC 7812	3.75
Puresonic OFC 7825	6.95
Puresonic PSOCC 7801	9.50
Puresonic PSOCC 7802	18.00
Puresonic PSOCC 7803	27.00
QED Qudos Micro	1.25
QED Qudos micro 4 core	2.00
QED Qudos 4 core	4.00
QED Qudos Bi-Wire	4.50
QED Qudos Silver	4.95
QED Profile 4x4	9.00
QED Profile Silver 12	15.00
Rega REGA	2.00
Roksan ROK-Speaker	6.00
Shiny Red Devil	30.00
Shiny Red Star 2	39.00
Shiny Black Star 2	62.00
Shiny Pulsar 2	104.00
Shiny Quasar 2	208.00
Siltech LS2-45	109.00
Siltech FT-12 MK1	240.00
Siltech LS4-120	549.00
Silver Sounds 12 Gauge	15.00
Silver Sounds 10 Gauge	35.00
Silver Sounds 8 Gauge	75.00
Silver Tone Silver-Sonic	10.00
Silver Tone Silver-Sonic HC	15.00
Silver Tone Silver-Voice	55.00
Silver Tone Silver-Voice Ultra	85.00
Sonic Link AS150	1.95
Sonic Link AS175	2.75
Sonic Link AS200	5.95
Sonic Link AS200x2	10.00
Sonic Link S300	18.00
Sonic Link S130x2	20.00
Sonic Link S300x2	35.00
Sonic Link S900	50.00
Sonic Link S600x2	70.00
Sonic Link RE3.1	90.00
Sonic Link RE3.4	330.00
Tech + Link SPC 79	1.20

Transparent Cable 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	75.00
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

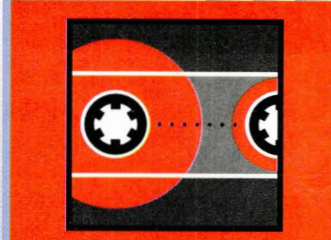
KEY
MM - moving-magnet type.
MC - moving-coil type.

Up to £100

Audio Note IO1	MM	99
Audio Technica AT-91	MM	15
Audio Technica AT-95E	MM	20
Audio Technica AT-110E	MM	28
Audio Technica AT450E	MM	70
Audio Technica AT440ML	MM	90
Benz-Micro MC20EII	MC	70
Denon DL110	MC	70
Denon DL160	MC	90
Denon DL103	MC	100
Goldingr Elan	MM	19
Goldingr Elektra	MM	19
Goldingr 1006	MM	59
Goldingr 1012GX	MM	79
Goldingr 1022GX	MM	99
Grado ZTE+1	MM	27
Grado ZCE+1	MM	37
Grado ZFE+1	MM	48
Grado Prestige Black	MM	49
Grado Prestige Green	MM	59
Grado Prestige Blue	MM	69
Grado ZF1+	MM	83
Grado Prestige Red	MM	99
N'ham Tracer I	MM	98
Ortofon VMS2	MM	14
Ortofon OM 5E	MM	20
Ortofon OM 10	MM	30
Ortofon 510	MM	38
Ortofon OM DJ	MM	50
Ortofon 520	MM	65
Ortofon OM 20	MM	70
Ortofon MC1 Turbo	MC	70
Ortofon Concorde DJ	MM	80
Ortofon OM 30	MM	90
Ortofon MC10 Super	MC	100
Ortofon 530	MM	100
Pickering TE-15	MM	20
Pickering VE-15	MM	25
Pickering T-E	MM	25
Pickering V15-DJ	MM	28
Pickering TL-E	MM	35
Pickering TL-2E	MM	45
Pickering XV15-625E	MM	50
Pickering XV15-150-DJ	MM	50
Pickering TL-2-S	MM	55
Pickering XV15-757S	MM	60
Pickering XV15-625DJ	MM	60
Pickering XV15-1800S	MM	60
Pickering TL3S	MM	70
Pickering XEV-3001E	MM	80
Pickering XEV-3500	MM	95
Pickering TL-4-S	MM	100
Rega Bias	MM	100
Rega RB78	MM	39
Rega Super Bias	MM	39
Rega Elys	MM	59

Shure M708X	21	
Shure M92E	22	
Shure SC35C	29	
Shure M447X	35	
Shure M44GX	35	
Stanton 500AL II	35	
Stanton 500EL	44	
Stanton 680ALX	59	
Stanton 680ELX	74	
Sumiko Oyster	30	
Sumiko Black Pearl	50	
Sumiko Pearl	70	
Sumiko Blue Point	100	
Over £100		
Audio Note IO2	MM	139
Audio Note Soara	MC	795
Audio Note IO1V	MC	1,095
Audio Note IOLTD	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	1,688
Goldingr Eroica LX	MC	110
Goldingr Eroica	MC	110
Goldingr 1042	MC	120
Goldingr Elite	MM	220
Goldingr Excel VX	MC	525
Grado Prestige Silver	MM	119
Grado Prestige Gold	MM	149
Grado Signature Junior	MM	150
Grado Signature 8MZ	MM	250
Grado Signature MCZ	MM	375
Grado Signature TLZ	MM	650
Grado Signature XTZ	MM	975
Grado Reference	MM	995
Koetsu Red T	MC	1,550
Koetsu Red K Sig	MC	1,998
Koetsu Urushi	MC	2,297
Koetsu Signature	MC	3,218
Koetsu Gold PR	MC	5,498
Linn K3	MM	125
Linn Klyde	MC	500
Linn Arkiv	MC	1,000
London Decca Maroon	MM	259
London Decca Gold	MM	299
London Decca Maroon Dp	MM	339
London Decca Gold Dp	MM	379
London Decca S Gold	MM	399
London Decca S Gold Dp	MM	479
London Decca Jubilee	MM	999
Lyra Lydian	MC	649
Lyra Clavis Da Capo	MC	995
Lyra Parmassus DCt	MC	1,895
N'ham Tracer II	MM	310
N'ham Tracer III	MM	410
N'ham Tracer IV	MM	660
Ortofon MC3 Turbo	MC	130
Ortofon MC15 Super II	MC	130
Ortofon 540	MM	130
Ortofon MC25E	MC	180
Ortofon MC25FL	MC	250
Ortofon MC10 Supreme	MC	300
Ortofon SPU mono	MC	350
Ortofon MC20 Supreme	MC	425
Ortofon SPU Classic	MC	450
Ortofon MC30 Supreme	MC	525
Ortofon MC200II	MC	750
Ortofon MC Rohmann	MC	1,000
Ortofon IMC3000 II	MC	1,100
Ortofon MC5000	MC	1,500
Ortofon MC7500	MC	2,000
Pickering TL-3003	MM	145
Pickering XLZ-4500	MM	150
Pickering TL-4004	MM	175
Pickering XSV-5000U	MM	200
Pickering XLZ-7500	MM	200
Pickering TLZ-7500-S	MM	200
Reson Mica	MM	185
Reson Reca	MM	250
Reson Aciore	MC	299
Reson Etile	MC	455
Reson Laxe	MC	1,300
Roksan Corus Black	MM	130
Roksan Shiraz	MC	970

Shure V15XMR	MM	295
Stanton 890ALX	MM	120
Sumiko BPS	MC	250
Transfiguration Spirit	MC	1,000
Transfiguration Temper	MC	1,950
Van Den Hul MM-1	MM	250
Van Den Hul MM-2	MM	300
Van Den Hul DDT-II	MC	600
Van Den Hul MC-10	MC	750
Van Den Hul MC-One	MC	900
Van Den Hul MC-ONE Super	MC	1,050
Van Den Hul MC-Two	MC	1,200
Van Den Hul The Frog Low o/p	MC	1,500
Van Den Hul Grasshopper IISLA	MC	2,000
Van Den Hul Grasshopper IIIGLN	MC	2,800
Van Den Hul Grasshopper IIIGLA	MC	2,800
Van Den Hul Grasshopper IIICMN	MC	2,800
Van Den Hul Grasshopper IIICHN	MC	2,900
Van Den Hul Grasshopper IVGLA	MC	3,000
Wilson Benesch Matrix	MC	786
Wilson Benesch Carbon	MC	1,573
Wilson Benesch Analog	MC	1,850



CASSETTE DECKS

KEY
 ← → Autoreverse — no need to remove and turn round the tape.
 3-H — 3 heads, i.e. separate record and replay heads.

Up to £200

Aiwa ADS750	100	
Aiwa AD-F460	120	
Aiwa AD-WX727	170	
Akai DXW1100	200	
Akai DX1200	200	
Ariston WX-510	80	
Denon DRM-550	160	
Denon DRW-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-5250	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-A26	3-H	200
Yamaha KX-390	150	
Yamaha KX-W392	180	
Yamaha KX-490	200	
Over £200		
Aiwa AD-F850	3-H	230
Aiwa AD-S950	3-H	300
Carver TDR-1550	629	
Denon DRM-650S	230	
Denon DRM-710	3-H	270
Denon DRS-840	3-H	310
H/K TD420	250	
H/K TD450	3-H	350
JVC TD-V62BK	3-H	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
Pioneer CT-S550S	3-H 250
Pioneer CT-W806DR	3-H 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-KAGES	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
Yamaha KX-690	3-H 400

Sony CDP-M205	110
Sony CDP-XE210	120
Sony CDP-M305	130
Sony CDP-XE310	140
Sony CDP-CE105	150
Sony CDP-XE510	180
Sony CDP-CE315	200
Sony CDP-C325M	200
Synergy CDJ1210	120
TEAC CD-P1800	130
TEAC CD-P3450SE	200
TEAC PD-H500	240
TEAC PD-D2200	250
Technics SL-PG380A	100
Technics SL-PG480A	130
Technics SL-PG580A	150
Technics SL-PD687	160
Technics SL-PD887	180
Technics SL-PS670D	200
Technics SL-PS770D	210
Yamaha CDX-390	130
Yamaha CDC-565	170
Yamaha CDX-490	170
Yamaha CDC-665	220
Yamaha CDX-590	230

TEAC VRDS-9	700
TEAC VRDS-10SE	850
Technics SL-P2000	1,000
Trichord Genesis	549
Trichord Digital Jukebox 25	599
Trichord Digital Jukebox 50	649
Trichord Digital J'box 100	699
Trichord Revelation	799
YBA Special	625
Over £1000	
Acoustic Precision Eikos	1,850
Alchemist Forseti	1,950
Audio Research C01	3,290
Audio Research C02	4,100
Audiomeca Talisman	2,150
Audiomeca Talisman SE	2,300
AVI S2000MC	1,399
Cary CD-301	2,495
Conrad-Johnson DF-2	1,695
Conrad-Johnson DV-2b	2,495
Copland CDA-266	1,199
Copland CD277	1,800
Copland CDA288	2,199
Cymbol CDP12	1,299
Helios Model 1	1,250
Helios Stargate	2,250
Krell KPS30i	5,490
Krell KPS-20i	9,990
Marantz CD-17KIS	1,100
Mark Levinson 39	4,995
Meracus Tanto	1,395
Meracus Imago Player	4,495
Meridian 506	1,100
Meridian 508	1,995
Micromega Solo	2,750
Myriad MCD500	1,300
Naim CD2	2,000
Naim CDX	2,200
Naim CDS	3,940
Oracle CD Player	7,300
Pink Triangle Numeral	1,049
Pink Triangle Litaural	2,200
Primare 302	1,800
Roksan Attesa-DP3P	1,495
Sherwood CD1	1,100
Sonic Frontiers Anthem CD1	1,595
Sonic Frontiers SFCD-1	3,495
TEAC VRDS-25	1,300
Theta Digital Miles	2,495
XTC CDP-1	1,250
YBA Integre	1,250
YBA CD3	2,250
YBA CD2	3,350
YBA CD1	4,500
Altis CDT III	4,995

Micromega Data	2,250
Monrio Bitmatch	950
Muse Model 5	1,800
Oracle CD Drive	4,680
Pink Triangle Cardinal II	909
PS Audio Lambda TR	2,250
PS Audio Lambda AT&T	2,778
Rogers SC-8t	2,699
Roksan Attesa-DP3	1,295
Sonic Frontiers SFT-1	2,295
Sonic Frontiers Transport 3	5,995
T+A CM1200R	990
TEAC VRDS-T1	550
TEAC P-30	2,500
Theta Digital Data Basic II	2,397
Theta Digital Data III NTSC/PAL	5,455
Thorens TCD-2000	999
Trichord Digital Turntable	699
Tube Tech Fulcrum	1,000
Wadia 8	3,195
Wadia 20	4,370



CD PLAYERS

KEY

- ▶ - **multiplayer: can be loaded with more than one disc.**
- Ⓜ - **electrical (coaxial) digital output.**

Many players also include an optical (Toslink) output.

Up to £250

Aiwa XC-300	150
Akai CD1100	180
Akai CDM1200	230
AMC CD9	120
AMC CD8A	150
AMC CD6	250
AMC CDM7	250
Ariston CDX700	60
Ariston CDX710	100
Ariston CDX910	100
Ariston CDC610	140
Cambridge CD4	150
Cambridge CD4SE	200
Cambridge CD6	250
Denon DCD-635	180
Denon DCD-625	200
Denon DCD-715	235
Denon DCD-825	240
H/K HD710	200
JVC XL-V120BK	110
JVC XL-V130BK	120
JVC XL-V230BK	140
JVC XL-F116BK	180
JVC XL-F216BK	200
JVC XL-Z574BK	250
Kenwood DP-1080	110
Kenwood DP-2080	130
Kenwood DP-R3090	140
Kenwood DP-R4090	160
Kenwood DP-3080	170
Kenwood DP-R6090	200
Kenwood DP-4090	250
Marantz CD-38	130
Marantz CC-38	200
Marantz CD-48	200
Marantz CD-57	230
Marantz CD-67II	250
NAD 510	200
NAD 512	250
Philips CD711	120
Philips CD721	130
Philips CD751	150
Philips CDC751	180
Pioneer PD-106	130
Pioneer PD-206	150
Pioneer PD-F606	200
Pioneer PD-M603	200
Pioneer PD-S505	200
Pioneer PD-F706	250
Rotel RCD-930AX	180
Rotel RCD950	250
Sansui CD220	100
Sherwood CD-4030R	180
Sherwood CDC680	180
Sherwood CDC6050R	180

£251 to £500

Aiwa DX-C100M	500
Arcam Alpha 7	330
Arcam Alpha MCD	450
Aura CD100	400
Carver MV-5	469
Denon DCM-260	300
Denon DCD-1550AR	350
Denon DCD-1015	350
H/K HD730	300
H/K FL8300	300
JVC XL-Z674BK	300
Kenwood DP-R7080	300
Kenwood DP-9090	300
Kenwood DP-7090	400
Marantz CD-67SE	350
Marantz CC-870	400
Marantz CD-63IKI	400
Musical Fidelity E60	500
Musical Fidelity A2 CD	500
NAD 513	290
NAD 515	350
NAD 514	370
NAD 517	400
Onkyo DX 7210	290
Onkyo C721	260
Onkyo DXC 320	380
Onkyo DX 7510	400
Onkyo CM 716	450
Pioneer PD-F805	300
Pioneer PD-S705	300
Pioneer PD-F906	350
Pioneer PD-S904	400
Pioneer PD-S505 Precision	460
Sony CDP-CX55	280
Sony CDP-XE900E	300
Sony CDP-CX200	380
Sony CDP-XA20ES	450
Sony CDP-X3000ES	500
TEAC CD-5	350
Technics SL-MC410	300
Yamaha CDX-890	350

£501 to £1000

Acurus ACD11	899
Alchemist Nexus	597
Arcam Alpha 8	520
Arcam Alpha 8SE	600
Audiolab 8000CD	1,000
AVI S2000MC2	899
Creek CD42	599
Denon DCD-3000	1,000
DPA Renaissance int CD	950
Fase Evoluzione Laserdrive 1.0	995
Helios Model 3	650
Helios Model 2	950
Heybrook Signature II	989
Linn Mimik	875
Magnum CD2020	595
Marantz CD-17	800
Micromega Stage 4	600
Micromega Stage 5	750
Micromega Stage 6	950
Mission dAD3	598
Mission dAD3Q	898
Monrio Privilege	995
Myriad MC100	700
Naim CD3	1,000
Orelle CD100eA	649
Orelle CD-100eSA	999
Pioneer PDS-06	550
Primare D20	800
Quad 77 Bus	700
Quad 77 Mains	900
Roksan Caspian	895
Synergy CDJ1220	600
T+A CD1200R	895
TEAC VRDS-7	599



DIGITAL TO ANALOGUE CONVERTERS (DACs)

KEY

4 - number of digital inputs

Altis Reference	4,995
AMC CDM7DAC	100
AMC DAC8	130
AMC CDM7VAC	200
Apogee Digital DA-1000	3,395
Arcam Black Box 50	350
Arcam Black Box 500	500
Audio Note DAC1	675
Audio Note DAC2	1,099
Audio Note DAC3	1,750
Audio Research DAC2	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	1,000
Audiomeca Elixir	799
Audiomeca Ambrosia	1,850
Boulder 2020	17,750
Cambridge Dacmagic 2 Mk II	150
Chord DSC1100	2,575
Chord DSC1500	3,850
Conrad-Johnson D/A-3	1,195
Conrad-Johnson D/A-2b	1,990
Denon DCD-425	150
DPA Little Bit 3	325
DPA Renaissance DAC	570
DPA Enlightenment DAC	825
DPA SK128	2,000
DPA SX256	4,000
DPA SX512	8,000
Jadis JS3	2,129
Jadis JS1	8,068
LFD DAC2	1,950
LFD DAC3	3,000
Linn Numerik	1,500
Manley Professional DAC-20	6,950
Mark Levinson 36	3,995
Mark Levinson 30.5	15,950
Meracus Auriga	1,295
Meracus Flagrare	2,495
Meridian 566	1,095
Micromega DAC 2	750
Micromega Dialog	2,000
Monrio 18B2	795
Muse Model 2	2,190
Muse Model 2 Plus	2,500
Musical Fidelity X-ACT	200
Musical Fidelity X-DAC	300
Onkyo DX 7310	330
PS Audio DL3	777
PS Audio SL3	1,449
PS Audio UltraLink 2 HDCD	2,590
PS Audio Ref Link	4,550
Rogers SC-8m	1,899
Roksan Attesa-DA2	595
Sonic Frontiers SFD-2 Mk 2	5,295
Sonic Frontiers Processor 3	6,995
Sumo Theorem II	945
Sumo Theorem IIB	1,155
Talk Electronics Thunder 3	1,000
TEAC D-T1	500

CD TRANSPORTS

KEY

- Ⓜ - **electrical (coaxial) digital output.**

Many players also include an optical (Toslink) output.

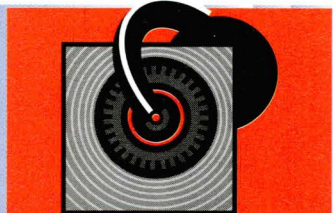
Arcam Delta 250	800
Audio Research CDTI	3,290
Audio Synthesis Transcend Decade	2,995
Audiolab 8000CDM	1,400
Audiomeca Damnation	999
Audiomeca Damnation SE	1,100
Audiomeca Talisman	1,850
Audiomeca Talisman SE	1,999
Audiomeca Talisman DOB	2,250
Audiomeca Mephisto	2,350
Audiomeca Mephisto SE	2,500
Audiomeca Mephisto	2,750
Cambridge Discmagic One	300
Conrad-Johnson DR-1	1,795
DPA Enlightenment Drv	725
Jadis J03	4,850
Jadis J02	4,990
Jadis J01	12,500
Krell KPS-20t	8,490
Linn Karik	1,850
Mark Levinson 37	3,995
Mark Levinson 31.5	9,295
Meracus Imago	3,995
Meridian 500	1,245
Micromega Drive 3	750

Onkyo TA 6310	330
Onkyo KR 609	350
Onkyo KW 606	370
Onkyo TARW 411	370
Onkyo K 611	3-H 460
Pioneer CT-S550S	3-H 250
Pioneer CT-W806DR	3-H 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-KAGES	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
Yamaha KX-690	3-H 400



Sennheiser HD545 Reference.

TEAC D-700	600
Theta Digital Chroma Std	849
Theta Digital Pro Geny	1,145
Theta Digital Pro Prime II	1,800
Theta Digital Pro Basic III	2,990
Theta Digital Gen V SE	4,300
Theta Digital Casablanca LS	5,910
Thorens TDA-2000	700
Trichord Pulsar Sar One	1,395
Tube Tech Fulcrum	1,400
Wadia 12	1,530
Wadia 15	3,790
Wadia 64.4	4,750
Wadia 16	7,395
Wadia 7	9,995
Wadia 9	12,790
Woodside DVAC-18	1,499



HEADPHONES

KEY
 'D' - dynamic type, compatible with virtually all normal headphone sockets.
 'E' - electrostatic type; generally includes a separate power supply.
 ☞ - open-back construction.
 ☞ - closed-back construction.

Up to £40

Aiwa HP-X301	D	☞	20
Aiwa HP-VX303	D	☞	25
Aiwa HP-X705	D	☞	40
AKG Rox	D	☞	30
Aural Envelope DX200	D	☞	30
Aural Envelope DX220	D	☞	30
Beyer DT111	D	☞	15
Beyer DT211	D	☞	31
Beyer DT211TV	D	☞	35
JVC HA-CD88	D	☞	18
JVC HA-D525	D	☞	20
JVC HA-F65	D	☞	20
JVC HA-D626	D	☞	25
Kenwood KPM-310	D	☞	18
Kenwood KPM-410	D	☞	25
KLH KHP201TW	D	☞	21
KLH KHP-300V	D	☞	25
KLH KHP-420V	D	☞	33
Maxell HP-2000	D	☞	20
Pioneer SE-A20	D	☞	20
Pioneer SE-A40	D	☞	23
Pioneer SE-M250	D	☞	25
Pioneer SE-M350	D	☞	30
Sennheiser HD56	D	☞	18
Sennheiser HD433	D	☞	20
Sennheiser HD400	D	☞	25
Sennheiser HD470	D	☞	35
Sennheiser HD60TV	D	☞	40
Sony MDR-W20G	D	☞	18
Sony MDR-E837	D	☞	18
Sony MDR-P70	D	☞	18
Sony MDR-ED238	D	☞	20
Sony MDR-009TV	D	☞	20
Sony MDR-A34L	D	☞	20
Sony MDR-E848	D	☞	20

DIGITAL RECORDERS
KEY
MD - MiniDisc
DAT - Digital Audio Tape
☞ - portable

Denon DMD-1300	MD	500
Kenwood DMD-7090	MD	500
Onkyo MD 122	MD	700
Philips CDR870	MD	499
Pioneer PDR-04	MD	700
Pioneer D-05	DAT	900
Pioneer PDR-05	DAT	1,000
Pioneer D-C88	DAT	2,000
Sharp MD-R1E	MD	300
Sharp MD-MS200H	MD	350
Sharp MDXV300H	MD	1,000
Sony MZ-E20	MD	180
Sony MDS-JE510	MD	250
Sony MZ-E30	MD	280
Sony MDS-S38	MD	300
Sony MZ-R30	MD	300
Sony MDS-JA30ES	MD	699
TEAC MD-H500	MD	650
TEAC MD-10	MD	950

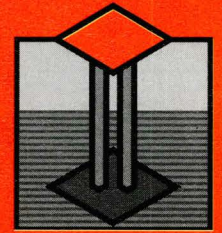
Sony MDR-P1TV	D	☞	25
Sony MDR-CD270	D	☞	30
Sony MDR-E868	D	☞	35
Sony MDR-V400	D	☞	40
Sony MDR-D11	D	☞	40
Stanton ST Pro	D	☞	25
Technics RP-F200	D	☞	30
Technics RP-HT300	D	☞	40
Vivanco SR150	D	☞	20
Vivanco SR200	D	☞	25
Vivanco SR250	D	☞	25
Vivanco SR300	D	☞	30
Vivanco IR5700	D	☞	40

Over £41

AKG K301	D	☞	80
AKG K2221R	D	☞	100
AKG K401	D	☞	120
AKG K501	D	☞	150
AKG K3331R	D	☞	150
AKG K4441R	D	☞	180
AKG K290S	D	☞	250
AKG K1000	D	☞	700
Audio Technica ATH910PRO	D	☞	80
Audio Technica ATHD40FS	D	☞	120
Audio Technica ATHM40FS	D	☞	120
Audio Technica ATH911	D	☞	120
Beyer DT311	D	☞	50
Beyer DT411	D	☞	63
Beyer DT511	D	☞	106
Beyer DT801	D	☞	125
Beyer DT811	D	☞	145
Beyer DT100	D	☞	160
Beyer DT901	D	☞	160
Beyer DT911	D	☞	170
Denon AH-D210	D	☞	45
Denon AH-D350	D	☞	65
Denon AH-D550	D	☞	80
Denon AH-D650	D	☞	95
Denon AH-D750	D	☞	130
Denon AH-D950	D	☞	150
Grado SR40	D	☞	45
Grado SR60	D	☞	79
Grado SR80	D	☞	100
Grado SR125	D	☞	150
Grado SR225	D	☞	200
Grado SR325	D	☞	300
Grado RS2	D	☞	495
Grado RS1	D	☞	695
Jecklin Float Model 1	D	☞	79
Jecklin Float Model 2	D	☞	99
Jecklin Float ELS	E	☞	399
JVC HA-D727	D	☞	43
JVC HA-W60	D	☞	49
JVC HA-D910	D	☞	65
JVC HA-D1000	D	☞	250
JVC HA-F25	D	☞	699
Philips SBC 3396	D	☞	70
Philips SBC HP9000	D	☞	90
Pioneer SE-M550	D	☞	50
Pioneer SE-M750	D	☞	60
Precide Ergo Model 1	D	☞	120
Precide Ergo Model 2	D	☞	140
Sennheiser IS 380	D	☞	55
Sennheiser HD455	D	☞	55
Sennheiser HD465	D	☞	65
Sennheiser HD570	D	☞	80
Sennheiser HD475	D	☞	80
Sennheiser HD25 SP	D	☞	90
Sennheiser IS450	D	☞	110
Sennheiser HD545 Ref	D	☞	125
Sennheiser HD265 Linear	D	☞	125
Sennheiser HD250II	D	☞	150
Sennheiser HDC 451-1	D	☞	150
Sennheiser HD585 Ovat'n	D	☞	150
Sennheiser HD25-13	D	☞	160
Sennheiser HD25	D	☞	160
Sennheiser HD 580 P'cision	D	☞	200
Sennheiser HD600	D	☞	250
Sennheiser Lucas	D	☞	280
Sennheiser IS850	D	☞	859
Sennheiser HE60/HEV70	E	☞	988
Sennheiser Orpheus	E	☞	9,652
Sony MDR-IF120K	D	☞	50
Sony MDR-E888	D	☞	55
Sony MDR-IF125R/K	D	☞	60
Sony MDR-V600	D	☞	70
Sony MDR-F1	D	☞	100
Sony MDR-NC5	D	☞	100
Sony MDR-IF420R/K	D	☞	100
Sony MDR-CD770	D	☞	100
Sony MDR-D77	D	☞	130
Sony MDR-IF520R/K	D	☞	150
Sony MDR-CD1700	D	☞	200
Stanton DJ Pro 101/HB	D	☞	65
Stanton DJ Pro 1000	D	☞	95
Stanton DJ Pro 1001	D	☞	150
Stax SR-0001	E	☞	280
Stax SR-Lambda Nova C	E	☞	370
Stax Lambda Nova Basic	E	☞	449
Stax SR-Lambda Nova S	E	☞	450
Technics RP-F800	D	☞	50
Technics RP-HT600	D	☞	60

Technics RP-DJ1200	D	☞	130
Vivanco IR5800	D	☞	50
Vivanco SR850	D	☞	50
Vivanco SR650	D	☞	50
Vivanco FMH 3000	D	☞	60
Vivanco SR750	D	☞	60
Vivanco IR6000	D	☞	70
Vivanco SR909	D	☞	70
Vivanco IR7600	D	☞	100
Vivanco SR1000IFL	D	☞	100
Vivanco SR2000IFL	D	☞	120

EQUIPMENT SUPPORTS



SPEAKER STANDS

KEY
 60 - height of stand in cm

Alphason NCI	60	47
Alphason Akros I	60	49
Alphason RS1	120	49
Alphason Akros II	60	59
Alphason NCIII	60	84
Alphason HDS-40/M	60	85
Alphason Titan S	60	125
Apollo A26	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 P6144BP	60	35
BCD Model 1010	60	495
Crede 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
Heybrook Stand-ULT	3	55
Heybrook Stand-S6	63	69
Heybrook Stand-S4	48	69
Heybrook Stand-S1	47	119
JPW MS2	45	45
JPW MS3	61	55
JPW MS1	46	80
JPW HS1	58	120
JPW HS2	45	120
Kudos Audio Arrow	60	50
Kudos Audio S-50	60	100
Kudos Audio S-100	63	270
Mission Micrometer	58	70
Mission Entasis	58	98
Opera S1	60	345
Pioneer CP-7		50
Pioneer CP-8		80
Projekt Signature	55	80
Revolver RS1	50	70

Royd Royd	55	99
SD Acoustics SD Alexandra	50	369
Silverado Silverado 1 Stand	60	350
Sonus Faber Ironwood		475
Sonus Faber Stonewood		497
Sound Org Z037		55
Sound Org Z027		55
Sound Org Z026		55
Sound Org Z518	45	65
Soundstyle X6118	42	100
Stands Unique Speaker support	59	159
Stands Unique Tuned Spkr Support	59	220
Stands Unique Tuned Carbon Fibre	59	299
Stands Unique Vivas CF Spkr Supp	60	349
Target TR60	60	68
Target R1	53	280

EQUIPMENT SUPPORTS

KEY
3 = number of shelves

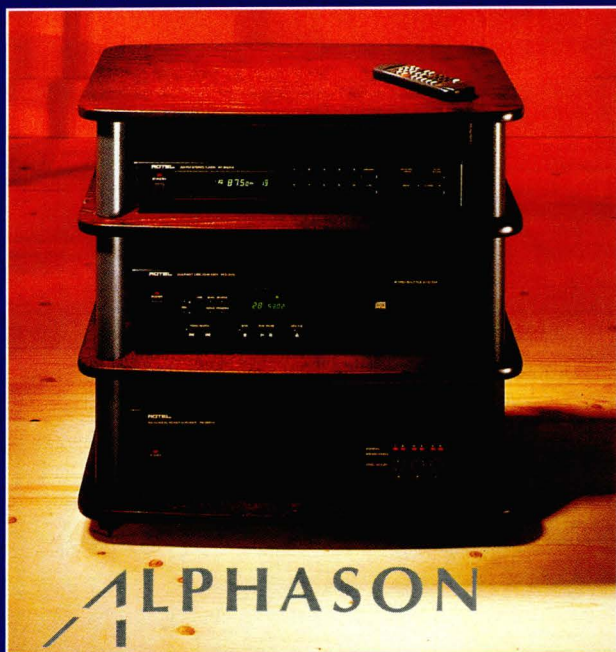
Alphason SM17	1	49
Alphason YSM17	1	85
Alphason GSM17	1	85
Alphason GMV1P	1	110
Alphason R17/17	3	120
Alphason GMH17	1	150
Alphason GR17/17	3	150
Alphason VR17/17	3	190
Audiophile Base 01	1	79
Audiophile S4T120	4	280
Audiophile S4T120P	4	560
BCD Model 1006/8	1	795
BCD Model 1000	3	1,250
Custom Design 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		130
Frameworks FS1	1	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	60
Quadraspire Q4S shelf	1	60
Quadraspire QKS Cabinet shelf	1	80
Quadraspire QAV shelf	1	120
Quadraspire Q4M mini table	4	200
Quadraspire Q4 table	4	200
Quadraspire QAV table	3	300
Quadraspire Q4SP Table	4	320
Quadraspire QAVSP Table	4	400
Quadraspire QK Cabinet	4	400
Reson DOMOPS	1	195
Reson DOMOWS	1	195
Sound Org Z022	1	65
Sound Org Z021	2	78
Sound Org Z030	3	100
Sound Org Z060	4	120
Sound Org Z038	5	135
Sound Org Z540	4	140
Sound Org Z545	4	140
Sound Org Z560	5	160
Sound Org Z530	3	170
Soundstyle X300	3	180
Soundstyle X305	3	210
Soundstyle X053	4	210
Soundstyle X050	4	210
Soundstyle X6300	3	215
Soundstyle X100	4	220
Soundstyle X6110	4	230
Soundstyle X058	5	240
Soundstyle X310	3	250
Soundstyle X105	5	250
Soundstyle X6053	4	255
Soundstyle X6100	4	265
Soundstyle X6310	3	275
Soundstyle X6058	5	290
Soundstyle X6105	5	300
Soundstyle Finewoods W105	5	320
Stands Unique Isolation Platform	1	52
Stands Unique Sound Support	4	249
Stands Unique Sound Tower	5	289
Stands Unique Compact Sound Supp	4	315
Stands Unique Sound Support 10	4	315
Stands Unique Sound Twr Cabinet	5	369
Stands Unique Ref Wall Support	1	550
Stands Unique Ultimate Tower	10	689
Stands Unique Ref Floor Support	6	799
Target B5	5	175
Townshend Seismic Sink 1-CD		110
Townshend Seismic Sink 1-3D		400
Townshend S/Sink Stand 1-4	4	999
Townshend Seismic Sink 3-4	4	1,250
Wilson Benesch Standard Shelf	1	130
Wilson Benesch Mono Block	1	265
Wilson Benesch Kevlar Shelf	1	270
Wilson Benesch Asside Basic	1	590
Wilson Benesch Asside	4	720
Wilson Benesch Triptych	1	990

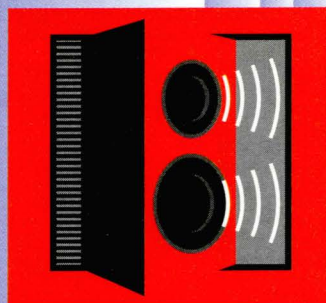
Ariston MSX 05		80
Celestion 12i		119
Denon SC-M2		80
Gale Mini Monitors		70
Gale Gold Monitors		90
Genexa GX300		80
Genexa GX330		80
GLL Arena		90
Goodmans Active 75		65
Interaudio XL1000		130
Jamo Studio-80		70
Jamo SAT-90		90
Jamo Cornet 25		100
Jamo D-110		100
Jamo SAT-170		110
Jamo Studio-110		110
Jamo Cornet 35		120
Jamo Artina		120
Jamo D-115		120
Jamo 28		125
JBL TLX111		120
JPW Mini Monitor		60
JPW ML110		70
JPW Gold Monitor		80
JPW ML210		80
JPW ML310		90
JPW ML410		100
JPW ML510		130
JVC SX-SC1VBK		60
JVC SP-V50		80
JVC SP-X220TBK		100
JVC SP-X550BK		130
KEF Coda 7		129
Kenwood LS-90UK		130
Mission 731i		130
Mordaunt-Short VS-100		100
Mordaunt-Short MS05i		100
NAD 801		100
Paradigm Micro		100
P radigm Atom		130
Pioneer CS-3030		120
Polk AB410		100
Realistic Minimus 26		56
Realistic Minimus Pro-77		100
Revolver Beretta		100
R Allen Minette 2		129
Solid HCM2		130
Sony SS-86E		100
Tangent Monitor 3		60
Tangent Monitor 5		80
Tangent Monitor 7		100
Tannoy Mercury M1		120
TDL Nucleus 1		75
TDL Nucleus 2		130
TEAC LS-X8 Mk II		80
Technics SB-CS55		80
Technics SB-CS65		100
Technics SB-CS75		100
Visonik 5202		129
W'dale Valduis 100		80
W'dale Diamond 7.1		100
W'dale Valduis 200		110
W'dale Modus Micro		110

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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

Allison Micro Monitors	□	95
Allison Mini References	□	120

£131 to £200		
Acoustic Energy AE100	□	200
Allison Model 4A	□	170
B&W DM302	□	150
B&W CWM5	□	170
B&W DM601	□	199
Bose 101	□	190
Bose 141	□	200
Boston CR6	□	149
Boston 325	□	149
Boston Micro 80 Sat	□	169
Boston Runabout	□	169
Boston 335	□	179
Boston 351	□	189
Boston CR7	□	199
Boston Runabout II	□	200
Celestion 15i	□	199
Corwin-Vega CT-165	□	200
Denon SC-E313	□	160
Gale 2i	□	140
Gale 4i	□	140
Gale 3i	□	150
Genexa GX650	□	140
GLL Imagio IC100	□	170
Heybrook Prima	□	159
Infinity SM65	□	150
Infinity Reference 1i	□	150
Infinity Reference 11i	□	200
Interaudio XL2000	□	200
Jamo 38	□	150
Jamo 525	□	150
Jamo 560	□	150
Jamo 660	□	170
Jamo Cornet 65	□	170
Jamo Studio 180	□	180
Jamo D165	□	200
Jamo 68	□	200
JBL TLX121	□	150
JPW ML610	□	170

JPW SS551	200
KEF Coda 8	189
KEF Q15	199
KEF Model 60S	199
Kenwood LS-200G	200
KLH Model 21	155
KLH Model 11	155
KLH Model 31	185
Mission 731i Pro	140
Mission 732i	200
Mordaunt-Short MS10i Pearl	150
Mordaunt-Short VS-200	150
Mordaunt-Short MS20i Pearl	200
Mordaunt-Short VS-300	200
Paradigm Titan	150
Pioneer CS-5030	170
Polk M2	180
Polk RT3	200
Polk AB610	200
Rega KYTE	198
Revolver Colt	139
Revolver The 230	169
Revolver Purdy MkII	199
R Allen Minette 3	159
R Allen Dim'n 5/1 Compact	179
R Allen RA6	199
Rogers GS1	179
Royd A7X	155
Sequence 200	199
Solid Monitor	200
Sony SS-126EB	150
Sony SS-176E	200
Tangent Monitor 9	150
Tangent Monitor 11	180
Tannoy Mercury M2	140
TDL Nucleus 3	200
Technics SB-CS95	150
Technics SB-M20	200
Visonik 6003	143
Visonik 5001	170
W'dale Diamond 7.2	140
W'dale Valdis 300	150
W'dale Modus Music Two	200
W'dale Valdis 400	200
W'dale Diamond 7.3	200
ZYP A1	199

Boston Voyager	299
Castle Isis	250
Celestion Z3i	299
Cerwin-Vega VS-8	250
Cerwin-Vega CT-330	300
Chario Syntar 100	250
Dali 102B	260
Dali 150	300
Faraday FS1	245
Gale 5i	220
GLL Imagio IC110	260
GLL Imagio IC115	300
Heybrook Optima	259
Heybrook Heylette	269
Heybrook HB1	269
Infinity SM85	250
Interaudio XL3000	230
Interaudio XL4000	295
Jamo 892	220
Jamo Classic 4	250
Jamo Art	270
Jamo D265	300
Jamo 307A	300
JBL LX2	250
JBL TLX151	300
JPW ML710	230
JPW ML810	260
JPW ML910	300
JVC SX-SW10	300
KEF Coda 9	299
KEF Model 70S	299
KLH 83A	205
KLH 183A	265
KLH Soundbites System	276
KLH Model 81	280
KLH Model 41	290
M-A Monitor 1	250
M-A Monitor 2	300
Mordaunt-Short MS30i	275
Mordaunt-Short MS10i Classic	280
Mus Tec Kestrel SE	300
NAD 802	280
NHT SuperZero	218
Paradigm Mini Monitor	220
Pioneer CS-7030	230
Pioneer CS-9030	280
Pioneer S-LC1	300
Polk AB505	220
Polk M3 II	220
Polk RT5	250
Polk RT7	300
Polk M5	300
Promenade SP1	299
Rega EL8	290
Revolver The 250	219
R Allen Dimension Five 1	239
R Allen RA8	249
R Allen RA8M	279

R Allen Dimension Five 2	299
Rogers db101	250
Rogers GS3	299
Royd The Envoy	250
Royd Minstrel	300
Ruark Epilogue	250
Sequence 300	260
Solid HCM1	300
Sony SS-176EB	245
Tannoy Mercury M3	220
Tannoy Precision P10	260
Visonik 7003	300
Visonik SUB5	259
W'dale Modus Music Four	269
W'dale MFM1	269
W'dale Valdis 500	250
Yamaha NS10M	230
ZYP A1T	219
ZYP A2S	275
ZYP A2ST	295

£301 to £500

GLL Imagio IC130	269
Heybrook Heylios	250
Heybrook Heylo	279
Infinity SM105	249
Infinity SM115	275
Infinity SM125	239
Jamo Classic 6	249
Jamo Cornet 75	250
Jamo BX-100A	250
Jamo 98	230
Jamo 407A	300
Jamo D365	203
Jamo Cornet 95	259
Jamo Classic 8	230
Jamo Graphic	250
Jamo 128	300
Jamo BX-150A	300
Jamo Atmosphere	219
Jamo 477A	275
JBL LX6	295
JBL TLX161	350
JBL P58	450
JBL TLX171	450
JM Lab Micron	395
JM Lab Megane	495
Jordan Watts JHFLG	380
JPW SS553	325
JPW ML1010	400
JPW Ruby 1	425
JPW Ruby 2	350
KEF Q35	400
KEF Q55	400
KEF RDM One	500
Keswick Aria II	500
KLH 283A	352
KLH 383A	400
KLH Model 51	380
KLH Model 71	386
KLH Model 62T	500
Linn Sekrit	369
Mission 733i	369
Mission 751f	380
Mission 734i	350
M-A Monitor 3	450
M-A Monitor 4	470
Mordaunt-Short MS25i Pearl	399
Mordaunt-Short MS40i	449
Mus Tec Harrier	499
NAD 804	350
Neat Critique	395
NHT SuperOne	370
NHT Model 1.5	400
Opera Duetto	500
Origin Live OL-1AS	395
Origin Live Monarch	499
Paradigm Monitor 7	345
Paradigm Monitor 9	445
Pentachord A	400
Pioneer S-LC2	450
Polk AB705	330
Polk RT8	400
Polk RT10	500
Polk AB805	500
Prof Monitor Co TB1S	366
Prof Monitor Co TB1SM	403
Prof Monitor Co TB1	410
Prof Monitor Co TB1M	447
Prof Monitor Co XB1	499
Promenade SP2	399
Promenade SP3	499
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
TDL RTL2 SE	330
TDL RTL3SE	450
TDL Chiltern CF100	450
Technics SB-M300	350
Technics SB-M500	450
Totem Mite	495
Triangle Titus TZe	379
Triangle Lunn	500
Visonik TB1S	366
W'dale Modus Music Six	330
W'dale MFM3	350
W'dale Modus Music Eight	430
W'dale MFM5	450
W'dale Modus Music 1/6	500



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Epos ES22	1,185
Harbeth HL-K6	1,049
Harbeth HL-Compact 7	1,499
Harbeth BBC LS5/12A	1,499
Heybrook Sertel	1,299
Impulse Kora	1,250
Jamo Concert 8	1,300
JBL L40	1,000
JBL PS15	1,000
JBL L80	1,250
JBL L90	1,500
JM Lab Profil 77	1,050
JM Lab PS 5.1	1,250
JM Lab Spectral 909.1	1,375
Jordan Watts JH1+1	995
JPW Ruby 4	1,000
KEF Q75	999
KEF Ref. Model One	1,199
Kelly KT3	1,200
Keswick Torino	999
Keswick Figaro Evolution	1,099
Keswick Milano	1,199
Keswick Legato	1,199
Keswick Amber	1,499
Linn Tukan Aktiv	1,050
Linn Keilidh Aktiv	1,250
L Voice Auditorium	1,500
Lowther Accolade 2	1,199
Lumley L/M3.5	1,050
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 Callas II	950
Opera Terza	999
Opera Callas Gold	1,050
Opera Divina II	1,500
Origin Live Sovereign	975
P radigm Studio/100	950
Polk LS70	1,200
Polk RT20p	1,500
Proac Tablette 50 SIG	899
Proac Response 1 SC	1,199
Proac Studio 150	1,399
Prof Monitor Co LB1	935
Prof Monitor Co AB1	1,496
Rega XEL	1,040
RMS Revelation S 1	1,299
Rogers C6/28	1,399
Roksan Ojan 3X	995
Royd The Albion	985
Ruark Broadsword II	899
Ruark Paladin	1,099
Shahinian Super Elf	875
Shahinian Compass	1,395
Shiny 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 D100	999
TDL Cheviot CF300	850
Technics SB-M1000	1,500
Totem Model One	1,195
Triangle Antal	1,099
Vandersteen 2Ce	1,395
Visonik LB1	935
£1501 to £3000	
Acoustic Energy AE1 Sig	1,695
Acoustic Energy AE2 Sig	2,695
Alon II Mk II	2,300
Ambience Mod 3.2	1,780
Apertura Agora Signature	2,295
Apertura Tanagra	2,395
Apertura Tanagra Sig.	2,795
ATC SCM20	1,599
ATC SCM20 Tower	2,099
Audio Note AN-E/D	1,520
Audio Note AN-E/SPx	2,250
Audio Physic Spark 2	1,749
Audio Physic Tempo	1,999
Avalon Monitor	2,995
B&O Beolab 6000	1,550
B&O Beolab 8000	2,100
B&O Beolab Penta 3	2,650
B&W Matrix 804	1,695

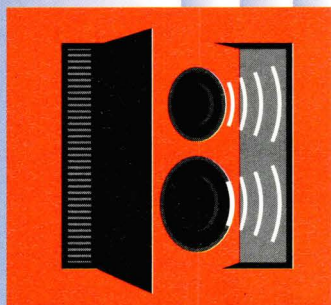
£501 to £800	
Acoustic Energy AE1-II	795
Acoustic Precision Eikos FR1	800
Allison Model 3A	525
Audio Gem Emerald	540
Audio Note AN-K/D	620
Audio Note AN-J/B	799
B&O Beolab 2500	750
B&W CDM1	600
B&W P4	675
Bose 501	700
Bose SE-5 Ser II System	760
Bose A'mass AM5 II	800
Boston VR30	600
Castle Severn 2	580
Castle Avon	730
Celestion 45i	599
Cerwin-Vega VS-12	550
Cerwin-Vega VS-15	700
Chario Syntar 100T	550
Clements 600si	595
Dali 107	600
Dali 350	600
Dali 450	700
Dali 109	800
Def Tech BP6B	750
Diapason Micra II	695
Dynaudio Audience 50	577
Epos ES14	675
Faraday FS10	795
Harbeth BBC LS3/5A	699
Harbeth HL-P3ES	799
Heybrook Ultima	649
Heybrook Quartet	649
Infinity SM155	550
Jamo BX-200A	530
Jamo Classic 10	600
Jamo 507A	700
Jamo 707i	800
JBL LX7	550
JBL TLX181	600
JBL SVA1500	700
JBL L20	700
JBL PS12	750
JM Lab Profil 55	625
JM Lab Opal 59 II	750
Jordan Watts JH200	510
Jordan Watts JH400	565
JPW Ruby 3	800
KEF LS3/5a	649
KEF RDM Two	699
KEF Q65	799
Kelly KT2	700
Keswick Volante	729

KLH Model 82Ta	690
Linn Tukan Passive	550
Linn Keilidh Passive	750
Manticore Minaret	690
Meridian A500	750
M&K S-85	700
Mission 752f	578
Mission 735i	650
Mission 753f	798
M-A Studio 2SE	600
M-A 700 PMC	600
M-A 702PMC	700
M-A 703PMC	800
Mordaunt-Short MS50i	550
Mordaunt-Short MS30i Classic	600
Mus Tec Falcon	575
Naim Intro	660
Neat Mystique	575
Neat Petite II	745
Opera Secunda	595
Opera Operetta II	770
Opera Platea	795
Origin Live Resolution	732
Origin Live Victory	750
Paradigm Studio/60	650
Pentachord B	519
Pentachord Pentode	729
Polk RT12	600
Polk RT16	799
Polk LS50	800
Proac Tablette 50	599
Proac Studio 100	699
Promenade SP4	650
Quad 10L	600
Rogers GS9	579
Rogers LS3/5A	699
Rogers C6/25	799
Roksan ROKone 1	595
Roksan Ojan 3	795
Royd The Sorcerer	595
Royd Abbot	695
Ruark Templar II	599
Ruark Sceptre	599
Ruark Talisman II	749
Ruark Prologue One	799
SD Acoustics SD3R	649
Shiny Polarys	595
Silverado Raider	695
Sonus Faber Concertino	599
Spendor 2030	599
Spendor LS3/5A	630
Spendor SP3/1P	795
T+A TB 100	690
Tannoy Precision P30	600

Tannoy Definition D100	689
Tannoy Precision P40	800
TDL Cotswold CF200	650
TDL RTL 4	650
TDL T-Line 3	700
Totem Rokk	695
Triangle Comete TZe	525
Triangle Zephyr	799
W'dale MFM7	650
£801 to £1500	
Acoustic Energy AE505	850
Acoustic Energy AE509	1,000
Acoustic Energy AE2-II	1,095
Acoustic Energy AE520	1,200
Acoustic Solutions Eight	1,200
Alon I Mk II	1,500
Ambience Mod. 4.0	1,185
Apertura Prima	1,095
Apertura Nova	1,395
ATC SCM10	999
Audio Note AN-J/D	930
Audio Note AN-K/SPx	1,060
Audio Note AN-E/B	1,299
Audio Note AN-J/SPx	1,415
Audio Physic Step	1,299
AVI Positron	899
B&O Beolab 4000	1,100
B&W P5	875
B&W CDM7	1,000
B&W DM604	1,000
B&W P6	1,095
B&W Matrix 805 V	1,095
Bandor Trident	846
Bandor Mora	1,260
Bandor Bandora	1,340
Bose A'mass AM7	900
Bose 701	1,000
Boston VR40	1,000
Castle Harlech	880
Castle Howard S2	1,200
Celestion A1	899
Celestion A2	1,499
Cerwin-Vega AL-1000	1,100
Cerwin-Vega 1515	1,300
Chario Academy 1	1,300
Clements Reference 1	995
Dali 850	1,100
Def Tech BP8B	1,000
Def Tech BP10B	1,500
Diapason Prelude II	875
Dynaudio Contour 1.1	879
Dynaudio Contour 1.3	1,198
Electrocompaniet EC-Qube	1,195

B&W Matrix 803s2	⊕	2,495	Proac Response 2S	⊕	2,000	Boston Lynfield 500L	⊕	4,449	Wilson Audio WATT 5	⊕	8,750
B&W Matrix 802s3	⊕	2,995	Proac Studio 250	⊕	2,249	Bravura Virtuoso Gold	⊕	3,395	Wilson Audio WITT	⊕	8,888
Bose 901 VI	⊕	1,650	Proac Response 2.5	⊕	2,700	Bravura Virtuoso Reference	⊕	3,995	Wilson Benesch Actor	⊕	3,800
Boston Lynfield 300L	⊕	2,000	Prof Monitor Co IB1S	⊕	2,099	Bravura Accelerando	⊕	6,600	Wilson Benesch ACT1 sprk	⊕	6,857
Bravura Virtuoso Bronze	⊕	2,995	Rehdeko RK115	⊕	1,700	Chario Academy 3 Junior	⊕	6,000			
Carver AL-111P	⊕	1,999	Rogers LS5/9	⊕	1,549	Chario Academy 3	⊕	9,000			
Cary SP-301	⊕	2,295	Ruark Crusader II	⊕	1,599	Creo SPB 012	⊕	3,147			
Celestion A3	⊕	2,399	Ruark Equinox	⊕	1,849	Creo SDL 001	⊕	5,677			
Celestion Kingstons	⊕	2,500	Ruark Accolade	⊕	2,699	Dali Grand	⊕	4,000			
Chord LS5/12A	⊕	1,595	SD Acoustics SD5	⊕	1,549	Def Tech BP2000	⊕	3,600			
Chord CEL 201	⊕	2,130	SD Acoustics SD1E	⊕	2,995	Dynaudio Contour 2.8	⊕	3,198			
Chord CEL 202	⊕	2,375	Shahinian Arc	⊕	1,875	Dynaudio Contour 3.3	⊕	4,815			
Chord CEL 301	⊕	2,840	Shahinian Obelisk	⊕	2,695	Dynaudio Confidence 3	⊕	4,846			
Clements Reference 7	⊕	1,995	Shinpy Euritmica	⊕	1,995	Dynaudio Confidence 5	⊕	5,924			
Creo SPB 003	⊕	1,820	Shinpy Altair	⊕	2,895	Dynaudio Consequence	⊕	14,566			
Creo SPB 009	⊕	2,453	Silverado Silverado 1	⊕	1,995	Electrofluidics Sonolith 2.2xi	⊕	5,999			
Dali Grand Coupe	⊕	2,500	Sonus Faber Minima Amator	⊕	1,566	ELS Res'ch Vista	⊕	3,900			
Def Tech BP2002	⊕	2,400	Sound-Lab Quantum	⊕	2,150	ELS Res'ch Illusion MkII	⊕	9,000			
Diapason Adamantes II	⊕	1,895	Spendor SP7/1	⊕	1,990	Fase Evoluzione Aria	⊕	3,100			
Dynaudio Contour 1.8	⊕	1,842	Spendor SP100	⊕	2,099	Genesis 400	⊕	4,000			
Dynaudio Craft	⊕	2,598	T+A TB 140	⊕	1,680	Genesis V	⊕	15,000			
Dynaudio Contour 3.0	⊕	2,930	Tannoy Definition D500	⊕	1,999	Genesis 300	⊕	27,500			
ECA Servo A.2	⊕	2,450	Tannoy Stirling TW	⊕	2,200	Horning Agathon	⊕	3,555			
ELS Res'ch Vision	⊕	2,800	Tannoy Definition D700	⊕	2,500	Impulse Tau's	⊕	3,100			
Epos ES30	⊕	2,385	TDL Studio Monitor-m	⊕	2,750	Infinity Sigma	⊕	5,995			
Gamma Epoch Ref Five	⊕	2,999	Totem Mann-2	⊕	2,795	Infinity Epsilon	⊕	9,995			
Harbeth HL-S8	⊕	1,999	Triangle Zays	⊕	1,750	Jamo Oriel	⊕	7,000			
Helius Syrius II	⊕	2,395	Triangle Altinis	⊕	2,250	JBL S2600	⊕	3,500			
Helius Syrius I	⊕	2,850	Triangle Extan	⊕	2,950	JBL S3100	⊕	4,000			
Hi Q Sound SM108	⊕	2,000	Wilson Benesch Orator	⊕	2,700	JM Lab Alcor	⊕	4,995			
Horning Aristophane	⊕	2,600				JM Lab Utopia	⊕	16,000			
Impulse Lali	⊕	1,850				JM Lab Grande Utopia	⊕	33,000			
Jamo Concert 11	⊕	2,000	Over £3000			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			
Jordan Watts JH2K	⊕	2,820	Alon V Mk III	⊕	4,995	Linn Keltik Aktiv	⊕	6,000			
KEF Ref. Model Two	⊕	1,599	Alon Adriana	⊕	8,500	L Voice Air Scout	⊕	19,500			
KEF Ref. Model Three	⊕	1,999	Alon Circe	⊕	9,995	L Voice Air Partner S	⊕	37,200			
Linn Kaber Passive	⊕	2,000	Alon Phalanx	⊕	19,000	Lowther Delphic	⊕	3,099			
Linn Kaber Aktiv	⊕	2,640	Ambience Mod 5.0	⊕	9,550	Lowther Opus One	⊕	4,999			
Lowther Fidelio	⊕	1,999	Apertura Athena	⊕	6,995	Lumley L/M 2 Sig. Mk3	⊕	4,500			
Lowther Academy	⊕	2,399	Apertura Atlante	⊕	8,995	Magneplanar MG-3.5SE	⊕	3,800			
Lowther Bel Canto	⊕	2,699	ATC SCM20A	⊕	3,049	Magneplanar MG-20 SE P	⊕	10,300			
Lumley L/M2 Mk3	⊕	2,995	ATC SCM50	⊕	3,750	Magneplanar MG-20 SE A	⊕	11,000			
Magneplanar MG-10 SE	⊕	1,650	ATC SCM100	⊕	4,499	Martin-Logan SL3	⊕	3,499			
Magneplanar MG-1.5 SE	⊕	1,780	ATC SCM50A	⊕	5,250	Martin-Logan CLS IIz	⊕	4,555			
Magneplanar MG-2.7 SE	⊕	2,650	ATC SCM100A	⊕	5,999	Martin-Logan Re-Quest	⊕	5,875			
Manticore Matisse	⊕	1,890	ATC SCM200A	⊕	12,999	Martin-Logan Monolith S	⊕	7,440			
Martin-Logan Aerius i	⊕	2,299	ATC SCM300A	⊕	14,999	Martin-Logan Monolith H1P	⊕	8,550			
Meridian M60	⊕	2,150	Audio Note AN-JSE Silver	⊕	7,900	Martin-Logan Monolith IIXPB	⊕	11,900			
M-A Studio 20SE	⊕	2,200	Audio Note AN-ESE Silver	⊕	9,600	Meridian DSP5000	⊕	3,295			
Mordaunt-Short Perf 860	⊕	1,895	Audio Physic Virgo 2	⊕	3,399	Meridian DSP5500	⊕	5,950			
Mordaunt-Short Perf 880	⊕	2,795	Audio Physic Avanti 2	⊕	6,699	Meridian DSP6000	⊕	9,400			
Naim SBL Active	⊕	1,830	Audio Physic Caldera	⊕	10,599	M-A Studio 50	⊕	4,000			
Naim SBL Passive	⊕	1,970	Audio Physic Medea	⊕	24,999	M-A Studio 60	⊕	6,000			
Neolith NEO 1	⊕	2,999	Avalon Avatar	⊕	4,495	Naim DBL Active	⊕	7,414			
NHT VT-2	⊕	1,600	Avalon Arcus	⊕	6,000	Neolith NEO 2	⊕	3,499			
NHT Model 2.9	⊕	2,199	Avalon Eclipse	⊕	6,495	Neolith NEO 3	⊕	4,999			
Opera Caruso II	⊕	2,350	Avalon Radian	⊕	10,995	NHT Model 3.3	⊕	3,500			
Origin Live Conqueror	⊕	1,650	Avalon Osiris	⊕	72,000	Paragon Regent	⊕	3,490			
Paragon Jubilee	⊕	1,995	B&W Matrix 801s3	⊕	3,395	Proac Response 3.5	⊕	4,250			
Pentachord P'column	⊕	1,649	B&W Silver Signature	⊕	5,500	Proac Response 5	⊕	9,000			
Polk LS90	⊕	1,700	B&W Nautilus	⊕	35,000	Proac Response 4	⊕	12,000			
Posselt Albatross	⊕	2,500	Bandor Bandoline	⊕	3,290	Prof Monitor Co MB1P	⊕	4,370			
			Bandor Bandora/Mora	⊕	3,290	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			
						Rockport Procyon	⊕	32,500			
						Shahinian Hawk	⊕	8,895			
						Shahinian Diapason	⊕	4,995			
						Shinpy Enigma	⊕	3,995			
						Shinpy Euphonia	⊕	5,995			
						Shinpy Magnifica Suprema	⊕	14,500			
						Shun Mook Bella Voce	⊕	6,800			
						Sonus Faber Electa Amator	⊕	3,293			
						Sonus Faber Extrema	⊕	6,500			
						Sound-Lab Dynastat	⊕	3,790			
						Sound-Lab Aura	⊕	6,490			
						Sound-Lab Pristine III+	⊕	7,990			
						Sound-Lab A-3	⊕	11,990			
						Sound-Lab Ultimate II	⊕	13,950			
						Sound-Lab A-1	⊕	13,990			
						Sound-Lab Ultimate III	⊕	18,950			
						Sound-Lab Ultimate I	⊕	23,950			
						Spendor SP9/1	⊕	3,450			
						T+A AD4	⊕	3,940			
						T+A AD3	⊕	4,660			
						T+A AD2	⊕	8,590			
						Tannoy Edinburgh TW	⊕	3,250			
						Tannoy Definition D900	⊕	3,999			
						Tannoy GRF Memory TW	⊕	4,000			
						Tannoy Westminster TW	⊕	6,600			
						Tannoy Canterbury 15 TW	⊕	7,720			
						Tannoy Westminster Royal	⊕	14,920			
						TDL Ref Standard-m	⊕	6,000			
						Triangle Nemo Altair	⊕	4,250			
						Wilson Audio Cub	⊕	5,495			

Wilson Audio WATT 5	⊕	8,750
Wilson Audio WITT	⊕	8,888
Wilson Benesch Actor	⊕	3,800
Wilson Benesch ACT1 sprk	⊕	6,857



SUBWOOFERS

KEY

⊕ - active; includes a dedicated power amplifier.

THX - THX approved by LucasFilm for use in Home THX installations.

Acoustic Energy AE108S	⊕	300
Allison Mini Ref Sub	⊕	210
Alon Poseidon	⊕	12,000
AMC B1-20	⊕	350
ATC SCM 0.1/15	⊕	2,750
Audio Physic Terra	⊕	3,499
B&W ASW1000	⊕	500
B&W AS6	⊕	500
B&W ASW2000	⊕	800
B&W ASW3000	⊕	1,000
B&W Matrix 800ASW	⊕	1,500
B&W Matrix 800ASW	⊕	1,500
Boston CR400	⊕	300
Boston VR500	⊕	450
Boston VR2000	⊕	800
Celestion CS135	⊕	139
Celestion CSW MkII	⊕	329
Celestion Sii	⊕	349
Cerwin-Vega HT-10D	⊕	200
Cerwin-Vega HT-12D	⊕	250
Creo SDC 001	⊕	3,054
GLL LE Bass	⊕	350
H/K Citation 7.4	⊕	875
Infinity SSW-10	⊕	500
Jamo SW303E	⊕	220
Jamo SW400E	⊕	330
Jamo SW505E	⊕	400
Jamo Sub One	⊕	400
Jamo SW600e	⊕	530
JBL Contol Sub 6	⊕	200
JBL PSW80	⊕	275
JBL Sub 10	⊕	300
JBL PSW1000	⊕	325
JBL PSW1200	⊕	375
JPW Subwoofer	⊕	130
JPW SW40	⊕	199
JPW SW60	⊕	350
JPW SW-120	⊕	500
KEF Model 20B	⊕	349
KEF Model 30B	⊕	499
KEF Model AV1	⊕	2,499
Kenwood SW500	⊕	250
Keswick Alto	⊕	1,299
KLH ASW10-100	⊕	350
KLH ASW12-120	⊕	380
Linn AV5150	⊕	2,850
L Voice RW24	⊕	11,500
Meridian M2500	⊕	1,595
M&K VX-7MkII	⊕	450
M&K V-75 MkII	⊕	650
M&K V-125	⊕	800
M&K V-125 (THX)	⊕	800
M&K MX-70	⊕	900
M&K MX-150 (THX)	⊕	1,500
M&K MX-200	⊕	1,800
M&K MX-300	⊕	2,500
M&K MX-5000 (THX)	⊕	2,900
Mission 73AS	⊕	450
Mission 75AS	⊕	548
Mordaunt-Short T2000	⊕	500
Mus Tec Sub	⊕	650
Muse Model 22	⊕	1,890
Muse Model 18	⊕	3,790
Neat Gravitas	⊕	1,095
NHT SW2Pi	⊕	699
Polk PSW50	⊕	350
Polk PSW150	⊕	500
Polk PSW300	⊕	750
REL Q50	⊕	375
REL Q-100E	⊕	495
REL Strata II	⊕	575



REL Storm	695
REL Stadium II	995
REL Stentor II	1,800
REL Studio II	4,000
Revel Sub-15	2,195
Revolver The Recoil	100
R Allen Gold Sub	149
R Allen Dim'n Active	499
R Allen Magnum Active	699
Rogers AB1	549
Rogers Sub-bass	679
Roksan Ojan 3S	795
Sequence FW120	249
Solid PB100	350
Sony SA-W101	230
Sunfire True Sub	1,450
TDL Nucleus SBR	200
Triangle Sat III	650
Velodyne VA-68XII	399
Velodyne VA-810XII	599
Velodyne VA-1012XII	699
Velodyne VA-1215XII	999
Velodyne FSR-12	1,099
Velodyne FSR-15	1,299
Velodyne F-1800II	1,999
W'dale Modus Sub Bass	180
W'dale Modus Powered Sub	350
Wilson Audio Puppy 5.1	8,450
Wilson Audio Whow III	12,500
Yamaha YST-SW40	140
Yamaha YST-SW80	180
Yamaha YST-SW150	280
Yamaha YST-SW300	350

SME Series V	1,461
Wheaton Music Tri-Planar 4i	3,000
Wheaton Music Tri-Planar 5i	3,250
Wilson Benesch Act 0.5	795
Wilson Benesch ACT2	1,350
Zeta AS	469
Zeta VDH	549

TUNERS

KEY

'P20' - (etc.) number of presets.

RDS - Radio Data System; receives text information on station, programme type etc.

Akai AT1200		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
H/K TU930	P30	150
H/K TU950	P30	200
Kenwood KT-2080	P20	130
Kenwood KT-3080	P30	180
Linn Kudos	P50	775
Linn Kremlin	P80	2,600
Magnum Dynalab FT11		550
Magnum Dynalab FT-101A		825
Magnum Dynalab Etude		1,250
Magnum Dynalab 108		4,500
Marantz ST-48	P30	119
Marantz ST-17	P60	600
Meridian 504	P30	695
Michi RHT-10	P16	895
Micromega Minium FM MK2	P39	329
Micromega Tuner	P39	750
Mission Cyrus FM7	P29	400
Musical Fidelity E50	P20	300
NAD 412	P24	190
NAD 414RDS	P30	250
NAD 710	P30	270
NAD 712	P24	330
Naim NAT03		595
Naim NAT02		1,080
Naim NAT01		1,730
Onkyo T 4210RDS	P30	180
Onkyo T 409	P30	230
Onkyo T 411RDS	P30	260
Pioneer F-204RDS	P30	140
Pioneer F-504RDS	P40	250
Pioneer F-504RDS Precision	P40	300
Quad 77FM	P25	700
Rega Radio	P24	229
Roksan Caspian	P50	595
Rotel RT-835AX	P20	160
Rotel RT940AX	P20	200
Sansui AUX-310	P20	80
Sony ST-SE200	P30	100
Sony ST-SE300	P30	120
Sony ST-SE500	P30	140
Sony ST-SE700	P30	180
Sony ST-SA3ES	P30	250
T+A TL200R		745
TEAC T-R400	P20	120
TEAC T-H500	P30	170
TEAC TB-X10	P20	400
Technics ST-GT350L	P30	130
Technics ST-GT550L	P39	180
Technics ST-GT650L	P39	230
Thorens TRT-2000	P59	499
Yamaha TX-480L	P40	100
Yamaha TX-492RDS	P40	130
Yamaha TX-590RDS	P40	180

TONEARMS

KEY

⊙ - pivoted.

- parallel tracking.

Air Tangent IC	#	3,333
Air Tangent 10B	#	7,777
Air Tangent Ref. Sig.	#	11,000
Audio Note AN-ARM 1		169
Audio Note AN-0s		795
Audio Note AN-1s		995
Audiomeca SL5	#	2,500
Clearaudio TQ-1 Improved	#	1,950
Dynavector 507		1,995
Graham 1.5 Basic		1,695
Graham Mk 2.0		2,650
Helius Orion 4 Copper		549
Helius Cyalene 2		1,495
Kuzma Stogi		750
Kuzma Stogi Ref		1,250
Linn Akito		500
Linn Ekos		1,500
Manticore Musician II		595
Manticore Magician II		895
Manticore Magician 12		995
Moth Mk I		109
Moth MKIII Stainless		146
Moth Mk III Tungsten		174
Moth Moth 900		598
Naim ARO		1,040
N'ham Space		450
N'ham Paragon 3	#	550
N'ham Paragon 2	#	800
N'ham Mentor		800
N'ham Foot		1,100
N'ham Paragon 1	#	1,600
Rega RB250		109
Rega RB300		174
Rega RB900		598
Rockport Series 7000	#	6,000
Roksan Tabriz		320
Roksan Tabriz Zi		420
Roksan Artemiz		895
SME 3009 Ser II Imp		309
SME 3009 S2 Ser II Imp		338
SME Series II 3009-R		514
SME Series II 3010-R		526
SME Series II 3012-R		565
SME 309		689
SME 310		705
SME 312		802
SME Series IV		983



Acoustic Precision Eikos CD player — £1,800 worth of digital dreadnought.

TURNTABLES

KEY

⊙ arm included.

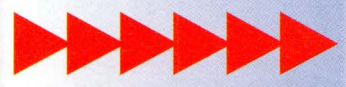
⊣ cartridge included.

Up to £500

Audio Note AN-TT 1		349
Dual CS435-1		150
Dual CS455		190
Dual 505-4 UK		250
Eclipse TT430		70
Genexxa Lab-710		60
Genexxa Lab-810		70
Kenwood KD-492F		100
Michell Mycro		455
Moth Alamo		199
Moth Kanoot Mk1 Arm		279
Moth Kanoot Mk3 Arm		329
NAD 533		220
N'ham Interspace		500
Pioneer PL-J2500-C		80
Pioneer PL-990		130
Pro-Ject 0.5/OM10		160
Pro-Ject 1/510		200
Pro-Ject 2/520		300
Pro-Ject 6/MC15		450
Rega Planar 78		214
Rega Planar 2		214
Rega Planar 3		274
Roksan Radius		470
Sherwood PM8550		130
Sony PS-LX150H		90
Sony PS-LX300H		150
Systemdek I/920		136
Systemdek IIX/900		230
Systemdek I/920/Moth		235
Systemdek IIXE/900Ap		388
Systemdek 960		500
Systemdek 2X2		500
Technics SL-J110D		120
Technics SL-BD20		160
Technics SL-BD22		180
Technics SL-1210MkII		400
Technics SL-1200MkII		400
Thorens TD-180 AT91		190
Thorens TD-280 IV/UK		210
Thorens TD-166 VI/UK/RB		400
Thorens TD-318 III TP50		500

Manticore Magister		4,400
Michell Gyrodek		875
Michell Orbe		1,995
N'ham Spacedeck		750
N'ham Graphic		1,200
N'ham HyperSpacedeck		1,500
N'ham Mentor		2,600
N'ham Anna Log		5,500
Oracle Paris		1,100
Oracle Delphi		3,370
Oracle Delphi 15th Anniv		3,800
Pink Triangle Tarantella		680
Pro-Ject 6/Sumiko		850
Rega Planar 9		1,598
Reson RS1M		600
Reson Rota 1		3,900
Rockport Capella II		7,000
Rockport Sirius III		50,000
Roksan Xerxes 10		1,295
Roksan TMS		2,750
SME Model 20/2		3,403
SME Model 20/2A		4,863
SME Model 30/2		10,675
SME Model 30/2A		12,135
Stratosphere ST1		6,500
Technics SL-1200LTD		700
Thorens TD-146 VI TP50		550
Thorens TD-2001 TP90		700
Thorens TD-520 SME		1,050
Well Tempered Record Player		1,850
Well Tempered Classic		2,980
Well Tempered Super		3,900
Well Tempered Reference		5,300
Wilson Benesch Circle		795
Wilson Benesch WB Turntable		1,775
Wilson Benesch Full Circle		1,995

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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THE MAG

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REGULARS

Update
Election? Schmelection! We've been to Bristol and we got the news. All the latest from the show as well as locations further afield.

Instant Systems
Alan Sircom gets to grips with a pair of £300 separates systems. The question is, can you get real hi-fi for the price of a telly?

REVIEWS

[Acurus ACD11](#)

[Aeon Acoustics Linear](#)

[AMC 3025a](#)

Have you ever wondered...

- 1 Which is the most expensive amplifier in the World?
- 2 How many drive units in the Mission 753 Freedom?
- 3 What is the name of Benz-Micro's most expensive cartridge?
- 4 What is the best CD player for £350 or under?

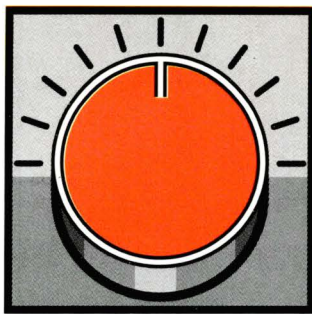
Find answers NOW* at Hi-Fi Choice Online, the fact-packed NEW web-site from the makers of the Finest Hi-Fi Magazine In The World.

www.hifichoice.co.uk

*Answers at the bottom of the page for those without web access.

1 The Audio Note Genie (at a price of £1,750), is probably the most expensive commercially manufactured portable in the world. And it's only a power amp. 2 Mission 753 Freedom (at a price of £1,000) and available from AudioNote, in the UK. 3 Benz Micro's most expensive cartridge is the Benz/Ortofon SFC1000. 4 The Acurus ACD11 (at a price of £350) is probably the best CD player in the world. 5 The Acurus ACD11 (at a price of £350) is probably the best CD player in the world. 6 The Acurus ACD11 (at a price of £350) is probably the best CD player in the world. 7 The Acurus ACD11 (at a price of £350) is probably the best CD player in the world. 8 The Acurus ACD11 (at a price of £350) is probably the best CD player in the world. 9 The Acurus ACD11 (at a price of £350) is probably the best CD player in the world. 10 The Acurus ACD11 (at a price of £350) is probably the best CD player in the world.

Answers:



Amplifiers

Brought to you in association with **audio research**
HIGH DEFINITION

The amplifier sits at the heart of the system, processing the outputs from the various music sources as necessary and then driving the loudspeakers. These two (quite separate) functions are integrated into a single box at the low-to-middle price points, but are separated in preamps and power amplifiers. Even separate power supplies become increasingly common as one moves upmarket.

Bear in mind that output power and sound quality are not necessarily related. Some of the finest amplifiers available have outputs as low as

12 Watts, but team them with high-efficiency loudspeakers and you can achieve loudness aplenty.

Please note: monoblok power amps are those in which the left and right channels are handled by physically separate units.



KEY

LINE INPUTS: Number of input sockets for non-vinyl sources such as CD players, tuners and cassette decks.

MM PHONO INPUT: If an amp has an input for moving magnet (normal output) phono pickup cartridges.

MC PHONO INPUT: If an amp has an input for moving coil (low output) phono pickup cartridges.

REMOTE CONTROL: If an amp is couch-potato ready.

HEADPHONE SOCKET: If an amp is can friendly.

POWER OUTPUT (W): Lab-tested power output in Watts per channel.

RECEIVER: If an amp has a built-in radio tuner.

FACTSBACK NUMBER: The Factsback reference for ordering a fax

copy of the review. Use the contents page to find the Factsback information page elsewhere in this section.

ISSUE NUMBER: The issue of *Hi-Fi Choice* in which the original review appeared.

INTEGRATED AMPLIFIERS

Product	Price(£)	Comments	LINE INPUTS	MM PHONO INPUT	MC PHONO INPUT	REMOTE CONTROL	HEADPHONE SOCKET	POWER OUTPUT (W)	RECEIVER	FACTSBACK NUMBER	ISSUE NUMBER
Alchemist Maxim	319	Vivid and colourful-sounding amp that's just too bold and brassy	5	●				30		1737	154
Alchemist Kraken APD6A	579	Compact, with Darth Vader styling, yet sound quality is surprisingly meek and mild, despite strong midband dynamics	5	●				55			175
Alchemist Nemesis	700	Good if ultimately undistinguished amplifier whose strengths include warmth, authority and distinctive aesthetics	6					80			168
AMC 3025a	130	Surprisingly potent and easy on the ear, if not especially analytica — classic bargain basement material in fact	4	●	●	●	●	30			171
AMC 3050a	170	Tremendous value for money, and a full, big, if rather uninformative sound	4	●	●	●	●	45			167
AMC CVT3030a	400	Beer-budget valve amp, with quintessentially valve-like virtues (euphony with dynamics) and vices (system dependency, noise)	6	●				30			168
Arcam Alpha 7	260	Decent, if slightly system-fussy amplifier that generally pulls all the right strings	5	●				40			167
Arcam Alpha 8	360	Enjoyably soft-centred amp, won't frighten the animals. Upgradeable via preamp output, and optional remote control	5	●				50		1853	162
Arcam Alpha 9	500	Not quite a match for the Alpha 9/9P combo, the solo integrated is nevertheless colourful and explicitly detailed	7			●	●	70			168
Audio Analogue Puccini	450	Superbly finished, the entry-level Audio Analogue performs way out of its class	5	●	●			40			175
Audio Innovations Alto	300	Probably because of a lack of deep bass, this stylish amp sounds open, natural and relaxed	6					35		1540	138
Audiogram MB1	493	The only flaws are the amateurish build, a number of technical problems and inconsistent sound quality. Other than that...	4	●			●	40			178
Audio Note Oto SE	1,500	Transparent, dynamic, clear and subtle, but offers limited power output	4					24			126
Audiolab 8000LX	470	Well built, minimalist entry level model ultimately lacks bottle and pizzazz	6				●	60			175
Audiolab 8000A	500	The 8000A remains a highly disciplined and mature-sounding amp	5	●	●		●	60		1581	140
Audiolab 8000S	700	Informative in every sense, only a slight lack of bite detracts. Perhaps Audiolab's best yet!	6				●	60		1740	154
AVI S2000MI	999	Fine, detailed amplifier with excellent timing and strong control of a wide range of loudspeaker loads	5					100			175
Bryston 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			175
Cambridge Audio A3i	200	"Maximum information" design, with plenty of usable and reasonably refined power. A snip!	4	●				60			167
Copland CSA8	945	Sophisticated yet transparent, this is one of those amplifiers that sounds good even when the gloss has worn off	5					60			168
Copland CSA14	1,199	Great sound and looks, but watch out for high capacitance speaker cables	4	●				60		1416	148
Credo IMP702	850	Old-fashioned looking, but bags of clarity and precision, though it can sound brash in the wrong system	5					70			175
Symbol CA1	499	Lacklustre amplifier tends to underperform with complex material. Best with straightforward compact loudspeakers	6					40			178
Creek 4330	279	Compact, even pretty, but sounds dark and uninviting, with coarse treble and woomy bass	5					40			171
Denon PMA-250SE	160	This amp can sound rough when extended, but within its limits it is open, detailed and likeable	5				●	30			171
Denon PMA-350SE	200	Reinvented in the minimalist tradition, this SE model is a control freak, but can sound wonderful	5				●	50		1856	162
Denon PMA-425R	230	Well-equipped and generally enjoyable but slightly ragged performer	3	●			●	45			167
Denon PMA-725R	350	Warm, bold, up-front presentation, but musically unexciting	5	●	●	●	●	97		1802	157
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			175
DPA Renaissance	595	DPA's first integrated amp is typically innovative, but a little too 'crisp 'n dry' for our tastes	5	●			●	40		1582	140
EMF Audio Sequel	450	Relaxed and restrained design from Mike Creek	5	●			●	50			109
Exposure XX Super	700	Rather transistorised, unexciting sound. Good coherence and rhythm. Best played loud	6					55		1743	154
Electrocompaniet EC1-2	995	A 50 watt amplifier which sounds more powerful, and makes real sounding music in real sounding acoustic spaces	4					50			175
Gamma Acoustics Gemini	699	Genuine single-ended triode design, but low power, mundane sound and poor build	3					12		1416	148
Goodmans Delta 900A	130	Coloured and raw sound offsets high power yield and remarkable pricing, but noisy fan cooling is a joy-killer	5	●			●	100			178
Harman/Kardon HK610	180	Lively and friendly sound, but could prove too exciting for the faint hearted	6	●			●	30		1465	149
Harman/Kardon HK620	250	Capable and musical amplifier which is among the nicest available at the price. Optional add-in MM/MC board available	6				●	40		1858	162
JoLida 202	695	Well-built and technically accomplished, affordable valve integrated with subtle and refined, if not quite gripping sonic performance	4					40			168
JVC AX-V4	200	Respectable performance for a Pro-Logic AV amplifier. Lacks resolution and sparkle, though	5	●			●	63		1805	157
JVC AX-R5	200	Versatile, and lots of even-handed, articulate detail; but let down by superficiality	5	●			●	45		1466	149
Kenwood KA-3020SE	200	Not a brilliant phono stage, but this is a lively, exuberant-sounding amp via CD	5	●			●	50		1130	134
Kenwood KA-5090R	300	Large, well equipped and high tech integrated, but TRAITR output still gives a harsh, unsubtle performance	5	●	●	●	●	65			171
LFD Integrated Zero	549	Lively and brisk, but at the same time cold and unsympathetic	6					50		1584	140
Linn Majik (phono)	800	The cornerstone of Linn's modular hi-fi system is innovative, but sounds vague and confused	5	●	●		●	33		1013	129
Magnum IA120	265	Mirror finish amplifier with a bold, colourful delivery, but needs careful system matching to avoid loss of focus and clarity	6				●	65			171
Magnum IA170	330	Gives a realistic sense of instruments playing within a very believable acoustic, preserves colour and dynamics well	6				●	96		1260	142
Magnum IA-200	599	Sweet, valve-flavoured solid state amplifier flatters where it doesn't cast light	7					160		1860	162
Magnum Class A	690	Lashings of rich and compelling music, but the Class A circuits trade lushness for accuracy	4	●	●			60			116
Magnum Class A SE	795	A MOSFET amplifier drawing inspiration from the world of valves, this is an erratically refined, detailed amplifier	5	●				80			175
Marantz PM-57	200	Well equipped but ultimately anodyne amplifier which lacks for nothing but star quality	5	●			●	50			171
Marantz PM-66SE	230	A bit lush, and power output is limited, but it communicates well and gives airy, large-scale music. An excellent budget buy	5	●		●	●	50			167
Marantz PM66 KI-Signature	400	An amplifier that knows how to rock and roll with holographic detail and stereo, but prefers small/medium scale acoustic material	5	●		●	●	50			168
Mission Cyrus 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			178

INTEGRATED AMPLIFIERS

MM PHONO INPUT
MC PHONO INPUT
REMOTE CONTROL
HEADPHONE SOCKET
POWER OUTPUT (W)
FACTSBACK NUMBER
ISSUE NUMBER
RECEIVER

Product	Price (£)	Comments	MM PHONO INPUT	MC PHONO INPUT	REMOTE CONTROL	HEADPHONE SOCKET	POWER OUTPUT (W)	FACTSBACK NUMBER	ISSUE NUMBER	RECEIVER
Musical Fidelity E11	299	Well built minimalist amp with a 5 year guarantee, but can sound congested when extended, and some colorations are evident	6				60		178	
Musical Fidelity A2	499	Lucid, transparent midband and a full upper bass are provided by this highly proficient A1 replacement	5	●			25	1862	162	
Musical Fidelity A220	700	Powerful, authoritative and well turned-out amplifier that is easy to match with comparably priced speakers and source components.	5	●			50		168	
Musical Fidelity E1	199	Vivid, richly flavoured tonality and realistically scaled imagery distinguish this new entry-level Richer Sounds special	6				30		171	
Myryad M1120	600	Well styled, well built and, well, a good, even tempered amplifier, though it can sound a bit brittle, and lacking in euphony	6			●	60		175	
NAD 310	100	Fleet and sure of foot, it seems likely to set all appendages tapping with its blend of enthusiasm and artfulness	5				20	1468	149	
NAD 312	200	Another great budget price NAD, and a worthy all-round successor to the 302	6	●			25		171	
NAD 314	260	Lively if coloured presentation that is musically engaging and easy on the ear	6	●			53	1807	157	
Naim Nait 3	575	Distinctive and highly musical sounding integrated amp. Perhaps too distinctive for some tastes	5				30	1748	154	
Orelle SA-100	499	A musically rewarding amplifier that grows on you. Trace of coarseness in treble	5				50	1749	154	
Orelle SA-100RX	649	Fine, high resolution amplifier, but avoid very low impedance speakers, and check CD compatibility by ear	7			●	75		178	
Pioneer A-204R	160	The A-204R makes no special claims beyond being well equipped and cheap, but it displayed unexpected talent on test	5	●		●	25		171	
Pioneer A-300R	200	Its bright and breezy sound is a natural tonic to those of us worn down by the ongoing stress of life	5	●		●	50	1469	149	
Pioneer A-405R	250	Fully featured, open and dynamic sounding, more than makes up in enthusiasm what it occasionally lacks in refinement	5	●		●	45		178	
Pioneer A-400X	300	On second audition, this amp was tonally unchanged but less compelling	6	●	●		50	1545	138	
Pioneer A-300R Precision	400	Sophisticated, breathed-on variant of the A-300R. Not an obvious winner, but will slowly win you over with its subtle charms	5	●		●	35	1863	162	
Pioneer A-605R	400	Intriguing technology, but execution is certainly impeded by excessive gadget count	5	●		●	80		168	
Pioneer A-07	999	Curious mix of high end attributes and inconsistent, though undeniably detailed sound	5	●		●	80		175	
Pro-ject Model 7	300	A minimalist amplifier brimming with good intent, but too quirky for its own good. Either MM or MC	5	●			40	1264	142	
Quad 77 Integrated	700	Compact and sophisticated Quad system amp, limited range of inputs when used with 'foreign' components (optional system remote)	3				84		168	
Rega Elex	398	Minimalist amplifier, derived from Elicit, is a little uninspiring, though at least it is well behaved	4	●			50	1865	162	
Roksan Caspian	695	Well-built, open and articulate amplifier, which is also consistent from system to system, and well built	6			●	70		168	
Rose Scion	615	Unique two-box integrated gives real subtlety and low level resolution, but the sound lacks scale and weight	5	●	●		65		168	
Rotel RA-931	150	Rather dry and unforgiving sound from this internally well specified and attractively priced amplifier	4	●		●	35		171	
Rotel RA970BX	250	Lively, fresh and perky with plenty of power, but not so clever with complex recordings	6			●	60	1546	138	
Sony TA-F448BE	250	Classic minimalist interface is matched to carefully considered circuit to broadly satisfactory effect - but keep the volume in check	5	●		●	55		171	
Sony TA-F3000ES	500	Champagne shoebox amp may lack power reserves, but is quick, polished and articulate. In every sense a knockout	5	●	●	●	35		178	
Talk Electronics Storm 1	500	Good soundstaging and strong detail are provided by this unassuming and not especially powerful model	6				50	1868	162	
Talk Electronics Storm 2	650	Crisp, clean, well defined sound, arguably lacking warmth, but a good midrange purchase overall	6			●	50		175	
TEAC A-BX7R	700	Characterful balance mars an otherwise meticulously designed amplifier. Includes a balanced input, optional MM/MC stage	5			●	50	1869	162	
Technics SU-A700 Mk 3	250	Fully equipped, high-tech amplifier ultimately fails the authenticity test, and can sound messy and inarticulate	5	●		●	45	1870	162	
Technics SU-A800D Mk 2	300	Two-box amplifier looks great, has plenty of gadgets, and makes good, if slightly over-exuberant music	5	●		●	55		178	
Technics SU-A900D Mk 2	400	Looks like a pre/power amplifier, but in effect it's an integrated, with a rather soft-centred sound to match	5	●		●	70		175	
Woodside ISA230 Disc	1,249	Smooth and inoffensive valve amplifier, though it lacks the sparkle and euphony required for a truly entertaining sound	3	●			30		116	
Yamaha AX-492	220	Powerful, well equipped amplifier at an attractive price, offers powerful and engaging music-making	5	●		●	85		178	
Yamaha AX-592	280	Fine, middle ranking amplifier, with a detailed, dynamic midband but some performance falloff at the frequency extremes	5	●	●	●	100		171	
Preamplifiers										
AMC CVT1030A	400	Budget valve preamp, modest build and a bit noisy, with fair sound	6	●		●			165	
Audio Innovations L1	369	Reviewed with S800 Anniversary - explicitly detailed, conveys the message of the music as a whole	4					1300	145	
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	
Cyrus Pre	648	Tested with Cyrus Power. High-tech design, punchy, light-footed character with a sense of substance and natural warmth	5	●		●			155	
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	849	Superbly rhythmic; maybe a bit overpowering in the midband. Tested in Sessions with XVIII Super	5	●	●				142	
Jadis JP-30MC	5,980	French tubes, JP-30MC has beautiful build, nostalgic styling and delightful midrange. (Tested with JA 30 power amp)	5	●					60	
LFD Mistral Linestage	449	Strong ergonomics, generally decent sound, but a little lacking in detail	6						165	
Meridian 501	695	Tight, positive sound, but dispassionate; intense at high levels. Tested with 555 power amp	5	●		●		1303	145	
Meridian 562V	995	Transparent and capable preamp, also features six digital inputs	9	●		●	●		140	
Meridian 502	1,295	Extremely sophisticated analogue controller with tremendous flexibility and a fast and tidy presentation (Statements)	7			●			162	
Moth 30 Passive	149	Modular system gives cracking results. Passive preamp and power amp warrant Best Buy (tested with 30/Stereo 60)	4						109	
Moth 30 Active Line Stage	349	Excellent-sounding ultra-simple miniature preamp	4						165	
Muse Model Three	1,990	Natural sounding tranny preamp with useful audiophile features. Works beautifully with 160 power amp (tested in Statements)	5			●			166	
Musical Fidelity X-PRE	200	Cleverly configured preamp with many upgrade options, and open, lively and engaging sound. (Tested with X-A50 monoblocks)	4						175	
NAD 114	270	Beer-budget preamp, sounds focused, detailed and consistent	6	●	●		●		165	
Naim NAC92R	470	Upgradeable preamp uses proprietary socketry. (Tested with NAP90 power amp)	5			●			165	
Quad 77 Pre	850	Sophisticated design with 2-way remote control console; open colourful sound and very flexible	4	●	●	●			165	
Rega Hal	998	Dedicated to Exon power amps - passive line stages	6	●	●	●			165	
Rose RV-23	450	You can pay more to get a more transparent sound, but it's hard to criticise at the price	3	●					77	
Rotel RC-971	150	Low price is offset by rather coarse sound quality with certain types of music. (Tested with RB-971)	5			●			178	
Sumo Athena IIB	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						165	
Thorens TTP200F	699	Glamorous, shoebox-format, minimalist pre with fine detail and some granularity	3	●	●	●			165	
Woodside SC26 Phono	2,233	Synergistic with STA35, with a cool, controlled sound, good focus and transparency. (Tested with STA35 power amp)	5	●	●				100	
Power amplifiers										
Alchemist Kraken/Pwr	529	Hardly accurate, but entertaining nevertheless	1				60		124	
AMC CVT2100A	600	Astonishing value valve/MOSFET hybrid with KT88 output, but lacks the magic of the best valves	1				80		165	
Arcam Alpha 9P	400	Clear, colourful and well-disciplined, the Arcam is a strong all-rounder that can compete with conviction	1						165	
Art Audio Quintet	1,500	Switchable triode, ultralinear output stage. In triode mode, these are 15 of the sweetest Watts around. Surprisingly gutsy	1				15		109	
Audiolab 8000M	800	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	

POWER AMPLIFIERS (CONTINUED)

ISSUE NUMBER
FACTSBACK NUMBER
RECEIVER
POWER OUTPUT(W)
HEADPHONE SOCKET
REMOTE CONTROL
MC PHONO INPUT
MM PHONO INPUT
LINE INPUTS

Product	Price(£)	Comments	1	2	3	4	5	6	7	8	9	10	11	12
A Cyrus Power	498	Tested with Cyrus Pre. Punchy, light footed character with a sense of substance and natural warmth (bridgeable)	1									50		155
A EAR 509 Mk II	3,699	Combining sonic strengths of transistors and valves, this amp warrants attention. (Tested with 802 pre)	1									100		63
A ECA Lectern	880	Tested with Vista. Wind up the volume and blow a breath of fresh music into your system	1									50	1302	145
LFD Mistral Power	449	Infectious upper band vitality, but LF dynamics lacking, and lacks 'grip' and transparency	1									60		165
Meridian 555	750	By providing an open window on the music, this amp is wide open to RF and low level IM distortions	1									60	1303	145
A Michell Alecto	1,150	Open, well focused imagery with natural, refined textures	1									50		165
Moth 60 Watt Stereo	599	Miniature power amp lacks control and finesse, not comfortable with difficult speaker loads	1									60		165
A Moth 30 Series Monoblocks	879	Tested with Active Preamp. While demonstrating solid, even balance it proved adept at delivering vital musical qualities	1									100		155
A Musical Fidelity FX2	800	Quality build and imposing presentation is married to strong power yield, tonal colour and finesse	1									100		165
A Musical Fidelity X-A50	500	Cleverly configured and attractively packaged, open, lively and engaging sound. Reviewed with X-PRE	1									50		175
Myriad MA120	450	Based in M120 integrated – see latter for comments, but sounds significantly better when bi-amped with M120	1									60		165
A NAD 214	370	A little lightweight, but detailed, consistent sound quality, and excellent value for money	1									80		165
Naim NAP90	450	Power amp from a Nait integrated with some improvements	1									30		165
A Quad 77 Power	600	Open, bold and colourful, with mild compression	1									85		165
A Rega Exon	1,196	Monoblock, priced each, dedicated for Hal preamp. Bold, outgoing, in-command kind of sound	1									125		165
Rotel RB-971	200	Somewhat better than the accompanying preamp - clean, mean and bridgeable. (Tested with RC-971)	1									70		178
Rotel RB-970BX MkII	225	Tested with RC970BX MkII in Sessions (see preamp section)	1									60		144
Rotel RB-980BX	450	Tames enthusiastically recorded material with a laid-back and occasionally smeared sound	1									120		155
A 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	599	Good, but slightly retiring sound which lacks the authority to stand out in a crowd	1									65		165
Thorens TTA2000	599	Low power shoe-box format, but gutsy and surprisingly subtle and articulate	1									30		165

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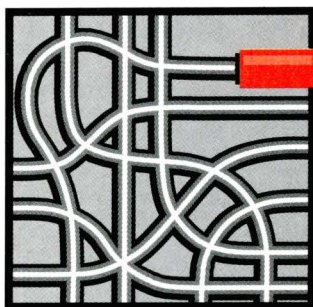
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Cables

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 un-terminated metre. Termination (plugs and soldering) costs vary with brands.

B Best buy

R Recommended

KEY	SOLID CORE:	FACTSBACK NUMBER:	ISSUE NUMBER:
SYMMETRICAL: A twisted pair of conductors.	Single or multiple, individually insulated strands.	The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this section.	The issue of <i>Hi-Fi Choice</i> in which the original review appeared.
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.		

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
A Audio Note AN-S	99	Up-beat and enthusiastic sound with satisfyingly deep and grumbly bass	●											1687 131

CABLES (CONTINUED)

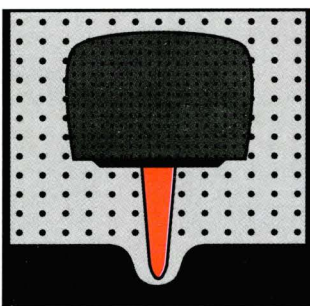
Product	Price(£)	Comments	SYMMETRICAL		COAXIAL		STRANDED		SOLID CORE		COPPER		FACTSBACK NUMBER		ISSUE NUMBER		
			●	○	●	○	●	○	●	○	●	○	●	○	●	○	
Audio Note AN-V	179	15 individually insulated silver strands make up this very clean and dynamically unchallenged cable	●		●		●		●		●		●		1687	131	
Audioquest 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									●		●			176	
▲ CableTalk Advanced 2	35	Slight roughness in loud music barely detracts from a well-balanced performance with good imaging							●		●		●			176	
▲ Cable Talk Studio 2	65	A first-class performer from tonal, dynamic and rhythmic standpoints	●		●		●		●		●		●			160	
Cambridge Pacific	30	Lacks subtlety and bass impact but is otherwise quite serviceable for the price			●		●		●		●		●			176	
▲ Cambridge Audio Studio Ref	40	Dynamic cable with strong soundstaging and only a slight lack of detail			●		●		●		●		●			160	
Chord Company Cobra 2	49	Good, strong sound with full-bodied music, less happy with smaller forces							●		●		●			176	
▲ Connections Midas HD	39	Canary yellow cable with excellent plugs and an open sound. Slight treble glare	●		●		●		●		●		●			160	
▲ DNM TCC75	34	Price for 0.75m length. High resolution cable, but best in short runs due to higher than average series impedance									●		●		1690	131	
DPA Slink	41	Slightly bright and zingy sound with flat soundstaging and hollow sounding bass, vocals and strings sound convincing though							●		●		●		1690	131	
DPA White Slink	75	Bass recedes as the music gets complex; midrange and treble better with quite good detail and imaging									●		●			176	
▲ DPA Black Slink	245	Initially dark and meaty but becoming lucid and transparent with running in. Quad geometry, Gore-tex dielectric	●		●		●		●		●		●		1691	131	
Goertz M1 Interconnect	145	Soft sound lacking in bite, with excessive and plummy bass (NB sample used in review was only 0.5m)	●		●		●		●		●		●			176	
Insert Audio IC100 MkII	47	Mostly good sound is let down by pervasive dryness							●		●		●			176	
▲ Ixos 104	20	Open and detailed presentation, full bass and silky if overly smooth treble							●		●		●		1692	131	
Ixos Gamma 1002	39	Lumpy bass, grainy treble, and poor integration. Nice colour, though	●		●		●		●		●		●			176	
▲ Ixos 103	45	Even-handed and generous sound, bass has a well-rounded, bouncy quality			●		●		●		●		●			1692	131
Ixos 102	60	A bit bright and undynamic, this cable is nevertheless a good all-rounder, whose faults are largely subtractive							●		●		●			160	
Ixos 101	100	A cable with personality: its veiled and shut in quality bring an earthiness to vocals and rhythm guitar alike			●		●		●		●		●		1693	131	
▲ Kimber Hero	110	Slight roughness detracts from some music; seems well suited to rock and jazz. Lively and detailed	●		●		●		●		●		●			176	
▲ LFD Spirolink I	35	Price for 0.7m length. Dynamic but smoothly detailed performance, but gives the impression of looking down on the music									●		●		1694	131	
▲ 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	135	Very good bass and only slightly grainy treble add up to a well integrated, natural-sounding cable	●		●		●		●		●		●			176	
▲ Prowire Silver	60	A good cable in every way, with just the occasional hint of coloration and coarseness							●		●		●			176	
PAD Elementa	145	A fat, heavy and frankly rather lazy-sounding cable; best with music for small forces	●		●		●		●		●		●			176	
▲ QED Qnect 2	30	Very well balanced, refined and detailed, this is everything a good cable should be, and excellent value									●		●			176	
Silvertone Ex-Static	35	Pleasantly unfatiguing and competitively priced cable that lacks detail and insight							●		●		●			160	
▲ SonicLink Silver Pink	35	Dynamically sensitive and muddle-free. We're unsure about the flesh-coloured finish though...	●		●		●		●		●		●			160	
SonicLink Black	49	Encourages an upbeat and snappy sound that's driven by leading edges; full and rumbustious bass maintains an even tempo							●		●		●		1699	131	
▲ Sonic Link Black	50	Nickel-plated copper with a slight dryness in the bass and a hint of treble roll-off don't compromise integration.	●		●		●		●		●		●			176	
▲ Straight Wire Chorus	40	A very confident cable with good bass, though perhaps a shade of treble loss			●		●		●		●		●			176	
van den Hul The Storm	25	Price for 0.8m length. Rich and warm but bass is rolled off: however there's plenty of drive and high frequencies are clean							●		●		●		1701	131	
van den Hul Source HB	30	Price for 0.8m length. Hybrid carbon-fibre/copper cable that is a paragon of naturalness. Airy and well controlled			●		●		●		●		●			160	
▲ van den Hul D102 MkIII	70	A cable with everything; good bass, treble, imaging and naturalness									●		●			176	
▲ van den Hul The First	125	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																	
▲ Audio Note AN-V	110	Ostensibly an analogue cable but gives a meaty and natural performance when used for digital duty	●						●		●		●	E	1704	131	
Audioquest Optilink Z	179	Good level of midband detail but frequency extremes lack depth and extension							●		●		●			108	
Audioquest Digital Pro	100	A silver cable with all the drive of Video Z but lacking its clear cut transparency							●		●		●			108	
Chord Codac	32	A connection with a stranded inner core and a sound that lacks integration							●		●		●			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														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	40	Appears to be a bog-standard PMNA fibre, yet sounds a little brighter and livelier than most														108	
Moth Leyline Datalink	140	A thin, coaxial version of Leyline Black with a rather hard and unforgiving character. Too expensive			●		●		●		●		●			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	120	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 LSC850	13.90	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

CABLES (CONTINUED)

Product	Price(£)	Comments	SYMMETRICAL		COAXIAL		STRANDED		SOLID CORE		COPPER		SILVER		FACTSBACK NUMBER	ISSUE NUMBER
			MM	MC	MM	MC	MM	MC	MM	MC	MM	MC				
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
Ixos 603	2	Big and expansive-sounding cable, full and engaging while retaining a high degree of neutrality									●	●			1718	133
Ixos 604	5	Midrange is detailed and surprisingly smooth but treble is hard and synthetic and the bass no better									●	●			1719	133
Kimber 4TC	19.6	A well-balanced cable with good performance in all areas			●						●	●				168
Kimber 4TC Double-wire	140	A variation on a Kimber classic which produces a rich and weighty sound, but isn't quite as transparent as single runs									●	●				133
Mission Quartet	3.9	Mixed, inoffensive sound, adds guttural resonance to vocals and could be generally more coherent. Bi-wire									●	●			1722	133
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	9	Good midrange and treble balance, but bass is rather slack and detail not outstanding									●	●				168
QED Profile 8	6.5	Sophisticated flat cable that lacks decent bass and impetus									●	●			1800	157
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
Tech + Link OFC79	1.5	Bargain basement cable that sounds cosy, but suffers from a wobbly bass									●	●			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

FOR MORE IN-DEPTH INFORMATION ON REVIEWED PRODUCTS, CHECK OUT OUR WEB SITE AT www.hifichoice.co.uk

HI-FI CHOICE



Cartridges

Cartridges fall into two groups: high output MM (moving magnet) models, capable of working directly into most phono inputs; and generally more expensive low and very low output MC (moving coil) models. MC cartridges usually have better mechanical integrity, tighter tolerances and give better performance. Many amplifiers are no longer equipped with the necessary phono input for a cartridge, and a separate phono stage is necessary. Phono input equipped valve designs need a

transformer to cope with MC cartridges. Cartridge/amplifier interfacing can be very subtle, but even basic high output MM designs benefit in overall balance from optimised amplifier capacitance loading.

B Best buy **R Recommended**

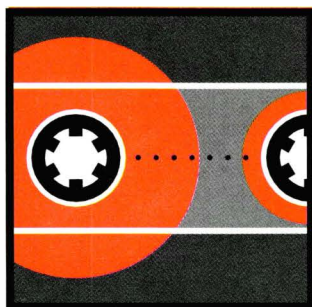
KEY	REPLACEABLE STYLUS	OUTPUT (MV)	MASS (g)	FACTSBACK NUMBER	ISSUE NUMBER
MM: Moving magnet cartridge with a normal output suitable for all vinyl disc amplifier inputs.	sensitivity vinyl disc amplifier inputs.	Cartridge output in millivolts.	Cartridge mass can affect arm choice.		copy of the review.
MC: Moving coil cartridge with a low output only suitable for high-	REPLACEABLE STYLUS: Most MM cartridges have a stylus that can be removed and replaced.				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
			MM	MC	MM	MC	MM	MC		
Audio Note Io IIV	1,695	One of the best, giving an extraordinarily relaxing midrange clarity. Needs a transformer						0.1		100
Audio Technica AT-95E	19	Clear and dynamic, though richly balanced			●			2.8		48
Audio Technica ART-1	944	This is a delicate and very fluid-sounding MC that tracks well						0.4	9	72
Clearaudio Signature	1,495	A great all-round performer with fine dynamic vitality and a seductive midband intimacy						0.55	11.5	175
Denon DL110	70	A fine all-rounder, this high output MC model is likely to perform well						1.0	6	48
Denon DL160	90	Although listeners just preferred the 110, its brother here survived lab tests and is still 'thoroughly competent'						0.1	6	43
Denon DL103	100	Good performance in bass and good 'life'. Is seriously let down by its spherical stylus which kills subtle detail						0.1	6	103
Denon DL304	200	Uncoloured, detailed, tracks superbly. Top notch altogether and a bargain too						●		103

CARTRIDGES (CONTINUED)

Product	Price(£)	Comment	REPLACEABLE STYLUS MM	OUTPUT MC	FACTSBACK NUMBER	ISSUE NUMBER
Dynavector Karat 17D2 mk2	449	Clean and controlled sound with taut, tuneful bass. Detailed and musically cogent	●	●	0.15 5.3	158
▲ Dynavector Te-Kaitora	1,698	A real smoothie, but pricey. Worth checking out for its delicate laid-back transparency and low needle-talk	●	●	0.25 8.5	175
▲ Dynavector XX-1L	998	Very clear, very detailed; a response lift around 20kHz seems to do no harm	●	●	0.25 12	84
Dynavector XX-1	998	Good, but not immensely competitive at the price, and not helped by comparison with the low output version	●	●	2.0 12	84
▲ Goldring Elan	19	A lightweight and frisky-sounding MM apparently based on Nagaoka MM4 body	●	●	5.0 7	67
▲ Goldring 1012GX	79	Slightly harsh but plenty of life and detail. Some high frequency colouration apparent	●	●	6.5 7	85
▲ Goldring 1022GX	99	As with 1012, a touch harsh; detail and transient purity improved	●	●	6.5 7	85
▲ Goldring Eroica LX	110	Not the most subtle cartridge in the world: can sound edgy at times, but lively and informative	●	●	0.5 8	84
Goldring 1042	120	Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively though	●	●	6.5 6	91
Goldring Elite	220	The basics are right, and it will cheerfully tackle any source material, but its sound 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	175
▲ Grado Prestige Gold	150	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	175
▲ Linn K9	125	Linn improved this model by beefing up the Basik's bodywork and adding a super stylus	●	●	4.5 5	Col
London Decca Maroon	259	Now manufactured under the London brand name, this Decca cartridge is as iconoclastic as ever	●	●	5.0 6	67
London Decca S Gold	339	Immediate and detailed, but coloured, nonlinear with a questionable effect on records	●	●	5.0 6	84
▲ Lyra Lydian	649	Superbly capable all-round musical performer that improves markedly when its body cover is removed	●	●	0.3 7	158
▲ Lyra Clavis Da Capo	995	A stable tracker, and one of the finest cartridges we've heard	●	●	0.1 7	143
Lyra Parnassus D.C.t	1,895	A real little jewel of a cartridge, with many good qualities, but handicapped by a rather too obvious treble peak	●	●	0.22 10.5	175
▲ Ortofon 510/P	38	For the price, a good blend of virtues – weight, clarity and neutrality	●	●	3.0 5	85
▲ Ortofon 520/P	65	Sensitive to load capacitance, the 520/P has a lively, effervescent sound	●	●	3.0 5	67
▲ Ortofon MC3 Turbo	130	The 3 Turbo is bright, cheerful and bouncy, but unsubtle – take it as it comes	●	●	3.3 4	103
▲ Ortofon MC15 Super II	130	A good all-rounder, with outstanding resolution, if slightly bright and close up	●	●	0.35 7	103
Ortofon MC25E	180	An excellent upgrade for a mid-price turntable	●	●	0.5 11	139
Ortofon MC25FL	249	A bit too stark and honest, but faithful to what's on the LP	●	●	0.5 11	139
Ortofon MC30 Supreme	525	Highly detailed and even-sounding cartridge that has a special affinity with female vocal recordings	●	●	0.5 10.7	158
▲ Ortofon Rohmann	1,000	A class act in nearly every respect, with fine groove security and a very smooth and even-handed sound	●	●	0.25 8.5	175
▲ 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
▲ Rega Elys	85	Clearly superior to the Bias, the Elys is more detailed, accurate and convincing	●	●	5.0 5	67
▲ Roksan Corus Black	130	Recognisably related to the Corus Blue, but smoother and more civilised	●	●	6.5 5	91
▲ van den Hul MM-1	250	If woody midrange could be tamed, imaging and security would pull it through	●	●	5.5 6	103
van den Hul DDT-II	600	Outstanding stereo imaging and neutral balance are appealing, but rhythmically the DDT-II is a bit lazy	●	●	0.35 7.6	158
▲ van den Hul MC-10	799	A neutral, balanced performer, gives fine depth and focus and a firm, extended bass	●	●	0.4 6	60
▲ van den Hul MC-One	900	This extended all the positive qualities of the 10, but added greater authority and scale – worth all the extra money	●	●	0.4 6	60
▲ van den Hul MC-Two	1,200	MC-Two rewards with a highly detailed yet fluid and musically convincing portrayal	●	●	0.4 6	72
▲ van den Hul Frog	1,500	Seems to control/suppress surface noise better than its rivals, this delicate and subtle performer has great charm	●	●	0.65 7	175
▲ van den Hul G' hopper III/IIA	2,800	Undoubtedly one of the finest cartridges available, it has tremendous bandwidth, energy and finesse	●	●	0.4 6	122
▲ Wilson benesch Matrix	786	Extraordinarily well balanced cartridge: neutral and detailed yet lively and rhythmically assertive	●	●	0.58 6	158
▲ Wilson benesch Carbon	1,572	Carbon fibre body contributes to a delightfully clean and open midrange, and a quick, lively and coherent sound	●	●	0.45 7	175



Cassette Decks

The compact cassette is still the world's most versatile and ubiquitous music storage medium. Buffs may wrinkle their noses, but they all use it.

There should be no problems in connecting a cassette deck to any normal amplifier, but some care needs to be taken in choosing the best tapes for a specific machine. (Trial and error is one effective technique, but many decks have manual bias adjustment and some match up to the tape automatically.) Twin decks offer the option to dub tapes and play two cassettes

sequentially. Autoreverse is a useful feature, but usually implies some mechanical compromise. Useful facilities include tape monitor switching and Dolby S.

Best buy

Recommended

KEY

DOLBY C: A rather extreme noise-reduction system not usually associated with high sound quality.
DOLBY S: A desirable derivative of the Dolby SR professional noise-reduction system.
DOLBY HX-PRO: System designed by B&O to extend headroom

for cassette recording.
3-HEAD: If you want to monitor a recording while you are making it, a third head is essential.
TWIN DECK: Contains two decks for dubbing and continuous play. In most instances only one deck will record.

AUTOREVERSE: Automatically plays both sides of the cassette.
AUTO CALIBRATION: The deck will automatically set up bias and EQ for any tape.
ADJUSTABLE BIAS: Bias can be manually set to suit the tape being used.

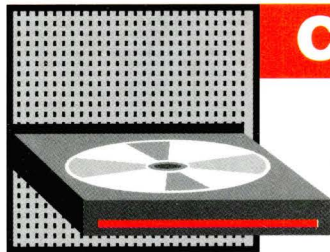
FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page.
ISSUE NUMBER: The issue of *Hi-Fi Choice* in which the original review appeared.

CASSETTE DECKS

Product	Price(£)	Comments	DOLBY C	DOLBY S	DOLBY HX-PRO	3-HEAD	TWIN DECK	AUTO CALIBRATION	ADJUSTABLE BIAS	AUTOREVERSE	FACTSBACK NUM.	ISSUE NUMBER
▲ Aiwa AD-F450	120	Basic but well-designed budget deck, astonishing value, only the poor metering gives the game away	●	●	●	●	●	●	●	●	1513	136
▲ Aiwa AD-WX727	170	High-class twin for those who want bells, whistles - and music	●	●	●	●	●	●	●	●	1377	146
▲ Denon DRM-550	160	There are some technical limitations, but this remains a fine sounding deck, and excellent value	●	●	●	●	●	●	●	●		158
Denon DRW-580	200	Twin deck: OK for casual use, but will quickly pall with more quality critical applications	●	●	●	●	●	●	●	●		171

CASSETTE DECKS (CONTINUED)

Product	Price(£)	Comments	DOLBY C	DOLBY S	DOLBY HX PRO	3-HEAD	TWIN HEAD	AUTO CALIBRATION	AUTOREVERSE	FACTSBACK NUMBER	ISSUE NUMBER
Denon DRS-640	200	Draw-loading deck, with simple facilities and smooth, well-adjusted sound	●	●	●	●	●	●	●	1591	140
Denon DRM-650S	230	An all-round improvement on predecessors, offers a wide-ranging, disciplined sound. Dolby S is not the best feature	●	●	●	●	●	●	●	1514	136
Denon DRM-740	270	Breathed-on DRM-710, with good external treatment, offers good, if somewhat detached sonics	●	●	●	●	●	●	●	1514	136
Denon DRS-810	310	Draw-loading deck, carefully designed yet lacking in subtlety on audition	●	●	●	●	●	●	●	1514	136
Harman/Kardon TD420	250	Minor inconsistencies detract from a well-conceived, minimum features design	●	●	●	●	●	●	●	1592	140
Harman/Kardon TD450	350	Draw loader with poor tape navigation features; good midband but shallow bass	●	●	●	●	●	●	●	1514	136
JVC TD-R472	200	Excellent auto-reverse deck which doesn't suffer the usual disadvantages and is very sharply priced	●	●	●	●	●	●	●	1518	158
JVC TD-V562BK	220	Ultra-sophisticated transport at a silly price; sound quality is stable but slightly opaque	●	●	●	●	●	●	●	1518	158
JVC TD-V662BK	270	Assured, clean and agile sounding recorder, if not quite the most refined in its class	●	●	●	●	●	●	●	1380	146
JVC TD-W718	300	Twin deck. Good for creative live recording, but no timer standby. Respectable though not earth-shattering performance	●	●	●	●	●	●	●	1518	158
Kenwood KX-W6080	200	Modestly decent sounding twin deck, with some transport instability and ragged bass. The features list is also strong	●	●	●	●	●	●	●	1518	158
NAD 613	230	Rough and ready, but enjoyable sound, though marred by mechanical motor noise	●	●	●	●	●	●	●	1518	158
NAD 616	300	Primitive twin deck with basic features. No Dolby setting memory, transports are too unstable for serious quality first use.	●	●	●	●	●	●	●	1518	158
Onkyo K-611	460	Cute drawer loading mini-size component with 3-heads and dual capstan transport	●	●	●	●	●	●	●	1384	146
Pioneer CT-S550S	250	Great features, good with cheap low bias tapes, but slightly synthetic sound quality	●	●	●	●	●	●	●	1518	158
Pioneer CT-W806DR	300	Had it not been for the iffy transport quality, this ultra-sophisticated twin would have been recommended.	●	●	●	●	●	●	●	1518	158
Pioneer CT-S830S	500	High-class mechanism, if lacking in battleship externals, and superb sound	●	●	●	●	●	●	●	1385	146
Sony TC-KE600S	300	Mild setting-up problems notwithstanding, this UK-tweaked design has a smooth, open and un-cassette-like sound	●	●	●	●	●	●	●	1518	158
Technics RS-AZ6	230	For those who can't afford the RS-AZ7; exquisite clarity over the widest bandwidth thanks to AZ thin-film head	●	●	●	●	●	●	●	1518	158
Technics RS-AZ7	300	Thin-film head gives a solid, almost CD-like bass and midrange. A clear advance in the state-of-the-art	●	●	●	●	●	●	●	1518	158
Yamaha KX-490	199	Electrifyingly transparent and capable deck whose only flaw is a trace of audible wow and flutter	●	●	●	●	●	●	●	1518	158
Yamaha KX-580SE	250	Subtle, engaging and transparent sounding deck, with a lightweight tonality, but good stability and strong detail	●	●	●	●	●	●	●	1518	158



CD Players brought to you 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.

B Best buy **R** Recommended

KEY	AT&T OPT DIG OUTPUT:	BAL ANALOGUE OUTPUT:	HEADPHONE SOCKET:	VARIABLE OUTPUT:	controlled output.	MULTI-DISC:	DAC TYPE:	bitstream, PWM, etc	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.	Balanced analogue output for amplifiers equipped with balanced inputs.	For can users.	Remotely adjustable, volume-		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.

CD PLAYERS

Product	Price(£)	Comments	AES/EBU ELEC DIG OUT	OPTICAL DIGITAL OUTPUT	AT&T OPT DIG OUT	BAL ANALOGUE OUTPUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	FACTSBACK NUMBER	ISSUE NUMBER
Acurus ACD11	899	First-rate if costly player from the US, which combines a delightful transparency with an uncontrived naturalness	●	●	●	●	●	●	●	1bit	166
Arcam Alpha 7	330	Very detailed for a budget player with a slick and free sense of dynamics, needs careful ancillary matching	●	●	●	●	●	●	●	Hyb	1872 163
Acoustic Precision Eikos	1,850	Seriously customised Pioneer with extraordinary resolution and world beating imaging and bass (Statements)	●	●	●	●	●	●	●	1bit	165
Alchemix Nexus APD32A	597	Refined treble, constrained yet capable bass and attractive all-round presentation distinguish this player from the crowd	●	●	●	●	●	●	●	Hyb	169
AMC CD8A	150	Has balanced output, but is otherwise rather grey and unremarkable	●	●	●	●	●	●	●	BS	172
Anthem CD1	1,595	Unusual combination of high-end player, complete with HDCD, and changer. Good, but serious mechanical noise	●	●	●	●	●	●	●	MB	178
Arcam Alpha MCD	450	Excellent bass and natural midband, but just a touch of treble dryness, from this very listenable changer	●	●	●	●	●	●	●	MB	178
Arcam Alpha 8	520	Refined, intricately detailed but a little cautious, this should be broadly compatible with a variety of amps	●	●	●	●	●	●	●	BS	1873 163
Arcam 8SE	600	Excellent (and very reasonably priced) HDCD-compatible player is a strong all-rounder	●	●	●	●	●	●	●	1-bit	176
Audio Innovations Alto	399	Refreshing piece of audio sculpture belies inconsistent audio behaviour	●	●	●	●	●	●	●	BS	1635 151
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	176
AVI S2000MC Reference	1,399	Lean, dry, high resolution player, built to outlast most of us, and a fine performer in a sympathetic system	●	●	●	●	●	●	●	MB	169
Cambridge Audio CD4	150	Clean, detailed and airy HDCD-equipped player with minimalist trappings	●	●	●	●	●	●	●	Hyb	1268 147
Cambridge Audio CD4SE	200	Among the best players we have encountered at the price, considerably more refined and convincing than CD4	●	●	●	●	●	●	●	BS	1877 163
Cambridge Audio CD6	250	A sharp, lively and articulate player, a real thoroughbred in fact, perhaps too sharp and lively for some systems	●	●	●	●	●	●	●	BS	159
Copland CDA-266	1,199	Visually simple yet elegant design is unexpectedly sophisticated under the skin, and effective in execution	●	●	●	●	●	●	●	MB	176
Copland CDA-288	2,199	A gentle giant of a player that errs in favour of pastel shades rather than bold daubs of colour, one for refined tastes	●	●	●	●	●	●	●	MB	1880 163
Cymbal CDP12	1,299	Clean, detailed and airy HDCD-equipped player with minimalist trappings	●	●	●	●	●	●	●	Hybrid	176
Denon DCD-625	200	DCD-615 replacement is generously equipped but lacks sophisticated sound of its forebear	●	●	●	●	●	●	●	MB	1269 147
Denon DCD-825	240	Despite extensive revisions, this latest player still sounds like a typical 18-bit Denon, which is no bad thing!	●	●	●	●	●	●	●	MB	1531 137
Denon DCD-1015	350	Excellent, mid-range player - fast, fluid and lean	●	●	●	●	●	●	●	MB	1599 141
Denon DCD-3000	1,000	Sings with the temperament of a huge orchestra under the baton of a timid conductor, but very agreeable at that	●	●	●	●	●	●	●	MB	1881 163
Denon DCD-635	180	Modest presentation gives little clue to the thoroughbred electronics ticking away inside	●	●	●	●	●	●	●	MB	172
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

AES/EBU ELEC DIGITAL OUTPUT
OPTICAL DIGITAL OUT
AT&T OPT DIG OUT
BAL ANALOGUE OUTPUT
HEADPHONE OUTPUT
VARIABLE SOCKET
FACTSBACK NUMBER
ISSUE NUMBER

CD PLAYERS (CONTINUED)

Product	Price(£)	Comments	AES/EBU ELEC DIGITAL OUTPUT	OPTICAL DIGITAL OUT	AT&T OPT DIG OUT	BAL ANALOGUE OUTPUT	HEADPHONE OUTPUT	VARIABLE SOCKET	FACTSBACK NUMBER	ISSUE NUMBER	
harman/Kardon HD730	300	Competitive at the price, with a coloured but dynamic and outgoing sound supported by a raft of user features	●						BS	166	
harmon/kardon FL8300	300	Generally capable changer with relaxed sound and firm bass. Just a hint of roughness on occasion	●						MB	178	
Helios Model 2	950	This player may not be to everyone's taste, but it is an individual, with some interesting things to say	●						Low bit	176	
JVC XL-V184BK	120	Excellent budget player, well presented, a tad opaque but its heart is in the right place.							1bit	172	
JVC XL-V284BK	140	Featuring a new set of bitstream innards, this flexible player has a refined, if occasionally unpredictable sound	●						1bit	1270 147	
JVC XL-Z574	250	Strong resolving power and good midband and dynamics, but slightly raw and thin							1bit	159	
JVC XL-Z674BK	300	Even-handed, but glosses over the most intimate moments	●						1bit	1637 151	
Kenwood DP-3080	170	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	172	
Kenwood DP-7090	400	A lively and compelling performer with an even-handed and coherent disposition	●						MB	1885 163	
Krell KPS 20i	9,990	Forthright, edge-of-the-seat sound with outstanding bass performance (tested in Statements)	●	●	●	●	●	●	MB	1734 155	
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-67	270	Dynamic, authoritative, and wide tonal response, but also shut-in and mid-forward balance	●						1bit	159	
Marantz CD-67SE	350	Refined, enjoyable player, though ultimately a little soft-centred	●						BS	166	
Marantz CD-48	200	Somewhat inconsistent, middle ranking player which hints at better things	●						1bit	172	
Marantz CD-17	800	Fabulous packaging and an excellent all round performer: smooth, detailed and consistent	●						BS	1763 155	
Marantz CD-17KIS	1,100	Minor QC problems aside, this is a superbly turned-out machine, but ultimately a little bland	●						BS	176	
Meracrus 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	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	169	
Monrio Privilege	995	Costly and well-engineered, but ultimately rather heavy-handed and dull, if refined player	●						MB	166	
Musical Fidelity E60	300	This entry-level player lacks proper stereo localisation and clarity	●						BS	166	
Musical Fidelity A2	500	Warm (too warm), attractive and open player, a great improvement on (related) E60	●						BS	169	
Musical Fidelity FCD	1,500	A forward disposition makes this perfect for Fenders but less appropriate to Guarneris	●						BS	163	
Myryad MC100	700	A little extra get-up-and-go wouldn't go amiss, but its sheer maturity and composure ensure listenability	●						BS	1889 163	
Myryad MCD500	1,300	Well-built attractive player, which has much promise, some unrealised, and which can be a little hard going on audition	●						Low bit	176	
NAD 510	200	Pale version of NAD's senior CD players with a stripped down feature count							1bit	172	
NAD 512	250	Simple, well-focused presentation, and articulate with it, though hard-nosed quality is not everyone's cup of tea	●						1bit	159	
NAD 523	250	Nothing seriously amiss with this classic NAD 'no-frills' changer, but it lacks that vital spark							● Hyb	178	
NAD 514	370	Boisterous sound, but undeniably attractive	●						BS	1639 151	
Naim Audio CD3	1,000	The idiosyncratically packaged CD3 is solid and highly articulate. Always has its feet on the ground though							MB	1765 155	
Naim Audio CD2	2,000	Provides bags of detail with a solid stereo focus but not all the romanticism we know to be possible							MB	1890 163	
Onkyo DX-7210	260	Well-bred CD player features an unusual digital filter, is smooth and cultured without appearing grey or boring	●						BS	1273 147	
Onkyo DX-7510	400	Strongly flavoured, assertive sound	●						BS	1640 151	
Orelle CD-100EA	649	Excellent imagery, timing and transparency, and readily upgraded or reconfigured	●	●					MB	166	
Philips CD-721	130	Surprisingly well-sorted, articulate if slightly glossy and attractively presented sound. Captive signal lead							1bit	159	
Philips CD751	180	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	178	
Pioneer PD-S904	400	Too much legato - literally - in sound, but a very smooth performer	●						1bit	1641 151	
Pioneer PDS-06	550	Technologically sophisticated, Pioneer's first multi-bit player for years is polished and capable, if a tad laid back	●						MB	176	
Pioneer PD-S505 Precision	460	Assured, fluid-sounding player, with great spatial coherence	●						1bit	166	
Quad 77	900	A true thoroughbred combining a penetrating insight into detail with poise rarely found at the price							Hyb	1893 163	
Roksan DP3P	1,495	Dramatic and compelling, classical listeners should be ready to 'air conduct' when auditioning this player	●						BS	1896 163	
Roksan Caspian	895	Solid, articulate, and fundamentally well-engineered player, but with some subtle low-level limitations	●						Hyb	169	
Rotel RCD-970BX	375	A combination of solid build, useful facilities and an attention grabbing sound make this a winner	●						BS	1897 163	
Sherwood CD-4030R	180	Easy on the ear, smooth-sounding player, with limits set by the slightly soft, compressed quality - and messy fascia							BS	159	
Sherwood CD1	1,100	A very neutral, even handed sounding player with a rather flat, lifeless sound. Beautiful construction	●						BS	1899 163	
Sony CDP-XE510	180	Souped up CDP-XE500 which tells a rather bland and unengaging story							1bit	172	
Sony CDP-XE900E	300	Refined and analytical disc scavenging tool, but there are some distinctive colourations making auditioning vital							BS	159	
Sony CDP-XA20ES	450	High tech, with a long list of gadgets, this is an oddly configured player that ultimately sounds less than compelling	●						1-bit	176	
Sony CDP-X3000ES	500	Shoebbox 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	166	
Teac CD-5	350	Bright, breezy and up-beat - but short in the trouser department	●						BS	1643 151	
Teac VRDS-7	599	Although bold and outgoing, this player can sound both intrusive yet lacking in fine detail	●						BS	1769 155	
Teac VRDS-9	700	Well-presented, heavyweight midi, the Teac is crisp, yet shallow, and inconsistent in sound quality and partnering skills	●						1-bit	176	
Teac VRDS-10SE	850	Superbly built and presented, but rather leaden bass, with an over-prominent and not ideally refined mid/top	●						BS	169	
Teac VRDS-25	1,300	A solid player in all respects combining powerful sound with state-of-the-art technology	●						MB	1903 163	
Technics SL-PG480A	130	Full driving sound, but somewhat uneven in balance with a unsubtle, slightly harsh top end							1bit	159	
Technics SL-PS770D	250	High tech and well built technology battleship which smoothes the rough edges off the music							BS	172	
Technics SL-MC410	250	If you fancy a CD player that holds 111 discs, this one's cheap, pretty capable, and easy to use							● Hyb	178	
Trichord Genesis	549	Breathed-on Pioneer is warm and mellifluous, but ultimately lacks drive and authority.	●						● ●	Hyb 169	
Trichord Revelation	799	Well-ordered and clean sound that may be a little too refined for some, images well	●						1bit	166	
XTC CDP-1	1,250	Bright and sometimes abrasive, but detailed player	●						MB	176	
Yamaha CDX-390	130	Well endowed entry level unit, with inconsistent sound that can be harsh in extremis							1bit	172	
Yamaha CDX-490	170	Big, blowsy sound, is undermined by lack of precision and focus							1bit	159	
Yamaha CD-X890	350	Clearly a quality product in every sense, the Yamaha provides a spacious, refined and tuneful account of the music	●						BS	166	
Yamaha CDC-665	220	This player offers many useful features and highly listenable sound, with tidy and tuneful bass and good imaging	●						1bit	178	
TRANSPORTS											
Arcam Delta 250	800	This model is based on a Philips CDM9 transport. Specification includes Sync Lock facility	●						-	1491 130	

CD PLAYERS

OPTICAL IN/OUTPUTS
AES/EBU ELEC DIG OUT
AT&T OPT DIG OUT
BAL ANALOGUE OUTPUT
HEADPHONE SOCKET
VARIABLE OUTPUT
MULTI-DISC
FACTSBACK NUMBER
DAC TYPE
ISSUE NUMBER

Product	Price(£)	Comments	OPTICAL IN/OUTPUTS	AES/EBU ELEC DIG OUT	AT&T OPT DIG OUT	BAL ANALOGUE OUTPUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	FACTSBACK NUMBER	DAC TYPE	ISSUE NUMBER
Audiolab 8000CDM	1,400	Super-slick transport and basically very honest sound, but lacking the last degree of fine detail	●	●	●							- 162
Audiomeca Mephisto	2,350	Tested with Trichord Pulsar — the duo provides a highly composed and tactile sound	●			●						- 1320 144
Linn Karik	1,850	Based on early Linn transport, the Karik is dry but very positive, detailed and engrossing	●			●						- 1323 144
Meridian 500	1,245	Used with the 563 DAC, the combination is thin, brash and uncomfortable	●			●						- 1103 133
PS Audio Lambda	2,250	With Ultralink Two, sound positively sparkles with colour and resonant detail. (Tested with Ultralink 2 DAC)	●	●								- 1106 133
Roksan Attessa ATT-DP3	1,495	Not the most detailed or refined but capable of sounding exciting with the right material	●			●					1bit	162
Teac VRDS-T1	550	Superb quality engineering is mated to tidy and composed sound (tested with D-T1)	●			●						- 1325 144
Theta Data Basic II	2,397	Uses a Philips CDM9 Pro mechanism and works a treat with more lively DACs	●									- 1494 130
Thorens TCD2000	999	Lively presentation not helped by rather loose bass and splashy treble. (Tested with TDA 2000 DAC)	●			●						- 162
Trichord Digital Turntable	699	Very detailed, precise, controlled yet involving; a first-rank performer	●			●						- 162
Wadia 8	3,195	Budget version of Teac's VRDS mechanism in a fancy case; but just too expensive for the performance on offer	●	●	●	●						- 1495 130
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
Audiolab 8000DAC	900	Basically very honest sound, but lacking the last degree of fine detail										BS 162
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 Attessa ATT-DA2/DS5	1,145	Not the most detailed or refined but capable of good excitement with the right material										1bit 162
Teac D-T1	500	Teamed with VRDS-T1 for test, this superb quality unit is tidy and composed										BS 1325 144
Teac D-700	600	With P-700, the D-700 may lack the resolution, but is bubbly and entertaining										MB 120
Thorens TDA2000	700	Lively and up-front presentation not helped by rather loose bass and splashy treble										BS 162
Trichord Pulsar Series One	1,395	Very detailed, precise, controlled yet involving; a first-rank performer. Switchable phase, dither etc										Hyb 162

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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

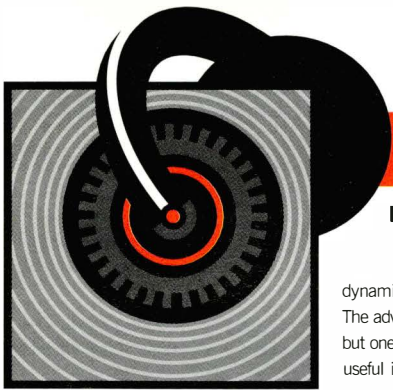
ADC TYPE: Analogue to digital converter types as per DACs.
PORTABLE: Can be operated from batteries but is not necessarily personal stereo size.
OPTICAL IN/OUTPUTS: Digital socketry for optical cable.

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	OPTICAL IN/OUTPUTS	AES/EBU ELEC DIG OUT	AT&T OPT DIG OUT	BAL ANALOGUE OUTPUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	FACTSBACK NUMBER	DAC TYPE	ISSUE NUMBER
Denon DMD-1300	500	Sound sometimes lacks integration but tonal balance is good and it handles loud music with panache										177
Kenwood DM-9090	550	Slight sibilance and image vagueness do not detract from excellent balance and solid bass										177
Onkyo MD-121	450	Midi-sized deck that sounds slightly coloured at times, though immediate and lively										177
Philips CDR-870	500	The first re-writable CDR, but has jitter problems in direct digital dubbing										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										171
Pioneer D-05	900	Second generation 96kHz DAT recorder can offer startling realism										1652 152
Pioneer PDR-05	1,000	The first domestic — excellent sound quality										1652 152
Pioneer D-C88	2,000	State-of-the-art portable 96kHz DAT recorder, the size of a lap-top computer										1431 150
Sharp MD-R2	300	Budget recorder that loses little or nothing in comparisons with much more expensive models — highly capable										177
Sony MDS-JA30ES	700	Amazingly comprehensive set of features and sound as good as any; just the merest hint of coarseness at times										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.



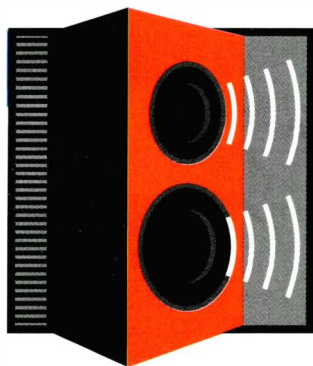
KEY	TYPE: Operating principle: D - dynamic, E - electrostatic.	CLOSED BACK: Keeps out external noise.	3.5MM JACK ADAPTOR: Can be used with mini-jack-equipped components such as personal stereos.	section.
SUPRA-AURAL: Style where a flat pad presses on the outer ear.	WEIGHT (G): Mass in grams	IMPEDANCE (Ω): Load offered to the headphone amplifier. All things being equal, the lower the impedance the louder the sound for a given amplifier output.	FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page, elsewhere in this	ISSUE NUMBER: The issue of <i>Hi-Fi Choice</i> in which the original review appeared.
CIRCUM-AURAL: Style which encloses the ear.				
OPEN BACK: Offers an open sound but lets in noise.				

HEADPHONES

Product	Price(£)	Comments	TYPE	CIRCUM-AURAL	OPEN BACK	CLOSED BACK	WEIGHT(G)	IMPEDANCE(Ω)	3.5mm JACK ADAP.	FACTSBACK NUM.	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	90	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	152	Rugged, modular professional design, but bass is woolly and treble lacks detail	D		●	●	350	600			157	
Beyer DT311	57	Uncharacteristically tight, unrefined sound quality from this otherwise well engineered 'phone	D	●		●	124	40	●	1098	133	
Beyer DT411	69	A reasonable but not very thrilling headphone that doesn't really offer enough at the price	D	●		●	120	250			111	
Beyer DT331	82	Tonally bright and deficient in bass, but exceptionally comfortable, articulate, detailed and refined	D	●	●	●	210	40	●	1801	157	
Beyer DT511	117	Superb midband clarity and speed slightly at odds with soft bass. High tingle factor even so	D	●	●	●	200	250			172	
Beyer DT531	135	A good buy for serious, heavy-duty music making	D	●	●	●	245	250			144	
Beyer DT911	235	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	●		172	
Grado SR-40	45	Cheap and nasty appearance largely redeemed by cheerful, up-beat sound. Very comfortable	D	●		●	120	32	●		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	1/R	●		172	
Maxell HP-3000	30	Solid, smooth-sounding supra-aural headphone, but congested and undynamic. Includes in-lead controls	D	●		●	120	32	●	1099	133	
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	●		172	
Philips SBC HP900	90	Sharper, snappier midrange than 3396 initially impressive but blows the balance and listenability	D		●	●	200	32	●		172	
Sennheiser IS 380	55	As close as you'll get to real hi-fi with infra-red phones at this price. Inevitable hiss spoils the illusion	D	●		●	192	1/R	●		172	
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	●		172	
Sennheiser HD 545	125	Fine all rounder that takes all styles of music in its stride. Ear-clamping headband	D	●	●	●	255	150	●		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	199	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	●		172	
Technics RP-DJ1200	130	Functional design with head-pulping bass and muggy tonal balance. Good job they're sweat-proof	D	●		●	230	32	●		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	
Technics RP-HT700	70	Well-finished but physically crass and grubby sounding	D		●	●	255	-	●	1801	157	
Vivanco IR5800	50	Consistently musical infra-red design. Doesn't reach for sonic heights so hiss can be forgiven	D	●		1/2	226	1/R	●		172	
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 CHOICE



Hi-Fi Loudspeakers

Brought to you in association with **KEF**

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



KEY	SIZE WxHxD (cm): Width by height by depth in centimetres.	IMPEDANCE (Ω): Measured in Ohms, impedance is a measure of how hard a loudspeaker is to drive: the lower the number the more powerful the amplifier needs to be.	reproduce, based on in-room measurements.	FACTSBACK NUMBER: 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	FREE SPACE: Speakers should be placed away from walls.	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.		CLOSE TO WALL: It is recommended that these speakers be placed close (between 3 and 12cm) to the rear wall.	

HI-FI LOUDSPEAKERS

Product	Price (£)	Comments	SIZE WxHxD(CM)	FLOORSTANDER	SENSITIVITY (dB/W)	IMPEDANCE (Ω)	BASS FROM (Hz)	FREE SPACE	CLOSE TO WALL	FACTSBACK NUMBER	ISSUE NUMBER
A Acoustic Energy AE200	250	Metal cone miniature has a tendency to shout but is still lots of fun, and well built too	18.5,30,25		87	6	40		●		177
A Acoustic Energy AE109	350	Lots of mass-loaded twin-driver speaker for the money, especially for loud, driving bass	18,90,25	●	88	4	25	●	●	1904	164
Acoustic Energy AE120	500	Attractive presentation and good sonic headroom, but a heavy, uneven overall balance, and a difficult amp load too	18,98,28	●	89	4	25	●	●		170
ATC SCM20	1,599	Massively built, invariably informative but the rather forward presentation can be uncomfortable	24,44,31		83	8	28		●		86
A Audio Gem Emerald	540	Pretty compact floorstander with lively if lightweight sound	18,94,21	●	87	6	40	●	●	1905	164
A Audio Note AN-I/D	930	Light damping and local unevenness add some colouration, but don't spoil the speaker	38,58,25		93	8	25		●		110
A Audio Note AN-E/D	1,520	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
AVI Positron	899	Suited to smaller rooms, this 'mini-floorstander' is capable of great precision and delicacy, but in a rather small scale way	17.5,25,7784	●	85	6	40	●	●		174
A B&W DM302	150	Highly competent and neutral all rounder; clever Prism enclosure	19,32,22		88	4	45	●	●	1778	156
A B&W DM601	199	Great main driver for the price, entertaining dynamics	20.5,35.5,23		88	6	30	●	●	1779	156
A 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
A B&W DM305	350	Ridged paper cone gives lively sound, clever box, but a little uneven	22,87,31	●	89	4	40	●	●	1908	164
A B&W DNM03	500	Squat floorstander with decent dynamics and well-judged, restrained balance; bass could go deeper	23.5,88,29	●	89	7	45	●	●		170
A B&W CDM1 SE	600	A gorgeous looking stand-mount with one of the best midbands around, and a subtle blend of other qualities	22,37,29		88	5	40	●	●		177
A B&W CDM1	600	Gorgeous stand-mount delivers unusually good bass for its size	22,38,28		88	6	30	●	●	1818	160
B&W CDM7	1,000	A combination of serious welly and physical elegance; a basic lack of midband smoothness rather let the side down	22,97,29	●	90	4	22	●	●		174
A B&W Matrix 805 V	1,095	Stylish, remarkable imaging, good balance and low colouration	33,33,21		87	8	30	●	●		98
A B&W Matrix 804	1,695	A great all-rounder which combines exceptional bass extension with fine sensitivity	26,96,26	●	88	4	20	●	●		167
A 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
A Castle Isis	250	A great miniature at a very competitive price. Sound is lightweight but very coherent, with a fine overall balance	17,35.5,21		87	8	45	●	●		170
A Castle Kendal	500	A beautifully finished compact floorstander with a decidedly forward but communicative sound. Try before you buy	17,76,20	●	86	6	45	●	●		177
Castle Severn 2	539	Carbon fibre cone gives lovely, subtle midband but treble is a bit dull and bass a bit thumpy; lovely cabinet work	21,84,25	●	87	8	30	●	●		174
Castle Avon	730	Lovely box and lovely voices from carbon-fibre composite cone	22,91,28	●	85	8	22	●	●	1909	164
A Castle Harlech	880	Handsome big-sounding floorstander, great value and dynamic midrange	20,96,33	●	88	8	28	●	●	1820	160
A 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 23i	300	Cosmetically flawed, but the bottom end has fine get-up-and-go, and works well with dance tracks	24,86,27	●	89	6	30	●	●		177
A Celestion A1	899	Rich, warm and laid-back, but a true quality sound; lovely build	24,41,35	●	88	6	25	●	●	1910	164
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	250	Works with a pleasantly easygoing balance, but not the most communicative or exciting sound around	18,32,27		87	6	45	●	●		170
A Dali 104B	370	Lively, rich sounding and communicative. Shame about bland styling and dull balance	22,86,27	●	93	4	28	●	●	1657	152
A Dali 606	400	A big bruiser at a tempting price, Dali's 'no-frills' 606 sounds refined and polite, but also packs some punch	22,97,32	●	91	4	25	●	●		174
Dynaudio Audience 5	400	Follows the Dynaudio tradition for fine midband transparency, but the overall timbre is a bit thin and cold	20,31,26		85	4	40	●	●		177
A Dynaudio Audience 50	577	This compact stand-mount doesn't look big, but sound quality can match many models at twice the price	20,33,25	●	86	4	30	●	●		174
A Dynaudio Contour 1.8	1,842	Wonderful voice-band delicacy and loads of deep bass from a very elegant and compact box	21,95,29	●	85	4	20	●	●		167
Eltax Linear Response	249	A curiously dumpy shape, this smooth and laid back performer is very easy on the ears, with fine tonal accuracy	25,35,32		85	4	40	●	●		177
Epos ES12	499	High quality luxury stand-mount has great midband and stereo imaging	20,38,25		85	8	45	●	●	1823	160
A Epos ES14	675	Substantial stand-mount delivers delightful midrange focus and delicacy with good bass control	23,49,29		87	8	25	●	●		98
Epos ES25	1,655	Handsome floorstander with a rather uneven and bass heavy balance	24,90,35	●	88	6	22	●	●	1346	143
Faraday Siren	445	High mass concrete cabinet is let down by imbalance of ageing driver combination	25,27,46		90	4	48	●	●		94
Gale 2i	140	Unspectacular sound and appearance fail to help this solid little miniature stand out from the crowd	22,40,27		88	7	40	●	●		170
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
Harbeth BBC LS3/5A	699	Still a classic miniature, though not to every taste	19,30,18		82	10	80	●	●		66
A Heybrook Prima	159	Fine pace and timing, but balance is forward and bass is tight	20,29,18		87	6	50	●	●		110
A Heybrook Heylette	269	Attractive traditional-style near-miniature has fine bass-to-mid integrity, but dull and shut-in top end	19,5,30,20		89	6	45	●	●		170
A Heybrook Heylios	389	Great all-round performance in a pretty package at a sharp price	24,36,27	●	87	6	25	●	●		164
Heybrook Heylo	439	Good vocal reproduction, but sounds thin and bass seems an afterthought	23,73,19	●	88	8	30	●	●	1658	152
A Heybrook Quartet	649	Solid, large bookshelf model with good sensitivity and a lively, forward sound	24,41,22		90	8	48	●	●		122
Heybrook Ultima	649	Has the bass wallop to justify its dual hi-fi/home cinema roles, but didn't get our listeners particularly excited	22,97,29	●	89	6	45	●	●		174
A Heybrook Sextet	1,299	Coherent and highly analytical, partly due to distinct upper-mid forwardness	27,90,20	●	88	8	25	●	●		102
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

HI-FI LOUDSPEAKERS (CONTINUED)

Product	Price(£)	Comments	SIZE WxHxD(CM)	SENSITIVITY(dB/W)	IMPEDANCE(Ω)	BASS FROM FREE SPACE (Hz)	FACTSBACK NUMBER		ISSUE NUMBER
							CLOSE TO WALL	FREE SPACE	
Jamo Classic 8	400	A lot of speaker for the money, good when playing quietly, but boom 'n tizz character sounded crude	22,90,29	● 90	4	28	●	1659	152
Jamo 477A	500	Very prettily styled, but build and sound quality are disappointing at the price	19,77,28	● 88	4	40	●	1549	138
Jamo 507A	700	Exceptionally imaginative styling keeps the front view super slim yet still packs a punch. Glass top is a neat extra touch	22,94,37	● 88	3	40	●		174
JBL LX2	250	Lively and invigorating, if a touch crude, this good-hearted speaker reproduces music with considerable enthusiasm	22,40,27	● 87	8	40	●		170
JBL L20	700	Pricey, heavy and a bit laid back, but this is a fine rock'n'roller which is dynamic and communicative	26,42,28	● 86	8	30	●	1550	138
JBL SVA1500	700	A distinctive Pro-style bi-radial horn tweeter, and the sound is quite a lot of fun, enlivened by a juicy bass thump	17,5,51,31	● 86	8	40	●		174
JBL L40	1,000	Classic, large, stand-mount 3-way is full of vim and vigour, with a superb sense of balance	30,65,31	● 88	4	23	●		167
JBL 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
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	150	Lots of good-quality speaker for the price, but not an ideal match for cheap budget components	20,34,22	● 88	5	50	●		169
JPW ML710	230	Good material value but disappointingly uneven bass — check out the 510s and a pair of proper stands instead	20,88,30	● 88	5	40	●		177
JPW ML1010	400	A seriously substantial speaker for the price, and an obvious choice for those who like their music loud	22,5,115,40	● 91	6	25	●		170
JPW Ruby 1	400	Very pretty but pricey luxury metal-cone miniature has good, if slightly edgy balance	19,32,21	● 87	6	55	●	1572	139
JPW Ruby 4	1,000	Twin metal-cone main drivers improve the dynamic performance and bass extension, with little sacrifice in focus precision	22,94,26	● 88	8	25	●		174
KEF Coda 7	129	Lovely open voice reproduction, but bass could be tauter; build tougher	18,30,23	● 88	6	50	●	1783	156
KEF Coda 8	189	Outstandingly well-balanced, bass is deep but a little vague	20,32,5,29	● 86	6	28	●		1784
KEF Coda 9	299	Uneven budget 3-way floorstander with poor bass definition	20,86,28	● 89	6	30	●		1785
KEF RDM One	499	Cute and tiny, nice midband but lack of bass warmth and weight	23,30,24	● 88	6	70	●		164
KEF Reference Model 2	1,599	Classy, large floorstander that has massive headroom and clean mid-to-treble, but limited deep bass for size	23,103,34	● 89	4	30	●		167
Kelly KT3	1,200	Super high sensitivity, this hefty floorstander sacrifices smoothness to dynamic realism — to very good effect	25,95,36	● 95	4	28	●		174
Keswick Audio Aria II	379	Confident and dynamic sound, if a little crude and shut in	21,42,24	● 89	8	20	●	1405	148
Keswick Audio Torino	999	Good value, lively contender with distinctive shape and styling. Goes loud and deep but could be smoother	18-26, 93,28	● 90	4	20	●		167
Linn Keilidh Passive	750	Stunning timing and coherence, and awesome bass drive	20,83,28	● 87	4	22	●	1552	138
Linn Kaber Passive	2,000	Dry, bright balance emphasises dynamics and transients, but can sound unforgiving	20,90,28	● 87	4	25	●		118
Mission 731 PRO	140	Cautious balance makes a fine match with budget equipment. A classy baby for smaller rooms	17,5,31,5,20	● 89	8	55	●		169
Mission 750LE	250	Fabulous cosmetics and a great midband carry the day, though size will out and bass is inevitably limited	17,28,27	● 86	7	45	●		177
Mission 733i	330	New tweeter gives this floorstander a more open sound; a good all-rounder that doesn't sound as big as it looks	20,5,88,30	● 88	8	45	●		170
Mission 752 Freedom	578	A beautifully judged compromise in the art of combining presentation with a decent sound, and a lively midband	20,90,25	● 89	8	45	●		174
Mission 753 Freedom	798	Great styling. New, more restrained tweeter reveals fine midband dynamics	21,90,31	● 89	4	40	●		164
Mission 754 Freedom 5	1,298	Tall but exceptionally elegant floorstander gives fine midband projection, goes loud but limited deep bass for size	22,111,31	● 88	4	30	●		167
Monitor Audio Monitor 3	400	An exceptionally discreet floorstander; sonically uneven, it's capable of fine results if used in a sympathetic system	16,91,21	● 88	5	30	●		170
Monitor Audio Monitor 4	500	An oddball balance but a nonetheless entertaining sound, and a good looking real wood box at a realistic price	20,87,24	● 84	6	23	●		177
Monitor Audio MA700 PMC	600	Good-looking luxury compact with all-metal diaphragms, lovely midrange, but occasionally edgy	22,35,26	● 89	8	45	●	1661	152
Monitor Audio 702PMC	700	A good all-round stand-mount with that intimate midband focus which seems the preserve of metal cone main drivers	20,40,25	● 87	8	30	●		174
Monitor Audio MA703 PMC	800	Lovely but pricey floorstander has up-front, coherent 'shiny' sound	20,89,27	● 88	8	50	●	1826	160
Monitor Audio Studio 12	1,000	A real looker, but sound and content are a bit on the small side for the price	17,92,20	● 90	8	28	●	1789	143
Mordaunt-Short MS10i	140	Up front, bouncy and a whole lot of fun	18,5,30,5,20	● 86	8	50	●	1749	156
Mordaunt-Short MS30i	275	Slightly shut-in and coloured quality is offset by fine bass and impressive communication	25,43,28	● 90	8	28	●	1662	152
Musical Technology Kestrel SE	300	Brighter and drier-sounding than the standard Kestrel (and not the better for it)	20,84,19	● 84	5	50	●		164
Musical Technology Condor	1,000	Lots of clever ideas in a compact floorstander, which places transparency and smoothness ahead of dynamic drama	25,91,23	● 85	4	28	●		174
Musical Technology 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
Naim Intro	660	Great dynamic range and info retrieval, but thin, lacks warmth	24,89,27	● 89	6	30	●		164
Naim SBL Passive	1,970	Lively and punchy — smoother but more upfront than before	27,89,27	● 88	6	25	●	1352	143
Neat Mystique Mk2	575	An elegant package which delivers a fine overall sound quality; some might find the top end too insistent	20,86,18	● 85	6	23	●		177
Neat Petite II/Gravitas	2,000	Beautifully presented miniature/subwoofer combo with ribbon tweeter gives smooth, laid-back sound	23,105,40	● 85	6	25	●		167
NHT 1.5	449	Oddball styling but sounds much bigger than it has any right to. Good timing and communication skills	18,42,19-26	● 85	6	40	●		177
NHT SuperOne	358	A fine compromise between size and performance, though sensitivity and loudness capability is modest	18,5,29,5,23	● 85	8	30	●		170
Origin Live Conqueror	1,650	Chunky floorstanding 3-way has lovely cabinetwork and lively sound, but limited deep bass	24,94,27	● 88	8	30	●		167
PMC TB1S	430	Pro-audio version of TBI	20,41,30	● 87	6	40	●		177
PMC TB1	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	1,099	Delightful smoothness and transparency, though bass and treble are both limited	18,53,25	● 89	4	33	●		110
PMC AB1	1,758	Lovely panel-like transparency, slightly shut-in balance, needs a big room	26,79,43	● 89	6	22	●		114
Polk LS50	800	No enthusiast tweaks here, but powerful and beautiful balance	27,83,29	● 89	8	25	●	1155	138
Polk RT16	799	Bass rich, lively and powerful, but suspect top end; big and not very pretty	22,105,39	● 91	4	22	●	1831	160
Polk LS70	1,200	High sensitivity, but balance has too much midbass boom; mid-top is laid back	31,94,37	● 90	8	22	●	1084	132
Proac Response 2.5	2,700	For aspirant high-enders looking for seriously good conventional boxes, this speaker should be first port of call	22,107,25	● 86	8	30	●	1457	149
QLN Qubic 222	400	Ugly but good value floorstander with loads of bass and a smooth balance	21,87,29	● 88	6	25	●	1832	160
QLN Signature	1,000	Attractive pyramidal stand-mount with heavy, laid-back balance but remarkably unboxy sound; superb stereo	27,37,36	● 83	4	25	●		167
Quad ESL-63	3,450	Classic electrostatic lacks punch, but has strengths some can't live without	66,93,27	● 86	8	34	●		60
Rega Kyte	198	Has splendid timing and coherence, sounds very explicit and informative	19,31,19	● 87	8	50	●		114
Rega EL8	298	Kyle drivers in compact floorstander gives more bass but less coherence	17,72,20	● 86	8	55	●		122
Rega ELA Mk II	498	Pretty and smooth, the latest incarnation has a superb midband and excellent communicative skills	30,80,20	● 87	8	40	●	1578	139
Rega XEL	1,040	Looks and sounds great: balance bright but even, with delightful coherence and timing	20,82,30	● 89	6	40	●	1083	132
Rehdeko RK 115a	1,700	Single-driver system has limited bandwidth and obvious coloration, but wondrous dynamic and temporal coherence	34,42,27	● 95	8	55	●		167
Revolver Colt	139	A good all-rounder, if a little bland, and excellent value for money	30,19,22	● 88	6	48	●	1407	148

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HI-FI LOUDSPEAKERS (CONTINUED)

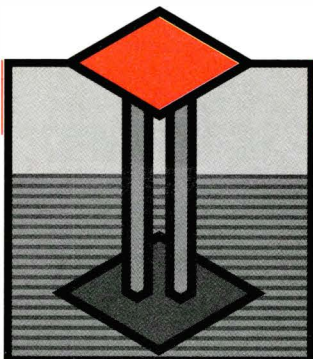
SIZE WxHxD(CM) SENSITIVITY(OB/W) IMPEDANCE(Ω) BASS FROM (Hz) FACTS CLOSE TO WALL FREE SPACE ISSUE NUMBER

Product	Price(£)	Comments	Size	Sensitivity	Impedance	Bass From	Close to Wall	Free Space	Issue Number
Revolver 250	250	A nice price for a floorstander, but over-bright sound balance has potentially fatiguing consequences	21,85,5,25	87	8	22	●	●	170
RMS Revelation Series 1	1,299	Innovative metal-box compact with integral port/stand – clean with good timing but very laid-back balance	20,99,24	81	8	22	●	●	167
Rogers LS1	149	High grade miniature	20,20,30	87	6	●	●	●	1408 143
Rogers dB101	250	Style par excellence, this shapely sub-miniature is fast and agile but lightweight and forward: great voices; lacks bass	20,26,20	88	6	45	●	●	170
Rogers Studio 3	499	Pricey LS3/5A derived miniature, excitingly coherent if lightweight, can't go loud	19,30,16	85	8	30	●	●	118
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 Studio 5	699	Luxury finish bookshelf-size model has genuine monitoring capabilities	25,25,48	89	8	40	●	●	1556 138
Rogers Studio 7	899	Latest variation on classic BBC-monitor theme has beautifully voiced, laid-back sound	30,63,30	90	8	30	●	●	122
Rogers CS/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
Rok an O1X3 Black	995	Innovative low-line, 2-way floorstander with decoupled tweeter; great bass and fine dynamic range	28,79,46	84	8	20	●	●	167
Royd Minstrel	275	Not much wellie or loudness but fine coherence and timing, a bit bright	18,69,12	86	8	30	●	●	1167 135
Royd Doublet	485	Great value compact floorstander; lively and very informative, if a little uneven	18,93,19	90	4	28	●	●	1835 160
Royd The Sorcerer	595	Extremely musical and communicative speaker that's fun to listen to. Aesthetics could be better, though	20,31,18	86	8	35	●	●	139
Royd Abbot	695	Dynamic and fine transient qualities are hampered by a rather coloured mid-forward balance	20,81,30	90	8	43	●	●	118
Ruark Sceptre	599	Graceful 'traditional' cabinetwork with classy veneer and shiny gilt fixings, hampered by a rather wayward sound balance	21,38,31	87	8	40	●	●	174
Ruark Tali man II	749	Less ideologically committed than some, strength lies in fine all-round coherence	23,84,32	88	8	30	●	●	118
Ruark Crusader	1,599	Elegant luxury 3-way with wonderfully even-handed, if rather laid-back balance	24,94,31	85	6	22	●	●	167
Ruark Equinox	1,849	The primary strength of this speaker is its ability to vanish behind the music	25,88,34	88	6	45	●	●	1227 140
SD Acoustics SD3R	649	New SD3 has the agility and charm of a quality miniature, good bass and low sensitivity	20,38,30	87	8	25	●	●	106
SD Acoustics SD5	1,549	Bass suspect but forward midband is delightfully smooth. Has ribbon tweeter	20,110,30	88	8	30	●	●	1081 132
Sequence 400	329	Clever hang-on-wall panel is well voiced, though bass isn't too great	25,100,7	86	8	45	●	●	164
Shahinian Arc	1,875	Occasionally wonderful small floorstanding omni; bright but coherent and revealing	35,69,25	88	6	24	●	●	110
Silverado Raider	695	Beautifully built audiophile compact, neutral if bright, tough work for amps	20,40,25	83	3	30	●	●	164
Spendor 2030	599	Discreet slimline floorstander with delicately coherent, laid-back sound	18,89,27	87	8	30	●	●	1836 160
Tangent Monitor 5	80	An uneven performer best suited to small rooms and generous volume levels	17,5,27,18	83	8	55	●	●	169
Tangent Monitor 9	150	Budget floorstander that can motor when the music demands with a solid bass but occasionally raw treble	19,5,75,5,22,5	90	6	45	●	●	165
Tannoy Mercury M2	140	A fine all-rounder with big box and deep bass for the price; could be sweeter and tighter	20,5,38,28	87	8	25	●	●	169
Tannoy Mercury M3	230	Good-looking fine value floorstander is very neutral and evenhanded, with fine midband but weak dynamics and drive	20,5,87,28	87	7	20	●	●	170
Tannoy Precision P20	400	A creative and attractive design with time-aligned drivers, but the sound lacks sufficient excitement.	21,80,30	88	5	25	●	●	177
Tannoy D300	999	Gorgeous-looking compact floorstander. And a fine all-round performer too	16-24,85,23	87	6	26	●	●	167
Tannoy D500	1,999	Plenty of muscle and stereo, but short of poise and delicacy. Hard work for amps	31,93,34	91	6	20	●	●	1355 143
Tannoy Westminster TW	6,600	These awesome horn-loaded speakers are remarkably controlled and impressive	large	99	8	38	●	●	C93
TDL RTL2	280	Spacious, weighty and enveloping sound if you can accept the laid-back balance	20,73,22	87	8	25	●	●	1412 148
TDL RTL3	400	Bargain-price floorstander has rich, heavy and bright sound with a good scale	20,90,37	90	8	25	●	●	126
TDL RTL3SE	450	A touch of m'n'tizz might be to taste, but this is a lot of box for the money, with floor-shaking bass capabilities	20,91,39	89	6	22	●	●	174
TDL CF200 Cotswold	650	Fine midband tonality and dynamic range, but less happy towards the bandwidth extremes	22,5,78,23	86	6	40	●	●	177
TDL T-Line 3	700	Plenty of bass and treble, but broad midband is rather repressed	20,97,38	86	8	20	●	●	164
TDL Studio 1m	899	Transmission line helps bring the best from metal cone driver	23,77,34	86	8	20	●	●	118
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	100	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 Valdue 400	200	Goes very loud with a minimum of amplification, but the sound is very thick and uneven, with a heavy upper bass	25,80,26	91	8	30	●	●	1414 148
Wharfedale Valdue 500	300	These rock boxes can move plenty of air, albeit not as subtly as alternatives	25,108,26,5	91	4	40	●	●	1758 155
Wharfedale MFM-3	350	Smooth broad midband gives fine voice rendition; bass could be better	22,89,28	87	8	40	●	●	164
ZYP AI	199	Cute metal cased micro-miniature is quite coloured but great fun	14,22,12	88	8	30	●	●	110
SUBWOOFERS									
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
KEF Model 30B	500	Commendably discreet with good sense of timing but limited extension (active)	38,5,37,43	●	●	45	●	●	1736 154
KEF AV1	2,500	Works well, looks great, shakes the windows but costs a lot and is bulky	56,43,50	●	●	45	●	●	128
M&K VX-7B	450	Baby of a big range; this active design delivers deep, plenteous bass but lacks transparency	35,25,37	●	●	40	●	●	1736 154
Rogers AB1	549	Subwoofer-cum-stand designed as partner for LS3/5a or similar miniatures	19,57,16	82	8	●	●	●	1354 143

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HI-FI CHOICE



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.

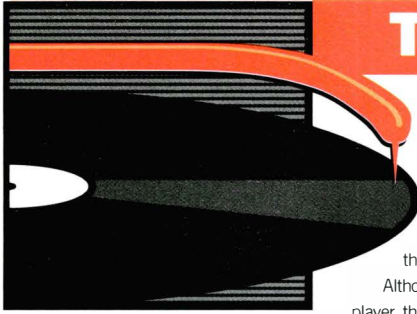
B Best buy **R** Recommended

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 <i>Hi-Fi Choice</i> in which the original review appeared.

STANDS & SUPPORTS

Product	Price(£)	Comments	HEIGHT (CM)	TOP PLATE SIZE (CM)	FILLABLE	NUMBER OF SHELVES	WELDED	FACTSBACK NUMBER	SHELF TYPE	ISSUE NUMBER	
Equipment Supports											
A Audiophile Furniture Base	480	Easy to set up, well-ordered sound	40					4	Wood	1633 151	
Custom Design Classic Four	270	Glass-shelved stand with octagonal wooden uprights; upward facing spikes isolate the top shelf; adjustable shelf height	81	46.37				4	Glass	166	
Fi-Rax R4	250	Lively, exuberant sound, slightly weak bass						5	Glass	1633 151	
B 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	166	
B Mana Acoustics Ref. Table	350	King of its type, angle iron, chipboard and glass combine to make a significant difference to sound quality					●	1	Glass	147	
B Mana 5 Tier Sound Table	600	Infinitely upgradeable. Persuasive and thrilling glass and angle iron design that adds speed and bandwidth to components upon it						5	Glass	1633 151	
A Optimum Int 2000 OPT490	350	25kg stand with shelves sandwiched between variable height tubular uprights. Sounds smooth and relaxed with sturdy bass	50	60.40				4	Glass	166	
B Quadraspire Q4	200	Easy to live with, and tonally neutral						4	MDF	1633 151	
A Sound Organisation Z038	130	Too lively and lacking order — but cheap	50	84.40			●	5	Wood	1633 151	
B Sound Organisation Z560	150	A mix of welded and bolted members gives good structural integrity. While performance is not up with the best, it's great value	90	46.36			●	5	Wood	166	
A Soundstyle Select 6105	280	Respectable sonics, structurally solid and smart						5	Glass	1633 151	
Soundstyle Finewoods W105	320	Veneered shelves clamped between tubular uprights that delivers with classical material	82	48.27				4	Wood	166	
Stands Unique Sound Tower	249	Wooden uprights combine with glass shelves to provide a fresh, forward sound, but bass could be quicker	81	72.42				5	Glass	1633 151	
A Target B5	175	Free of colorations, fine grip and good value					●	5	Wood	1633 151	
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	80	Tall, slim and elegant, though sound and value are exceptional	40-60	17.17	●					159	
Alphason Titan	120	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	
A Atacama BD21	55	Good-looking and good value, but doesn't match the SE24's sound quality	56	15.17	●					159	
B Atacama SE24	70	Stands out from the budget crowd because of the consistency and overall quality of the performance	61	19.57	●	●				1373 146	
AVF Tower 400	35	Ridiculously cheap and much better than no stand at all	54	17.20	●					159	
Ixos Deadrock 903	50	Smooth and tonally even but short on definition. Deep bass is soft which doesn't help timing	60							1373 146	
B Gale Reference 600	60	Smooth sounding with impressive bass well suited to less civilised speakers				●	●			1373 146	
B Kudus S50	100	Better sound than the budget stands, particularly at the bottom end	60	15.21	●					159	
A Kudus S100	270	The best all-round stand around... Probably...	63	15.21	●					159	
A 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	
Partington New Merlin	60	Although light in weight, the stand's performance seemed remarkably muscular but musical rendering lacked a little precision					●	●		1373 146	
B Partington Discovery	80	The depth and substance of the presentation truly added to the convincing nature of the system's portrayal					●	●		1373 146	
B Partington Trophy	100	Four-column design with damped top and base plates, sound is tight and cogent with smoothly integrated detail					●	●		1373 146	
Revolver RS1	70	A good blend of performance and appearance for the price	53	18.18	●					159	
A RMS/Stands Unique Vivus	550	Pricey carbon fibres give ultra-clean sound with exceptional voices	50	N/A						159	
B Soundstyle 124	100	Big, shiny and solid, with fine midband projection	65	17.16	●					159	
A Stands Unique HP	220	Real wood disguises high performance tuned technology	59	22.23						159	
A Target R1	280	Truly high-mass four-pillar design with superb weight and speed, giving music delicious attack and outstanding imagery	53	15.21	●	●				1373 146	
A Target TR60	68	Lively, dynamic midrange and detailed treble from a less-than audiophile oriented twin column design	60	15.15	●					1373 146	

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

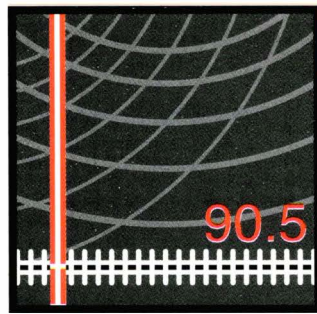
its construction and design have a significant bearing on sound quality. There are three basic types of arms listed in the key and each has its strengths, but pivoted designs are the most popular, for reasons both practical and economical.

B Best buy

R Recommended

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 <i>Hi-Fi Choice</i> in which the original review appeared.

TONEARMS		PARALLEL TRACKING	EFFECTIVE MASS	PIVOTED	UNI-PIVOT	ADJUSTABLE HEIGHT	FACTSBACK NUMBER	ISSUE NUMBER
Alphason HR100S	490	S-shaped arm sounds smooth, but nevertheless reproduces transients with fine attack	Medium	●	●	229	●	86
Kuzma Stogi Ref	1,000	Large, solid and well-made arm, gives exceptionally clear sound with just a hint of brightness	High	●	●	229	●	79
Linn Ekos	1,297	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	139	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 300-309	657	Beautifully made and finished: fully adjustable and a highly neutral performer	Low	●	●	238	●	79
SME Series IV	936	Superb engineering and finish with a finely balanced sound, impressive stereo focus and low coloration	Low	●	●	233	●	60
SME Series V	1,391	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 a lower profile than TV, but in areas outside pop music the BBC service is the envy of the world. Live concerts rival all other sources from a hi-fi perspective.

Though tuners might seem something of a hi-fi afterthought, the task they discharge is far from simple, since it requires the skills of RF (reception) and audio (signal processing) engineering. The importance of the former will depend on reception conditions, unless you get radio via cable, but a high-quality aerial system is well worth having. Tuners come in two basic

types. Analogue models tune gradually and can have analogue or digital displays; they are often preferred for sound quality. Digital tuners offer convenient automatic tuning facilities and pre-set memories.

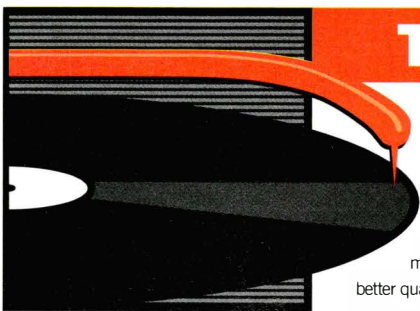
B Best buy

R Recommended

KEY	
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 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.

Tuners		WAVEBANDS	PRESETS	RDS	SIGNAL STRENGTH METER	ROTARY TUNING KNOB	REMOTE CONTROL	FACTSBACK NUMBER	ISSUE NUMBER
AMC T7	130	Performance adequate but price is sharp, especially with remote control. Some hum	FM, M	30	●	●	●	166	166
Arcam Alpha 7	230	Indifferent RF performance but a touch of audiophile sound quality with clean, strong signals	FM, M, L	24	●	●	●	166	120
Arcam Delta 280	399	Fine sound quality marred by mild synthesiser whine; RF performance only average. Remote £60 extra	FM	20	●	●	●	1254	142
Audiolab 8000T	750	Unusual combination of fine sound quality and RF performance (inc AM), and superb ergonomics	FM, M, L	39	●	●	●	1254	93
Denon TU-260L	120	Careful minimalist design promises a surprisingly open and vivacious sound	FM, M, L	20	●	●	●	166	166
Denon TU-425RD	200	A fine all-rounder with advanced RDS, good RF performance and decent sound. Remote extra	FM, M	40	●	●	●	166	166
Harman/Kardon TU950	200	Bulky but effective, delivering fine RF performance and good sound for the price	FM, M, L	30	●	●	●	1254	142
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	●	●	●	1810	157
Magnum Dyalab FT101	825	Although fairly expensive given its minimum set of facilities, its excellent sound provided ample compensation	FM	39	●	●	●	1254	142
Micromega Tuner	700	Has digital output but even without the Micromega DAC, this provides exceptional sound quality. Looks good too	FM	29	●	●	●	1810	157
Mission Cyrus FM7	400	Open, generous soundstaging gives the music plenty of foundation, if a touch shut-in at the top	FM	20	●	●	●	1254	142
Musical Fidelity E50	300	Sounds involving if coloured and with a subjectively larger-than-life presentation	FM	20	●	●	●	1810	157
Naim NATO1	1,645	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	●	●	●	166	166
Rotel RT-935AX	160	Good ergonomics and sound quality at a realistic price, but limited features and RF selectivity	FM, M, L	20	●	●	●	1810	157
Sony ST-SA3ES	250	Decent RF performance but needs a quality aerial to perform at its best	FM, M, L	30	●	●	●	1254	142
Technics ST-GT350L	150	Clear RF performance is offset by sound quality more typical of a mini/midi system	FM, M, L	30	●	●	●	1254	142
Thorens TRT2000	450	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

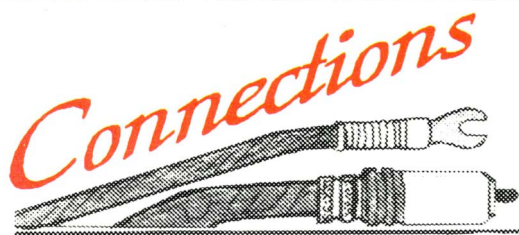
and tonearms. Careful partnering and set-up is essential for these components, but many so-called 'sympathetic' combinations exist. Because turntables are mechanical devices that are designed to retrieve modulations as small as a micron, engineering quality is of paramount importance. It is also the reason why turntables cost as much as they do, and require high quality support systems.

B Best buy **R** Recommended

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: Sprung 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.	ISSUE NUMBER: The issue of <i>Hi-Fi Choice</i> in which the original review appeared.
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TURNTABLES

Product	Price(£)	Comments	MANUAL	AUTO	SEMI-AUTO	SPEEDS	EXTERNAL SUSPENDED SUBCHASSIS	SUPPLIED WITH CARTRIDGE	SUPPLIED WITH ARM	FACTSBACK NUMBER	ISSUE NUMBER
Clearaudio Reference	2,500	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
A DNM Rota 2	4,800	Tonally slightly bleached, but extracts detail like few others. Works well on its own table	●					33/45	●	●	1328 144
A Dual 505-4 UK	200	Consistent sounding and well isolated turntable. It is slightly lacking in oomph			●			33/45	●	●	103
A Kuzma Stabi/PS	1,200	(Tested with Stogi Reference) Solid oak plinth; sound is very clear, detailed and extended	●					33/45	●	●	91
A Linn LP12 Basik	1,050	Trails the full LP12 significantly, but pace, rhythm, timing etc still top rank	●					33	●	●	103
A Linn LP12 Lingo	1,750	The classic reference is improved by the Lingo, but charming character remains	●					33/45	●	●	91
A Michell Gyrodec	765	Sweet and natural-sounding player, well matched to Rega RB300 arm	●					33/45	●	●	55
A Moth Kanoot	329	Rather coarse-sounding deck that requires decent isolation and comes with a Rega RB300 arm	●					33/45		●	164
A Notts Analogue Spacedeck/Arm 1.125	1,125	No frills, just a first-rate, outstandingly natural-sounding deck that will last forever	●					33/45	●	●	159
A Pink Triangle Anniversary	1,980	Possibly the most detailed, clear and neutral-sounding deck around. Likeness to master tape is uncanny	●					33/45	●	●	91
A Pro-ject 2	299	Remarkably effective at the price with decent timing and a generally well defined sound	●					33/45		●	164
A Pro-ject 6/Sumiko	699	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
A Rega Planar 2	214	A remarkable product at the price, surprisingly articulate and confident	●					33/45		●	48
A 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		●	164
A Reson RS1	675	Supplied set-up and ready-tuned, this unconventional deck is packed with mid-band detail	●					33/45	●	●	159
Rivelin Eclipse	1,100	Tested with SME 309. Tends to simplify things and add a slightly ragged edge to the proceedings	●					33/45			1328 144
A Roksan Radius 3/Tabriz zi	890	Elegant-looking turntable with a tidy, ordered sound. Bright and breezy if a shade lightweight	●					33/45	●	●	159
A SME Model 20A	4,631	Supplied with Series V arm. Engineered to last a lifetime, giving excellent stereo and detail retrieval	●					33/45/78	●	●	118
A Thorens TD166 VI/UK/RB	300	Refined and solid sound with well-focused imagery; suitable for use with good MM and budget MC cartridges	●					33/45	●	●	103
A Thorens TD2001	700	Balances convenience and sound well, but deck lacks detail and bass could be better controlled			●			33/45	●	●	159
A Well Tempered Record Player	!800	Intriguing and challenging. Musically it is not ideal, but has a limp quality and a lack of artificiality that sets standards	●					33/45	●	●	1180 136



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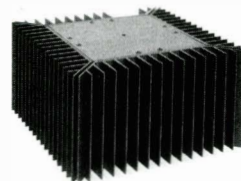
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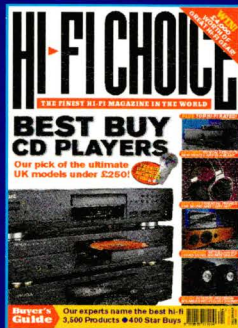
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- 10 CD Players £120-£250
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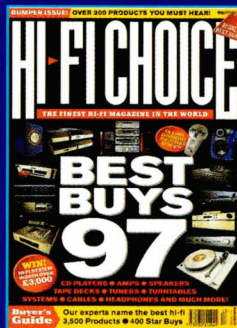
JANUARY 1998/ISSUE 174

- 15 Loudspeakers £400-£1,200
- 9 'Lifestyle' Audio Systems
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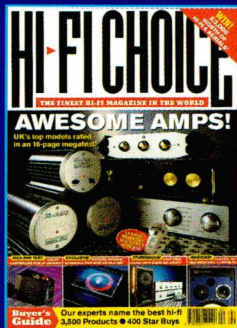
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- 12 CD Players £400-£1,300
- 16 Interconnect Cables £25-£150
- Theta Miles CD Player
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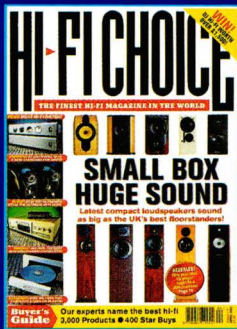
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- Full listing of 1997 Best Buys, Recommended and Award-winning products, plus Best of Systems, Statements and Choice Cuts



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- High-End Cartridges
- 14 Amplifiers £450-£1,300
- Super Audio CD: Special Report
- Feature: Build A Listening Room



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- **CD PLAYERS £100-£300**
- **BUDGET SPEAKERS £120-£200**
- **SUBWOOFERS SPECIAL**



AMC CD8/DAC8 One of eight budget CD players tested in June.

CD PLAYERS

Nine budget CD players undergo our gruelling review schedule; which will be the digital don? Candidates include: Arcam Alpha 7, AMC CD8/DAC8, Denon DCD-1550AR, Sony CDP-XE310, Technics SL-PS670, Marantz CD67 mkII and NAD 522.

BUDGET SPEAKERS

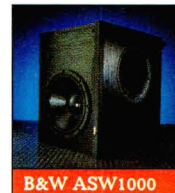
More cost-consciousness in the speaker department, as we apprise some of the latest models at the affordable end of the market. Here's the place to be if you're setting up a new system! On test we have the Mission 700, Rogers GS1, Tannoy M1, Celestion 12i, Heybrook Prima II, and Genexxa Pro LX5.



Mission 700 Will these top-selling enclosures steal the show?

BASS: HOW LOW CAN YOU GO?

If you've got flares and like to see 'em flapping, don't miss our subwoofer review in next month's issue. Are they just about bass, or do they help your whole system? Models tested include: REL Q50, JPW SW60, B&W ASW1000, Acoustic Energy AE108S, Velodyne 1012 and M&K MX70.



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THE JUNE 1998 EDITION OF HI-FI CHOICE WILL BE ON SALE FRIDAY MAY 8, 1998. DON'T MISS IT!

Ultra Vivian Scene

David Vivian stays in for a spin with a favourite plattenspieler from Dual. With 78rpm adapter and end-of-side lift, it's 'Vorsprung durch Technik'!

Dual. The Volkswagen Golf of turntables. How many hi-fi odysseys have started with the humble yet wholesome CS-505? How many lives have been snagged by the music bug thanks to this German stalwart?

Lots — and it isn't hard to see why. Before the first marmalade-smeared CD appeared on *Tomorrow's World*, user-friendliness wasn't a commodity many people associated with separates hi-fi. Most turntables were, let's face it, a bit fiddly. Which was fine for audiophiles who liked to fiddle. In fact, inveterate exponents of the art could get sucked into a vicious tweaking loop in which one track would be played over and over again while a never-ending succession of small adjustments were administered. For all I know, there are some who never managed to break free, and are still trudging between turntable and listening position, beards down to their belt buckles, carpet worn through to the underlay.

But what if you just wanted to play records? You know, vinyl on platter, stylus in groove, music out of speakers, jiggle around a bit, feel good. And, hell, if the deck had a little mechanism to raise the pickup at the end of the side, in case you fell asleep or felt a sudden urge to put on the kettle, would you worry that it was having an adverse effect on sound quality? I don't think so. Life's short enough already.

It's pretty clear who bought a Dual. First timers seeking a solid, reliable deck that didn't cost an arm and a leg; and sensible folk who couldn't give a chuff about tweaking-for-perfection but just wanted to get on and enjoy their record collections. Duals always sounded good enough for them to do that — somehow warmer and cosier than most of the opposition, even if they didn't make it all the way to the bosoms of hard-bitten buffs.

So it's no surprise that, in the UK, Dual concentrated on the budget sector. Those in search of higher-fi usually looked elsewhere. The company's products simply weren't syn-

onymous with top-flight sound quality. This probably explains why Dual's CS 750-1 flagship model, an update on a design that went on sale in 1991, has never quite won the credibility battle.

But now, after a six-month lay-off while Dual appointed a new distributor, it's back, and a niche for it might just have opened up. The changing turntable market has played conveniently into Dual's hands. Now that LPs are no longer bought as a front-line source by the vast majority of hi-fi users, the pressure on a company like Dual (whose

floating subchassis, beautifully-engineered two-piece platter, confidence-inspiring plinth with big, adjustable feet — the 750 would make a good home for bulky moving-coil classics like the Denon DL102. But I can't help feeling that's slightly missing the point. We're talking about an easy life, right? The supplied DMS 750 cartridge (made by Ortofon) comes factory-fitted and aligned; sonically, it's no slouch.

It has an elliptical stylus, tracks securely at about 1.8 grams and sounds clean and musical enough to delay the onset of upgrading pangs for a few months at least. Especially if you intend to give your 78s an airing on a regular basis! The DMS comes with a 78-friendly stylus that can be fitted in seconds. The result isn't hi-fi *per se*, but probably it will be the best sound you've ever heard from your 78s.

The 750 even survived under close scrutiny from a pair of Acoustic Precision Eikos FR-1 speakers and a Pioneer A-300R Precision amp. At the end of the day, there's just something ineffably

right about vinyl that a revealing system will always transmit clearly.

Cable guy

Some belated thoughts on those interconnects I assembled in *HFC 174*. First, if you've got a weedy-sounding system, splash out £100 on Straightwire Encore. It adds muscle and warmth. Second, the Goertz M1 Tourmaline (slammed in the formal cable round-up, *HFC 176*) is highly system dependent. In a Pioneer Precision/Eikos rig it's seven shades of wonderful. Third, van den Hul The Second is probably the finest all-round interconnect in existence for under £250; it works well in any system. (The Best Buy D102mkIII, conversely, sounded dull and sluggish in my AP system.) Finally, Acoustic Precision's Eikos interconnect is the most open, revealing wire I've ever clapped ears on. There. Simple, really! ▲

Dual ☎ (0161) 973 0505



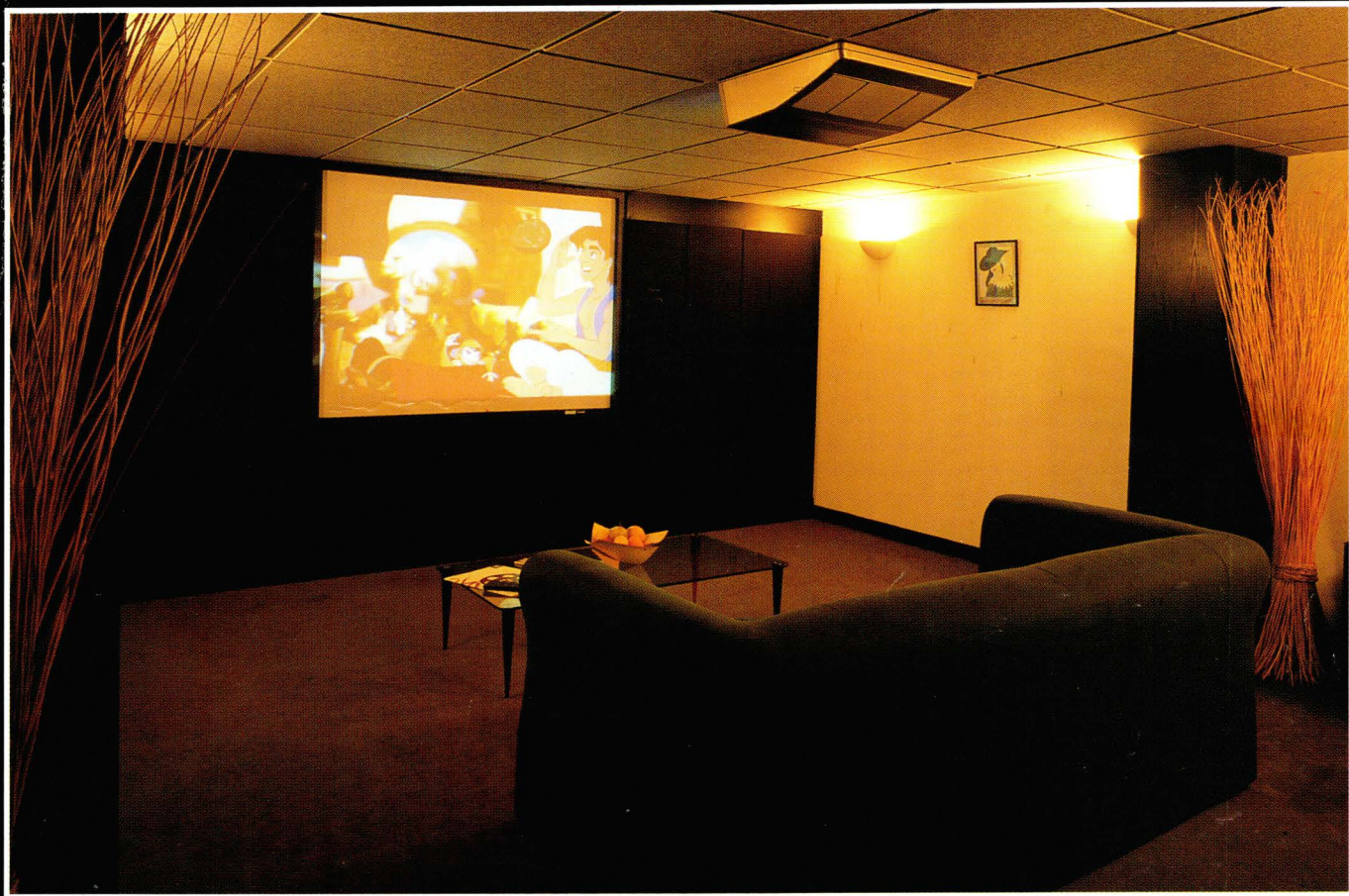
Dual CS 750-1 Convenience-fi incarnate...

first concern was never sonic status) has eased somewhat. Sure, there are still vinyl addicts prepared to spend almost anything on a deck that can deliver a potent fix; but there are many more people who just want a reasonably-priced record player that sounds good, is easy to use and won't wear out the remains of a beloved LP collection.

The CS 750-1 seems to fit the description admirably. It even plays 78s. At £330, it comfortably undercuts the entry-level competition from Linn, Roksan, Michell *et al*, yet offers more convenience features than any of the budget audiophile alternatives. The tonearm is a particularly impressive-looking affair, with a massive pivot structure that uses high-quality Cardan bearings and a massless tracking force system.

The detachable headshell inevitably compromises overall tonearm rigidity, but takes the anguish out of cartridge fitting. And such is the 750's level of design competence —

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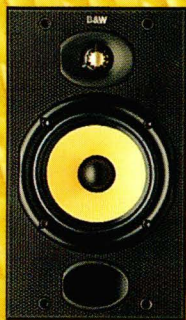
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