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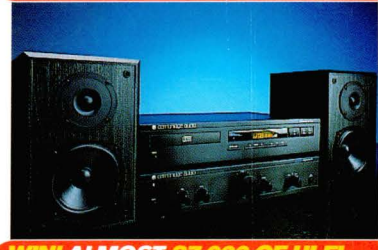
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Dennis



We were honoured to be voted Hi-Fi Magazine of the Year at the CETI Industry Awards, Harrogate, May 1996.

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



HI-FI CHOICE

OPINION

Editor's Notebook



PHOTO BY SEAN BLOOMWORTH

Stan Vincent is the braid-epauletted, peaked-cap-wearing chap at the doors of this month's five-star hi-fi hotel! Probably.

Welcome one and all. Have you seen our new Price Guide on page 94? This is where we list over 3,300 new hi-fi products whose prices are updated every other month. Now we've improved it to give even more information about equipment you're shopping for: essential details like the number of inputs offered on an amplifier, or whether a speaker sits on the floor or needs a stand. All part of our quest to bring you the best hi-fi mag on the planet.

The organ and the bagpipe

I attended a family wedding in mid-April. The bride and groom belong to one of these trendy evangelical churches in South London, which, though based in a traditional building, has embraced wholesale the guitars, drums and keyboards of the modern charismatic movement. On every pillar of the nave are mounted discreet but punchy ElectroVoice PA speakers, while miniature sub-bass boxes flank the chancel. As well as bolstering the band, these confer welcome audibility on the vicar's good words.

This was a happy family occasion but also an opportunity for yours truly to reflect upon the intriguing contrasts between traditional and modern musical styles and sounds. For the senior members of the congregation there were Hymns Ancient & Modern accompanied by the organ; for the wide-eyed, bright-eyed youngsters, the staple diet of contemporary Christianity: mid-tempo 'praise songs' sung with eyes closed and hands in the air.

And instead of Wagner's ubiquitous *Bridal March* from Lohengrin to accompany the bride down the aisle, they chose a specially composed alternative that opened with plaintive solo bagpipes and broadened out magnificently with the full swell of the organ. There was a haunting contrast between the bagpipes' ragged, diatonic, Celtic simplicity and the deep mathematical purity of the organ pipes' standing waves.

I couldn't help but conclude that although the amplified music was probably more powerful from a Wattage point of view, and engendered fervent displays of public passion among those performing and participating in it, the old-style acoustic instruments still reach deeper into the soul.

An album you should hear

When I used to work on a music magazine I soon found out about the 90:10 rule. At least 90 percent of new CD releases aren't worth the polycarbonate they're embossed upon. But 10 out of every 100 will get better and better every time you play them. The new CD from Sam Brown falls into this Top Ten category — or should I say the Top Ten Box, for that's the album's title. Co-produced with her brother Pete, Sam's new platter can only be described as a New Age R&B album, tinted with shades of Julian

Cope, Kate Bush and Janis Joplin. I rate this album for its clear, uncluttered recording, which preserves honest instrumental textures from organ, guitar and drums, and clearly defines Ms Brown's effectively-transcribed vocals. Her voice swings seamlessly from a sugar-sweet high register to coarse-papery emotional turbulence sung from deep inside.

By the time *Hi-Fi Choice* goes on sale she'll be into the last six dates of a small-venue UK tour. If she and her band can replicate the power they demonstrate on record, here are some live performances worth attending: on May 2 and 3, Birmingham Ronnie Scott's ☎ (0121) 643 4525; May 9, St Helen's The Citadel ☎ (01744) 735436; May 10, Rotherham Herringthorpe Centre ☎ (01709) 375197; May 11, Brighton Festival Cybar ☎ (01273) 384280; and May 14, London Dingwalls ☎ (0171) 267 1577.

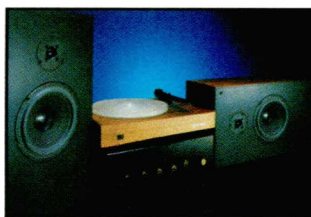
However, don't despair if you can't get to one of the gigs, because we have 10 CD copies of the album *to give away!* These will be awarded to senders of the first 10 postcards to arrive in our office with a correct answer to the question: What was Sam Brown's 1989 hit whose title is the opposite of 'go'? Postcards to: Sam Brown Competition, *Hi-Fi Choice*, Dennis Publishing Ltd, 19 Bolsover Street, London W1P 7HJ. Closing date: May 16 1997; our usual competition rules apply. And in the meantime, enjoy your listening this month!



Stan Vincent

JUNE 1997 3

A tall order... we check out 15 top loudspeakers priced £800 - £1,800 **p58**



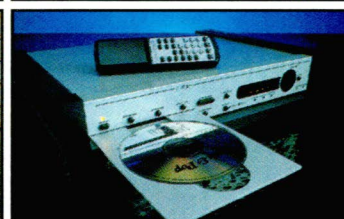
Note this: a sizzling system fix from Audio Note **p10**



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Un wafer, sir? Check out the paper-thin CD tray on this Proceed! **p26**

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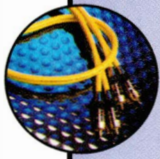
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Some hi-fi maniacs are more obsessed than others — then there's the tape recorder brigade! Richard Black visits a sonic shoe-box.

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WIN!WIN!WIN!

Six systems and 20 interconnects worth over £3,400!



Make the most of your listening room with our advice on improvements! p50

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WIN!WIN!WIN!

Musical Fidelity hi-fi equipment worth £3,450!



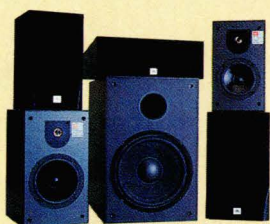
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Update

JUST IN THIS MONTH... YAMAHA'S NEW SEASON SPECIALS... KEF KICKS BACK WITH NEW CODA... TEAC'S MINI MD PLAYER

In brief



JBL's new AV loudspeaker system is the AV6 (£649.99), which uses two TLX121 speakers for front L-R, a TLX103 for the centre, and a pair of TLX111 for the surrounds. With the active PSW1000 subwoofer in tow JBL claims this system is not for the faint-hearted.

☎ (01908) 317707

Micromega used the recent Paris hi-fi show to announce its intention to make a DVD player. More details to follow as soon as they cross the Channel...

☎ (0181) 502 1416

While we're on the Continent, French high-end amplifier manufacturer Lavardin Technologies seeks a UK distributor for its Model IT line-level integrated amplifier (FFr23,800; ≈ £2,600). This solid-state design is claimed to have the speed and openness of single-ended triode amplifiers, but with the drive of solid state. Interested parties please contact Lavardin direct on ☎ +33 2 54 85 31 86

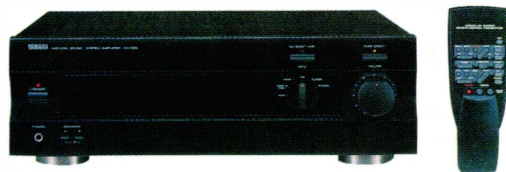
In-car specialist Alpine has unveiled a radically-styled, flip-front radio/cassette head unit. The TDA-7567R (£499.90) is the first Alpine unit to feature the BBE sound enhancement system; while the use of the flip-front, with the cassette drawer behind the panel, increases the display area significantly. ☎ (01908) 611556

Six up from Yamaha

Six new products join a line-up of 16 continuing components in Yamaha's hi-fi separates range for 1997-1998.

Cassette fans will be intrigued to discover the new Special Edition version of Yamaha's award-winning KX-580 cassette deck, in which key signal-path components have been selected for the UK. Priced at £249.95, this three-head Dolby S deck replaces the standard version.

There are two new integrated amps: the 85Watt AX-492 (£219.95) and 100Watt AX-592 (£279.95). Both feature improved output stages, symmetrical circuit layout and better component selection. Both benefit from Yamaha's special anti-vibration, anti-resonance chassis.



Yamaha's new remote-controlled integrated amplifier, the £280 AX-592.



The £129.95 TX-492RDS is a 40-preset MW/FM tuner with all the latest RDS functions, including an 11-character Radio Text display. In the digital domain, meanwhile, two new CD multiplayers are the CDC-565 (£169.95) and CDC-665 (£219.95), both with five-disc 'silent mechanism' carousels. The more expensive player uses Yamaha's S-bit digital converters.

For home cinema buffs there are two new AV receivers, three AV amplifiers, a Dolby Pro-Logic add-on processor/amplifier, a Dolby Digital decoder and demodulator, a subwoofer and a complete home system. These will run alongside five existing home cinema components and nine AV speakers, carried over from last year.

The DSP-A3090 has been reduced by £200 and is now £1,499.95.

Yamaha ☎ (01923) 233166



Deltron's Delline XLR connector offers plastic backshell construction shocker!

Deltron gets connected

Electronic component manufacturer Deltron has formally announced the 'Camcon' range of loudspeaker connectors, developed in association with Arcam, that we previewed in *Update*, HFC 164. These are designed to satisfy recent EU legislation that has effectively banned the traditional 4mm banana plug.

Also new are the Delline plastic-backshell XLR connectors for balanced audio use. These incorporate an anti-vibration collar, and resistor-style colour coding for each channel accommodating up to 99 combinations of wiring. The new XLR can be supplied in three, four or five-pin configurations, finished in black or nickel.

Roxburgh Electronics has announced the new Deltron 4mm crimping speaker connectors. Used to great effect by QED for its Qudos and Profile 8 cables, the new connection uses a custom 4mm plug that is solderless and cold-welded to the cable.

☎ (01724) 281770

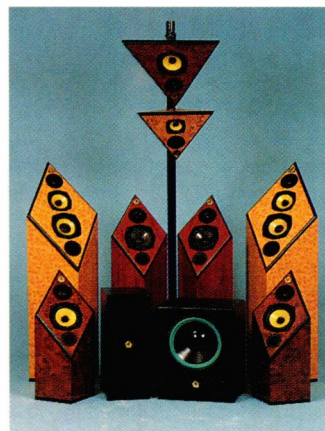
Prism's diamond life

Prism Acoustics is a new Scottish loudspeaker company whose radically-styled loudspeakers are mostly named after stars, and embody the company's so-called 'Reflective Wave Technology'. Many years, it is claimed, have been spent researching into ways of eliminating internally-reflected standing waves within a loudspeaker enclosure. Prism's solution is a sloping front baffle that presents a diamond shaped aspect to the listener.

The range includes three floorstanding speakers: the compact, two-way, ported Draco I (£550); the medium-sized, two-way, ported Draco II (£650); and the tall, three-way Capella III, priced at £950.

On the home cinema front there are two distinctive corner-mount satellite speakers: the two-way Rigel I (£325) and the larger Rigel II (£425), curiously referred to as 'stalactite' in the price list.

Last but not least there are two conventional passive subwoofers: the push-pull Vega (£260) and the reflex Viper (£280). Prism ☎ (01261) 818444



Da Capo al Coda

KEF's Coda 7 loudspeaker was the hot budget speaker of three years ago. Since that time new pretenders have assumed the budget superno mantle. But now comes the £149.00 Coda 7SE, with its sights set on winning back the cost-conscious crown.

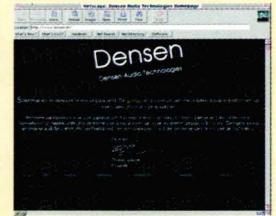
Like its ancestor the 7SE version is a stand-mounted two-way design, whose 'upside-down' drivers are mounted in a reflex-loaded box. This new cabinet is more rigid thanks to better bracing and, it is reported, constituent materials. Thanks to this, KEF claims, there is much less cabinet coloration in the 7SE than the 7 exhibited when playing at high volume levels. The 130mm coated-paper long-throw bass unit is also brand-new, and the crossover features updated components.

On the outside there is a new mahogany-vinyl finish option, and the rear-panel now sports bi-wirable input terminals.

KEF ☎ (01622) 672261



In brief



Danish amplifier denizen Densen has launched a Web site for would-be acolytes, at <http://www.densen.dk>. You can also e-mail the company directly using the address www@densen.dk.

US-based Doubleware Publications has announced AudioFile, powerful album-cataloguing software for Windows PCs. UK distribution is still being arranged but you can buy the package direct from Doubleware for \$50.00 inc. carriage. ☎ +1 216 871 3135

Alphason has launched new limited edition hi-fi furniture. The GR17/17-AS features three glass shelves 17cm apart, and real ash-wood-finish uprights. ☎ (01942) 678000



Accessories king Bib is promoting afresh the CD Projects CD storage system that we featured in Prestige Prezies (HFC 161). Roladisc products are priced between £12.99 and £59.99, and can store between 100 and 150 discs in a unit only 375mm deep. There are clear-plastic dual-pocket sleeves to hold both the disc and its accompanying booklet. The sleeves can be removed from the holder to transport them in CD Projects' CarryCase mobile storage pouches, which will hold between 12 and 60 discs. ☎ (01442) 233233

It's official — people are buying more blank magnetic media! According to the British Tape Industry Association, the blank tape market (including audio, video and camcorder tapes) is still worth a whopping £270 million per annum. Despite pundits heralding the demise of

In the Prime of life

Prime Design's new A-100 integrated amplifier.



Prime Design is a brand-new company based in Edgware, Middlesex. Its first products are two amplifiers: the £650 A-100 integrated amplifier, and the identically priced P-150 power amp.

The A-100 is claimed to develop 100 Watts into eight Ohms, and can be switched for operation as a pre-amplifier or power amp. Internally, the A-100 uses short signal paths, distributed storage capacitors and a fully symmetrical balanced design — even though the amplifier only employs single-ended phono sockets for its inputs and outputs. See how it fares in next month's amplifier review.

Functionally the P-150 appears very similar to the A-100, but offers 150 Watts instead of 100, and may be used in multiple bi-amping set-ups. Prime Designs ☎ 0181-906 2119

Technics builds a better battery

Advanced Virtual Battery Operation is a new feature on the Technics preamplifier range for 1997. This circuit, an improvement on the existing Virtual Battery configuration, claims to improve power supply in the pre-amps of both the SU-A800DM2 (£399.95) and SU-A900DM2 (£499.95) combinations.

Thanks to reduced power-supply fluctuations, Technics claims, the new amps sound cleaner and have better bass than before.

Standard Virtual Battery Operation uses a reference voltage generator circuit to charge a capacitor, which acts as a battery to help reduce noise from the power supply. Advanced Virtual Battery adds a monitoring control amplifier to this circuit.

☎ (0990) 357357



Technics' new 'Advanced Virtual Battery Operation' is a new feature in the SU-A900DM2 preamp.

TDL monitors the budget market

After four successful years in the vanguard of the budget loudspeaker pack, TDL's Near Field Monitor has had a makeover.

The new NFM1 (£119.95) has a larger cabinet, which is said to extend bass output; and the drive-units now include a new 19mm soft-dome tweeter, which is claimed to offer wider dispersion. The 130mm bass driver gets a larger magnet for increased power handling, and bi-wire input terminals have been fitted. Finished in black ash or rosewood vinyl, the rear-ported NFM1 claims 88dB sensitivity and eight-Ohm nominal impedance — on paper a reasonable load for budget-level partnering amps

TDL ☎ (01628) 850111

New look: TDL's Near Field Monitor now sports a 19mm soft-dome tweeter and bi-wire input terminals.



It's right for Celestion

Celestion's new 'i' series of loudspeakers includes seven new models in a series that stretches from the 12i two-way bookshelf design at £119.00, to the £599.00 45i three-way floorstander.

There is also another two-way bookshelf speaker, four more floorstanders, and a 75Watt powered subwoofer, the £349.00 S1i.

All hi-fi speakers are available in black and rosewood finish, while the home cinema equipment is available in black only. Power handling starts at 75w for the 12i and rises to 225w for the 45i.

Celestion ☎ (01622) 687442

“These speakers outperform everything in their class and then go on to stomp all over the next league up”

WHAT HI-FI, FEB 1997



“Star buy

Tannoy Mercury M2”

WHAT HI-FI,
APRIL 1997

“It’s the M2’s greater consistency and wider bandwidth that help it outstrip the competition”

HI-FI NEWS, APRIL 1997

“Even the best of this bunch was made to sound over-aggressive and clumsy by Tannoy’s new £140 “Large” bookshelf design, the Mercury M2”

HI-FI CHOICE,
APRIL 1997

“Tannoy’s new Mercury M2s seem hard to beat”

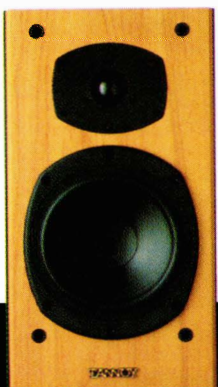
HI-FI CHOICE,
APRIL 1997



“Amazing - that’s the only word to describe

Tannoy’s new Mercury speakers”

WHAT HI-FI, FEB 1997



To find out about the revolution in speakers at Tannoy, call 01753 680 868 or visit your local hi-fi specialist and hear the new Mercury range of speakers for yourself.

The new Mercury range. **TANNOY**

Teac MD goes Mini

Teac's hugely successful 500 Mini Series expands again with the new MD-H500 MiniDisc recorder.

For simplicity the user interface benefits from a multi-jog dial and multi-function fluorescent display, CD record synchronisation, auto-space and track-mark features.

The MD-H500 costs £649.95 if purchased individually, or £599.95 if purchased with one of three system packages. The 500 VRDS package comprises VRDS CD player (*Update*, HFC 165), amp, tuner and cassette deck for £1,249.95; the 500 AV package comprises standard CD player and AV-H500 AV amplifier for £899.95; while the basic Reference 500 system comes in at £799.95. Teac ☎ (01923) 819630



Teac's MD-H500 MiniDisc player benefits from a multi-jog dial and multi-function fluorescent display.

In brief

home audio taping, audio cassette blanks were worth a hefty £73 million last year, with the bulk of these tapes being ferric and chrome C90 tapes. Blank MiniDisc is still in its infancy, obviously, but sales trends indicated a distinct rise in the last quarter of 1996.

French synth twiddler Jean-Michel Jarre used almost 200 of Sennheiser's IS 450 infra-red headphones (£119.95) at the launch of his *Oxygene 7-13* album, held at the Hayward Gallery in London's South Bank complex. ☎ (01494) 551533

Independent retailer West Midlands Audio has moved to: The Trinity, Worcester WR1 2PN. ☎ (01905) 619059/619085



As previewed in *Update* 165, May 17 and 18 see *The Festival of Hi-Fi & Music 97*, sponsored by Radfords & Gramophone magazine, and held in conjunction with the 1997 Bath International Music Festival. Ten classical record companies and 12 hi-fi companies will join forces to expose hard-core music lovers to the power of hi-fi. Exhibitors Pioneer and Yamaha will screen recordings from classical concerts from LaserDiscs or, technology permitting, DVD. Radfords ☎ (0117) 924 0878.

LFD goes DAC to basics

"Compare the DAC2 to the very best Digital-to-Analogue converters... we are sure you will not be disappointed". These are the bold claims being made about LFD's new DAC2, which is based on the company's £3,000 DAC3 unit. The DAC2, however, can be purchased for £1,950 in standard finish, or £2,150 for the 'Corian' fascia illustrated here, thanks to the presence of LFD's own custom-made converter module. This is based on the Burr-Brown PCM1702-J chipset, and costs significantly less than the UltraAnalog silicon deployed in the DAC3.

There are eight power supplies for the digital section, four for the analogue section, two 10VA 'square laminate' mains transformer and a 325VA toroidal transformer.

A specially-designed interface circuit claims to prevent the DAC's input data from being contaminated via ground loops from the CD transport, while LFD claims the analogue output stage is feedback-free and not DC-corrected to avoid what it claims are the deleterious effects of coupling capacitors and DC servo circuits. LFD ☎ (01255) 422533

Sign up for Marantz



The latest Marantz product to attract the hallowed Ken Ishiwata Signature is the PM-66SE amplifier, which joins the CD-17 and EISA-Award-winning CD-63SEmkII CD players in earning the honour.

Several aspects of the PM-66SE's basic design have been modified. To enhance the PM-66SE's eddy-current-busting copper chassis and rear panel, and its toroidal transformer, the KI tweaks include audiophile-grade components used in key areas throughout the electronic circuits. Particular attention has been paid to the power supply and phono stage. See the PM-66SE reviewed on p.49 of this issue, then find out how the £400 PM-66SE KI-Sig fares in next month's monster group test! Marantz ☎ (01753) 680868

Denon's budget digits

In *Update* 158 we profiled Denon's flagship AVP-A1 digital AV pre-amp which, for £2,999.99, offers access to the latest digital surround-sound formats. Now, priced at £1,699.99, comes the AVC-3800, which offers elements of that unit's features at a better price and with amplification built-in.

Denon's 'unique' 'Dynamic Discrete Surround Circuit' provides Dolby AC-3, Pro-Logic and Surround processing in the digital domain, via multi-bit DACs and custom DSP chips. For AC-3 operation there are inputs for both RF PCM-encoded and 5.1 decoded signals. There are five S-Video and 10 analogue inputs.

The AVC-3800 offers five channels of 90 Watts RMS in five-channel surround mode, or two channels of 110 Watts RMS in Stereo mode. Power is derived from amplifier circuits Denon dubs 'Multi-Mono'. On-screen displays and a remote aim to make the unit easy to use. Denon ☎ (01753) 888447.

The AVC-3800 is an affordable AV powerhouse.



Avalon and on

American high-end loudspeaker company Avalon Acoustics has moved its UK distribution to Audiofreaks. Avalon's range spans the high end, starting from £4,495 for the two-way floorstanding Avatar loudspeaker, and soaring up to £72,000 for the two-metre-tall Osiris reference loudspeaker system. Each enclosure is sumptuously finished and features a distinctive backwards-leaning aspect, which is claimed to eliminate the phase anomalies that can beset box loudspeakers.

The reference Osiris features sophisticated crossover modifications used to control energy transfer and keep the noise floor of the loudspeaker as low as possible. Derivatives of these unique features also grace the less-exalted designs. Avalon claims these dynamic speakers will offer near-electrostatic levels of clarity and imagery. Audiofreaks ☎ (0181) 948 4153

ALBUMS PLAYED IN THE HI-FI CHOICE OFFICE THIS MONTH

- Penguin Café Orchestra
When in Rome...
- Gladiators
Dreadlocks The Time is Now
- Steel Pulse
Reggae Greats
- Jeff Beck
There and Back
- David Bowie
Station to Station
- Booker T & The MG's
The Best Of
- Sam Brown
Box
- Mo Foster
Bel Assis
- The Fun Loving Criminals
The Fun Loving Criminals
- Arvo Pärt
Litany

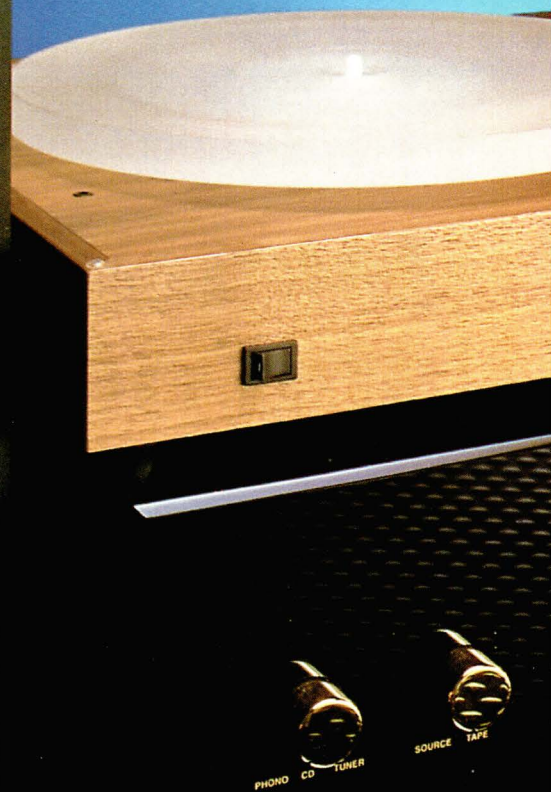
On a natural Note

Alan Sircom cuts through hi-fi haze with a system that plays music plain and simple.

Pump a reviewer full of truth drugs (half a pint of Speyside's finest with a thiopentone sodium chaser does it for me every time) and that scribe may tell you that the hi-fi experience is often quite like driving through thick fog. With eyes shut.

A lot of hi-fi products simply make the fog more intense. Some of the better equipment penetrates the murk, but often does so by adding a colour or taint to the view. Every now and then, however, along comes a music replay system that burns off the pea soup. And the Audio Note outfit profiled here is one such system.

The plot looks simple enough on paper. The system comprises a TT1 (née Systemdek IIx) turntable with rewired Rega RB250 arm and Audio Note Iq2 moving-magnet cartridge, built by Goldring. This is constructed roughly along the lines of the Roksan Corus, but with a barrel-load of modifications to bring it in line with the Audio Note philosophy.



Amplification for this system is of the single-ended variety, and comes in the guise of Audio Note's first-rung-on-the-ladder OTO SE valve integrated amplifier. The OTO SE pushes out a mere 12 Watts, so must be partnered with a pair of efficient loudspeakers possessing high impedance — like the Audio Note AN-JLs, for example. These big, bluff, two-way, rear-ported speakers are based on the classic Snell J design of the '80s and use simple, paper-coned bass drivers and soft-dome tweeters. Audio Note AN-B speaker cable completes the package.

It's a curious feature of this system that the speakers do not behave like rear-ported designs. Convention holds that such enclosures should be positioned half a metre or more from the rear wall. The Audio Note speakers, however, seem to work best less than 10cm from the rear wall, especially when used with the OTO SE.

Making sense of these components is rather like solving a large hi-fi jigsaw puzzle. When all the pieces are put together in the right order, things become clear at last. But substitute any one of the components in this system with a piece from another brand of hi-fi and the picture begins to go awry. That said, each Audio Note component can be used to good effect in other systems, with the proviso that the OTO SE only relates well to a particular kind of speaker.

Should one's front end be digital, there is a £675.00 digital-to-analogue converter (DAC) available. This, dubbed DAC-1, offers a valve-powered output stage, and you'll find more information about it next month, when I will use it to help evaluate TEAC's new CD transport, the P-30. Still on the horizon is an Audio Note CD player.

Working en masse these Audio Note components make sound that cuts right through the artifice of so much hi-fi reproduction. That's especially true for music that isn't over-produced, synthesised or heavily processed. With acoustic instruments or voices to work with the Audio Note system conjures up a clear, natural sound that's free of brashness and harshness; yet it doesn't seem dull or dreary.

With the compressed, processed recordings typical of much modern music, what results is not so enchanting, but the Audio Note system still tries hard to get the best out of the music. The problem here is less the system and more the software. You can actually hear where the recording has been tailored to suit cheaper, smaller speakers and amplifiers that are brash, constricted in the treble and artificially boosted in the mid-bass. This is often heard on good hi-fi, but on the Audio Note system, it's patently obvious.

Most noticeable, however, is the system's ability to interpret the differences between recordings and pressing quality. If all hi-fi systems were this good, a few of the great LP mistakes (like Dynaflex and Direct Metal Mastering) would have never have been made. In character this system diverges from digital recording techniques, but its sound is state of the art. This, I believe, must be ascribed to an excellent balance of dynamics within the envelope of the system.

If truth be told there's a lack of dynamic headroom because of limited loudness — it's no head-banger. I'd say there's plenty of oomph for most sane individuals, but if you rate your listening sessions by the number of complaints you receive from your neighbours, this one isn't for you.

Nonetheless I can't help feeling that this system possesses an inexorable 'rightness' that is absent from a whole host of equally-priced alternatives. You can get a different kind of 'right' from a complete Naim system, or from a handful of well-chosen components, but this Audio Note offers a unique blend of expansive yet natural sound without the top-dollar price ticket you'd expect. ▲



THE AUDIO NOTE SYSTEM

- Audio Note TT1 turntable £425.00
- Audio Note AN-Arm1 tonearm . . . £169.00
- Audio Note Iq2 cartridge £139.00
- Audio Note OTO Phono
SE integrated amplifier £1,499.00
- Audio Note AN-B loudspeaker cable
. £16.50/m (+ £20 termination fee)
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way, reflex-loaded design that can handle up to 100 Watts of signal input. Gold-plated input terminals permit bi-wiring.

Gale's XL315 cable earned itself a *Choice Best Buy* back in September last year (September 1996). Priced at £1.99 per metre, it is a traditional heavy-weight design with transparent insulation. Gale banana plugs, at £4.99 a pair, are gold-plated to prevent the tarnishing that can affect cheaper nickel plated varieties. Cambridge Audio Pacific interconnects, at £29.99 a pair (one metre), are made from oxygen-free copper wire.

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All entries must arrive by first post, Friday 20th June 1997.

THE QUESTION

What's special about Gale's banana plugs?

- a) They are yellow.
- b) They make great sandwiches.
- c) They had a cartoon named after them.
- d) They are gold-plated.

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- Please tick here if you are **under 18**
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COMPETITION RULES

- The Closing Date for this competition is Friday 20th June 1997.
- Winners of the Cambridge Audio/Gale Loudspeakers Competition will be judged from all correct entries submitted, and drawn at random after the Closing Date.
- Winners will be notified by post.
- The Editor's decision is final and no correspondence will be entered into.
- The Cambridge Audio/Gale Loudspeakers Competition is not open to employees of Dennis Publishing Ltd, Audio Partnership plc, nor their suppliers, agents or associates.
- We regret this competition is open to UK residents only.
- No cash alternatives will be offered.
- By entering the competition you agree to be bound by the rules.
- For a list of the winners of the Cambridge Audio/Gale Loudspeakers Competition, write, enclosing a stamped addressed envelope, to: *Hi-Fi Choice* Winners, Dept 167/1, 19 Bolsover Street, LONDON W1P 7HJ.
- All entries must be on this official entry coupon. If you do not wish to cut your magazine, you may send a photocopy of the page instead. Please note: only one entry form per household.

CHFC 706A

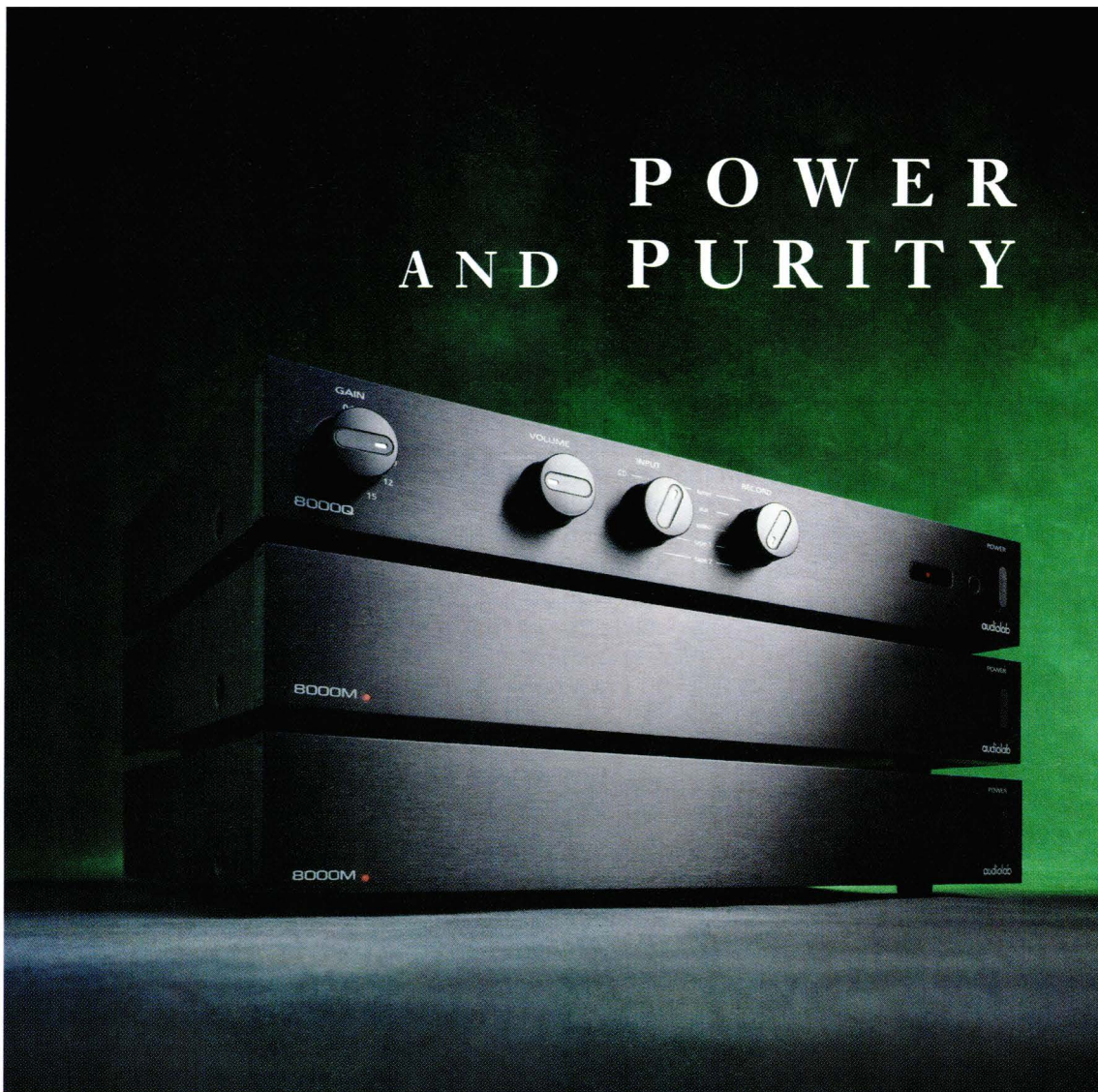
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Gale 2i loudspeakers	£139.95
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 **AUDIOLAB**

Ear Waxings

Jason Kennedy tries some substantial speakers from Thomas Transducers, and finds them a fine testament to old horn technology.

Lowther's distinctive, paper-coned, full-range drive units have been around for decades. Back in the '50s they were used in Lowther's own washing-machine-sized Audiovector speakers; come the '90s they're still the staple of companies like Thomas Transducers, manufacturer of the Bravura Virtuoso Gold corner horns you see here. This driver must be the only unit of such physical and sonic distinction to have survived so long.

Thomas Transducers is a small specialist company based in Tunbridge Wells, Kent. It started up a couple of years ago with a larger and more costly design called the Brio — probably the most substantial speaker I've had the privilege to heave up my stairs! The Virtuoso Gold, I'm happy to say, is more amenable to both living rooms and spines. It still takes two people to lug its 35kg, 33.6x104.5x67.2cm (WxHxD) carcass up the stairs, but this is no longer an Herculean task.

The Virtuoso Gold is the top dog of a three-strong range whose specifications differ only in the precise type of Lowther drive unit employed. The 'entry-level' product is the £2,995.00 Standard, equipped with the PM6C drive unit; then there's the £3,195.00, PM7C-driven Silver; and with the £3,395.00 Gold one finds the highest spec Lowther driver known as the PM2C.

This succession of arcane drive-unit names is just another great hi-fi mystery. Suffice it to say, however, that the PM2C has the highest-strength magnetic field, and this endows it with a slightly wider bandwidth. The Gold's bass extends down to a claimed 50Hz compared with 60Hz in the Silver and Standard; and likewise the Gold is the most efficient at a claimed sensitivity rating of 106dB.

The light-bulb-shaped lump of solid cherry in the centre of the drive unit is a phase plug. This is designed to smooth out the response of the inner, high-frequency cone, and does a very good job of it.

The Virtuoso Gold's cabinet is a clever combination of cherry-veneered, 18mm-thick MDF (veneered inside and out), and an internal horn built from precision-cut blocks of polystyrene. The latter give a significant saving in both weight and construction cost.

The cabinet is coated to add fire pro-



tection and stiffness, and unless you're carrying the speakers you would never realise they were not solid wood throughout. All in all it's a very elegant solution to a cabinet-maker's nightmare. The triangular horn mouth is designed to vent into a room corner, which effectively increases the area of the horn and thus extends its potential bass performance.

In my listening environment it's not possible to place speakers right in the corners of the room, but the Bravuras gave decent bass nonetheless. The thing with horn bass, however, is that it has none of the boxy slam and gradual roll-off evident in a conventional speaker. Horns roll off very quickly and don't stress their cabinets in the same way,

so the bass you get is very fast and clean, albeit subjectively less impressive than that of a boom box.

However on the plus side, breathtaking speed and transparency at low frequencies are quite a prize, and lend the speaker a superb sense of timing and the ability to play bass-heavy material with delightful agility.

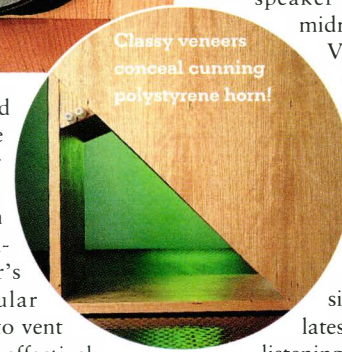
Such a sensitive soul

Usually, to review a Lowther-equipped speaker is to write an eulogy about midrange. Don't get me wrong: the Virtuoso Gold plays middle frequencies spectacularly. But in this case, high and low frequencies come across with equal aplomb. Instead, my attention was drawn to the fine dynamics on display, which are an inevitable consequence of the very high sensitivity and the way this translates into high-resolution, low-level listening.

There is one drawback. With such high sensitivity and a single drive unit rated at eight Ohms, and no crossover network to sap current and complicate the amplifier load, the Virtuoso Gold leaves the average user with only a few degrees of adjustment on the volume knob. You can forget about going up to two, never mind 11! Manufacturer Eric Thomas uses a VRR passive preamp with a Border Patrol single-ended triode valve amp to give himself some usable volume-pot range. But I find passives a little limp sounding and ended up combining a Michell Argo preamp with the Border Patrol, which worked very well.

The single Lowther drive unit undoubtedly confers this design's high and effortless resolution. Absolute high-frequency extension is limited, but coherence is phenomenal. The lack of 'mechanical' sound is particularly appealing, and although it can be a little soft, and despite the impression of a slight plumminess colouring the human voice, ultimately there's a fluency to the sound that ensures very easy listening. With the finesse of an electrostatic and the timing of a Rehdeko, the Bravura Virtuoso Gold repays searching out. ▲

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In USA: Audiophile Systems Ltd, 8709 Castle Park Drive, Indianapolis, IN 46256. Tel (317) 841 4107.

The Jimmy Hughes Experience

In hi-fi, the difference between loud and soft is dynamic range. But as Jimmy Hughes has discovered, there's more to this than meets the ear!

How much dynamic range is comfortable for home listening? Should recording engineers aim to capture the extremes of loud and soft that can occur in a live performance? Dynamic range is a controversial issue, and has been since the dawn of hi-fi.

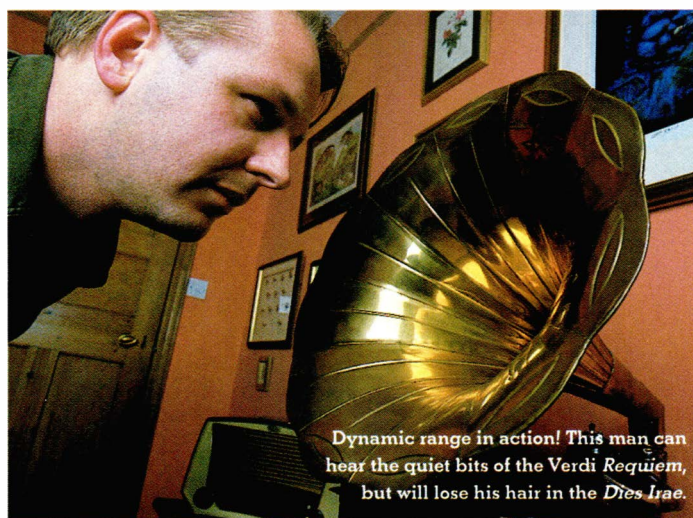
LP vinyl had the built-in handicaps of noise and peak-level distortion, which restricted dynamic range to about 60dB. CD's potential range of over 90dB widened the goal posts. But LPs were criticised for extremes of loudness and softness, so there's more to this story than mere specifications — sound quality is pivotal. If clarity is poor and quiet passages sound recessed, dynamic range can seem excessively wide. To make quiet music clear you need to raise volume levels, which in turn creates problems in loud passages. Here's an example. In 1995 Philips released John Eliot Gardiner's Verdi *Requiem* recording, the first to use period instruments. The performance was a triumph, but *Gramophone's* John Steane criticised the 'excessive' dynamics captured by the Philips engineers.

On Steane's equipment, the contrast between loud and soft was so great that the piece was impossible to encompass at a fixed volume. Because he had set the volume level higher than usual to make the quiet opening audible, the *Dies Irae* almost blasted him out of the room. I also had concerns about the sound. The choice of a very spacious church acoustic made orchestra and voices seem recessed. And yes: the range between loud and soft was rather wide.

Yet, when I played the set recently, on a system that has improved immeasurably since I last gave this disc a whirl, I had to eat my words. It's actually a stunning piece of engineering that really captures the scale of large choral forces and maintains believable space and depth.

Body and soul

A quiet sound need not necessarily lack body or fullness, but replaying it at increased vol-



Dynamic range in action! This man can hear the quiet bits of the Verdi *Requiem*, but will lose his hair in the *Dies Irae*.

ume helps add substance and solidity. And wasn't lack of body one criticism levelled at early digital recordings and CD? For instance, Gardiner's 1983 Philips recording of Handel's *Messiah* on LP seemed to lack solidity. To achieve reasonable presence, I needed to play it quite loudly. It was as if the LPs had been cut at too low a level. But when the set was issued on CD in 1984, the same characteristics were apparent: it still needed high levels to give of its best.

I concluded that Philips had transferred to CD at a low level, but discovered this wasn't the case when I played the disc via Meridian's 518 digital processor (HFC 165), which can display the encoding level of peak signals. The engineers had simply reproduced the musicians' dynamics rather than 'gain riding' the peaks so that all loud bits come across at the same level.

Even allowing for this creative decision, there is still a recessed quality to the sound. Unlike Christopher Hogwood's analogue *Messiah* on L'Oiseau-Lyre (1980) — which has ample presence — Gardiner's set only snaps into focus when you raise the volume. The average perceived signal level is lower because the peaks aren't compressed, and this is why inexperienced listeners are easily fooled into thinking that forward-sounding, compressed recordings are 'dynamic'. Take both of Oasis's recent albums and Suede's *Coming Up*, for example. They sound very loud because they're so heavily compressed.

They're 'dynamic' in the sense of being forward and attacking, but extremely undynamic so far as loud/soft contrasts are concerned.

With the Gardiner Verdi *Requiem*, the loud passages are pretty ferocious. Everyone's singing and playing with great passion and intensity, trying to realise Verdi's blazing vision. Played very loudly, things can get out of hand and become harsh. But a big sound is not just a loud noise, it's the ability to move air easily and effortlessly — and that's down to resolution.

Back to work

There's another important dimension to dynamic range. I said earlier that CD offers a range of more than 90dB, yet this is actually its signal-to-noise ratio. More significant is something called working dynamic range, which concerns the quietest sound that can still be heard during peak passages when loud and soft are present simultaneously.

For example, many Beatles recordings have limited loud/quiet extremes but possess a wide working dynamic range. This gives space and depth to voices and instruments. By contrast, the Oasis CD (*What's The Story*) *Morning Glory* has restricted dynamic range (it's very compressed) and poor working dynamic range. That's why it sounds so dense, 'flat' and penetrating.

Working dynamic range is one of the most important things in audio, yet it is rarely spoken of or understood, even by experts. Recordings with a wide working dynamic range sound transparent and reproduce easily, no matter what the system. Systems that achieve wide working dynamic range reproduce most recordings (good and bad) with ease and grace, making the most of whatever material you play.

Here's a simple test to assess your hi-fi rig's efficacy in this respect: try talking over the music as it plays. When you can hold a conversation without needing to shout to remain audible over the music, that's a sign of wide working dynamic range. ▲

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Paul Miller's Oasis of Sanity

What's to blame when two magazines express divergent opinions about the same piece of hi-fi?

Paul Miller thinks he knows the culprit. . .

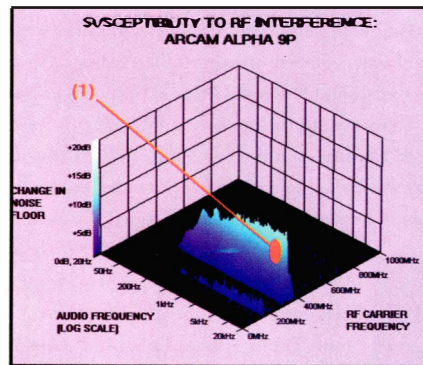
This month's *Oasis* addresses a regular theme of letters in our post-bag: the divergence of opinion that often exists between different hi-fi magazines when it comes to assessing the same piece of kit. For example on the letters page of issue 165 (April 1997), reader K. Daniels made important and detailed references to published differences in the subjective and technical assessment of a Meridian CD player. Naturally, one critic's subjective preference for a particular style of music-making is just that. A product's objective performance, however, is defined by a strict series of measurements that are not, or should not be, quite so whimsical in nature.

Nevertheless, it's important to appreciate that while no technical writer will consciously make errors, the content of the report will still depend very much on the laboratory facilities and experience that are available. Ironically, the point raised by K. Daniels was specifically covered in my *Oasis* column back in issue 159 (November 1996). Here I discussed how the spectrum of ultrasonic noise output from a CD player could result in audible distortion in a partnering amplifier susceptible to such interference; and how this, in turn, could explain why the same CD player could receive conflicting verdicts from two magazines using two different systems.

Arcam's Alpha 7 CD player was cited by way of example in issue 159, but by out-putting a similarly significant level of ultrasonic noise, Meridian's 508.20 is also likely to prompt a divergence of subjective opinion. It's because we are aware of such phenomena that my lab report suggested the 508.20 "could sound very different from one system to another". It is only through researching all technical parameters affecting sound quality that *Hi-Fi Choice* has come to appreciate ultrasonic gremlins, while other hi-fi journals with test input might report that the 508.20 "contains nothing to upset any amplifier".

All of this brings us neatly to the second part of issue 159's *Oasis* column: if amplifiers can be compromised by elevated levels of ultrasonic noise (say, 20kHz-500kHz), then how will they react to far higher radio

frequency (RF) levels emanating from most digital hi-fi equipment, from all manner of household appliances (including dimmer switches and fluorescent lights) and from the cloud of AM/FM, TV, military and other broadcast 'energy' that permeates the ether around us?

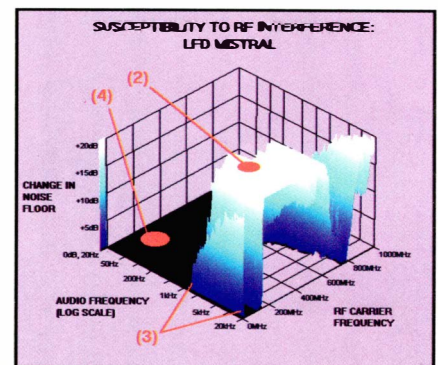


In practice, amplifiers are typically designed to be most linear across the audio range but become progressively less so (encouraging higher levels of distortion) as input frequencies increase. "So what?" I hear you cry. "After all, we can't hear anything above 20kHz or so." True enough, but if an amplifier is having trouble dealing with spurious RF signals at, say 20,000,000kHz (20MHz) and 20,000,001kHz (20.000001 MHz), then the *intermodulation distortion* that results will turn up at 1kHz, which is smack bang in the audio range.

Of course, your amplifier is more likely to be assaulted by a broad band of uncorrelated RF rubbish extending across tens of MHz than one or two discrete and very closely-spaced frequencies. Nevertheless, the effect is the same and instead of producing a separate intermodulation distortion (IMD) at, say, 1kHz, the IMD appears as an uncorrelated noise that can stretch from the deepest bass to the highest audible treble. And it's this effect, called RF IMD, that can compromise the ultimate fidelity of your amplifier depending, literally, on when, where and under what circumstances it is used.

This first example above is taken from the Arcam Alpha 9P power amplifier reviewed in issue 165, and demonstrates that it is broadly insensitive to the ravages of incom-

ing RF noise. Only if you were unfortunate enough to encounter RF garbage in the 300-350MHz region would the 9P register its disapproval (1). Then again, the limited amplitude of this distortion (the 'height' of the blue-coloured blip) suggests that any audible coloration would be slight.



Our second example is taken from the very same test, and illustrates why the 'susceptibility to RFI' bargraph for LFD's Mistral plunged towards the bottom of the graphic. In this case the amplifier seems to be broadly susceptible to RF noise across the entire 100MHz-1,000MHz (1GHz) spectrum, though it's particularly sensitive between 200-600MHz (2) where the ensuing RF IMD goes right off the scale! Although this amplifier is spectacularly intolerant of RF noise, it's interesting to note that any distortion that arises is restricted to the mid and treble registers between 1kHz and 20kHz (3), leaving the bass region (4) completely clean.

The Sound Quality report from this test suggested the Mistral lacked "inflection and expressiveness", with "an energetic and forward balance... that sounded edgy and uncomfortable". This is precisely what we would expect from an amplifier struggling to convey sensitive nuances of musical detail from a thick fog of noise-like RF IMD. In an alternative environment, free of any such interference, the Mistral might turn in a dramatically different performance. But in the real world, amplifier designers and reviewers alike cannot afford to view individual products in such splendid isolation. ▲

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

THETA

CASABLANCA is the most exciting home entertainment product ever—it is the future of audiophile audio/video. A modular design means Casablanca can be anything you want: an audiophile analogue preamp, a high performance digital preamp, a home cinema processor, a high fidelity video switcher or surround sound processor. You pick the processing: Dolby Prologic™, Dolby Digital AC-3™ or DTS Coherent Acoustic.

Casablanca can be configured to control up to nine sound channels with balanced or single ended inputs. It can be chosen with remote control and is programmed through either its LEDs or



via on-screen display on your TV.

Open-architecture means you need never fear obsolescence whatever system the fast-moving home entertainment market throws at you. Buy just a basic system and later add 'the works'. You won't have to worry about trading in out-of-date home cinema kit, Casablanca lets you add and expand, growing with your needs and new standards. And from Theta you know build quality is exceptional.

But where this product stands apart from the rest of video componentry is in its faithful handling of music signals. Casablanca conforms to listening standards beyond the reach of all conventional audio/video components. Or as they say at Theta: "now audiophiles can enjoy the movies, too".



THETA Digital was founded nine years ago with a mission to put back the musical emotion many listeners found lacking in Compact Disc player reproduction.

Successive generations of Theta products have been recognised by the world press as the most musically involving CD replay systems available. Theta feels it is now approaching the true frontier of digital audio and has introduced the DS Pro Generation V converters. The radical Generation V converter features Theta's first ever fully discrete Class-A analogue section and a completely new power supply. For audiophiles wondering if digital audio has truly arrived in the 'high end' this is the product to hear.

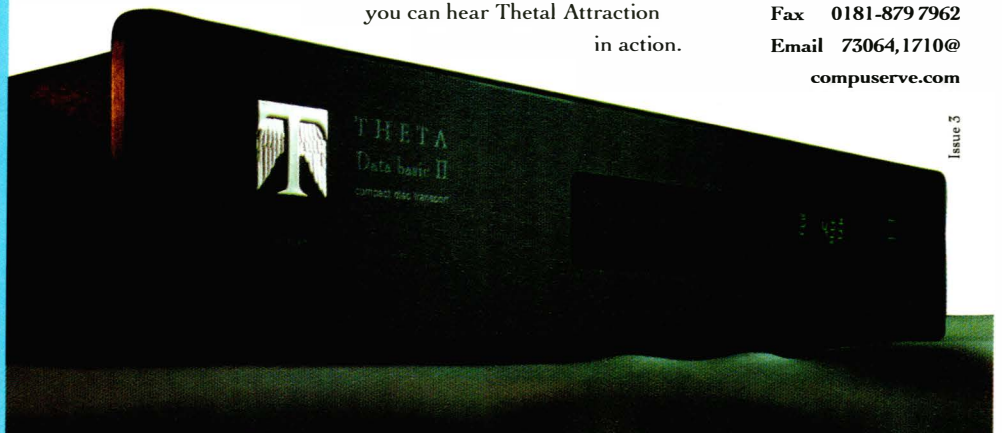
ATTRACTION

Consider also the DS Pro Prime II: a twin DAC per channel converter with balanced connections as standard and a programmable digital filter section for more accurate reconstitution of the music signal. The signal emerging from the oversampling section is phase, time and frequency accurate to preserve the reality of quality stereo recordings. The programmable digital filter is one reason behind the all-involving, 'alive' character to the sound of a Theta processor. For those seeking Prime II quality on a tighter budget check out the Pro Basic III, newly upgraded, with single ended inputs and balanced outputs and now capable of accepting a Theta link optical input.

The Data Basic II CD transport is based on a superb Philips drive backed by proprietary Theta signal processing and ultra-low jitter re-clocking circuits. The new Theta optical Laser link betters the AT&T optical system (AT&T connectors are still offered for compatibility). We feel the Pro Basic III and Data Basic II make a magical combination, providing a true state-of-the art, high value CD player/DAC combination at under £5500.

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

Attracted? Contact Absolute Sounds for more information about Theta products and for full details of dealers where you can hear Thetal Attraction in action.



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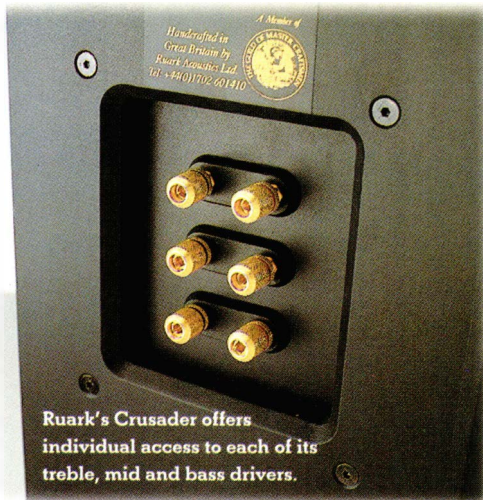
To tri-amp or not to tri-amp? That is the question which Paul Messenger is posing to speaker manufacturers!

Of the 15 upmarket speakers reviewed elsewhere in this issue, no fewer than 10 have at least three drive units. Of those, only two — the Ruark Crusader and the Neat Petite II/Gravitas combo — possess the three pairs of input terminals needed to address each drive-unit individually.

Seven of the remainder have just two pairs of terminals, of which more in a moment, while the Dynaudio has only a single pair. I can accept the latter, since the company makes clear its unequivocal opposition to bi-wiring or bi-amping. However the provision of two terminal pairs on a three-driver speaker makes absolutely no sense to me at all, especially since some of the models separate out the bass driver from the rest, while others split out the tweeter.

The most likely explanation is lack of inclination. Most speaker brands have numerous models, the majority of which will be two-way designs, and it's simpler to grab a bi-wire terminal block from the parts bin than order up a special tri-wire block for a relatively low-production-volume model.

That might be a cynical view, but it doesn't change my feeling that twin terminals are totally unsuitable for a three-driver speaker, because it cuts down your options. If there are three terminal pairs available, you can still experiment with bi-wiring or bi-amping, simply by adding bridging links between any two pairs — or you can go the whole hog and tri-wire or tri-amp. If your three-driver speaker has only two terminal pairs available, you're restricted to whatever split the designer has chosen, which at first sight



seems quite arbitrary.

It's not, of course. I found one clue in the Keswick Audio manual. In the Torino, KA adopts the minority stance by separating the bass-only driver from the rest, and does this in order to make life easier for both the power amplifier channels involved when the speaker is driven in bi-amp mode. JBL's L40 goes the same way, and probably for the same reason, since the US discovered bi-amping long before Britain started to adopt bi-wiring.

The others, however, split the tweeter from the rest, and I suspect this may be the better option for bi-wire operation. The practice of bi-wiring dates back only a decade or so, but nowadays the overwhelming majority of speakers above the beer-budget level come with the requisite 'split' crossover and the extra terminals (albeit with removable links so that the traditional single-wire-pair connection can be used).

Bi-amping comes to Blighty

Until quite recently, bi-amping was virtually unknown in Britain. When I first started doing *Choice's* speaker reviews about 10 years ago, I happened to have three identical stereo power amps available, and used to investigate the consequences of bi- or even tri-amping. There was no doubt that adding the extra amps improved the available sound quality, considerably more convincingly than the more nebulous benefits of bi-/tri-wiring. But it was equally clear then that the market as a whole hadn't really given serious consideration to the idea of multi-amp systems.

A decade later and at last bi-amping

appears to be coming into fashion here. Linn has been pursuing multi-amping as a stepping stone en route to full active-drive for many years; but Linn is primarily involved in making and marketing complete systems with considerable upgrade potential. In the mix'n'match of the broader separates market, Arcam, Audiolab and others have begun actively promoting the concept through their dealer network.

The nub is that an integrated amplifier need no longer be a 'dead end' purchase, and can instead be regarded as an integrated pre-/power amp. Provided that amp has properly buffered pre-out sockets (like Audiolab's going back several years, and current Arcams; there's also a £50 conversion kit for earlier

Arcams), the internal amp can be used to drive, say, the tweeters, and an additional power amp (with the same gain characteristics) can be used to power the main drivers, of any bi-wirable two-way speaker.

Given that bi-amp drive is now becoming accepted as a realistic alternative to bi-wiring, it's clearly high time that speakers with three drivers (and parallel crossover networks) offered the triple terminal option, to provide the full flexibility for any amp or wire configuration. There's no reason, for example, why a three-way speaker can't use both bi-amping and bi-wiring as a stepping stone between tri-wiring and tri-amping. ▲

EXPLAINING THE TERMS

BI-/TRI-WIRING

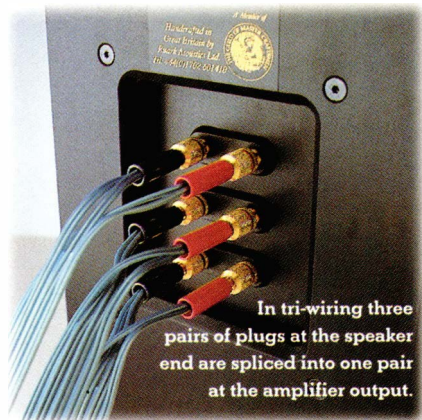
A single power amplifier channel drives each loudspeaker, but with separate speaker cable runs for each terminal pair provided on the speaker. This relatively inexpensive upgrade helps avoid intermodulation between the large-current signals used by bass drivers, and the faster, lower-current signals feeding tweeters.

BI-/TRI-AMPING

Separate power amplifier channels are used to drive each speaker driver individually with its own cable run, but still using the 'passive' crossover networks built into the speakers to apportion the appropriate signals to each driver.

ACTIVE DRIVE

Only really applicable where electronics and speakers come from the same maker, the speaker's crossover network is not used, and instead an electronic crossover subdivides the signal prior to the power amps, which then drive each driver directly.



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LETTER OF THE MONTH

Special services

I noticed that you allow subscribers to submit classified advertisements free. (Reader Classified, p. 91.) It's a nice gesture, and since subscription copies are delivered a few days before the magazine hits the news stands, it's a real boon for bargain hunters. I suspect it's a great way to introduce new subscribers to your excellent magazine.

Would it be possible to implement some similar arrangement regarding advice on upgrades? I know that Help! letters must be chosen for general interest to all your readers, but a quick reply by e-mail would take only minutes.

William Higgins, Winscombe, Avon

Stan Vincent replies... One obstacle prevents us from providing personal answers to your hi-fi queries. It's the small matter of a magazine to produce each month! There is only a small staff, and only enough hours in the day to write, illustrate and edit Hi-Fi Choice. That's why we are unable to respond personally to telephone calls, letters, fax messages and e-mail.

However, we recognise that there's great demand for on-the-spot hi-fi advice, and we are currently researching into ways of meeting that need. To regulate demand, it would be inevitable for us to levy some form of fee for the privilege of personal service. Queries printed in the pages of the magazines will, of course, always be answered free of charge. And naturally, since we value our subscribers extremely highly, advice for them would be provided free or at a heavily subsidised rate.

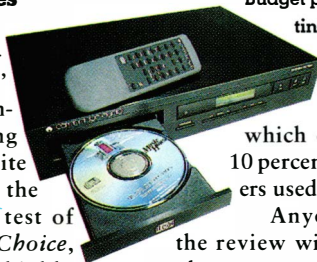
If this is a service that you'd be interested in, write to me at the usual address, with your answers to the following questions:

- 1. Would you be prepared to pay for independent personal hi-fi advice? (Answer Yes or No.)*
- 2. Would you prefer A) a brief response costing, say, £10; or B) more detailed consultancy costing, say, £20? (Answer A or B.)*
- 3. Would you prefer A) a fixed-fee written answer; or B) a one-to-one conversation via a premium-rate '0898'-type telephone line? (Answer A or B.)*

Tipping the scales

I'd like to raise a few points regarding Mr Fridefors' theories on system-balancing (Losing your balance, Write On, HFC 164). In the CD player group test of February's *Hi-Fi Choice*, one of the most highly-regarded players was the

Budget players upsetting the status quo.



Cambridge CD 4 SE, which cost less than 10 percent of the speakers used to evaluate it.

Anyone reading the review will notice that such a system seems unbalanced, but none of the listening

panel seemed to notice. Maybe traditional rules of system building, developed pre-CD, now need redefining.

There's no cheap way of manufacturing top-quality turntables, so a substantial part of any budget should continue to be allocated to vinyl. However since budget CD players have become so good, might this not free the purchaser to explore the joys of high-end amplification instead of striving to improve the CD front end?

David J Swann, Sheffield

Other worlds

I left the UK in the '70s. At the time English hi-fi was the ultimate. I have since found that there are many other wonderful products available. There is hi-fi life beyond Dover!

Loudspeakers illustrate this fact perfectly. Small boxes pushed up against the wall to provide extra bass are no longer necessary. There are some incredible products in Canada. A company called Audio Products International makes a bi-polar speaker that has to be heard to be believed.

It's a pity that the British press seems to ignore these products; believe me, you're missing out on some serious performers. The days of low-powered amps, small-speaker syndrome and the "condek" are over!

Steve Hilliar, via the Internet

Neighbours: can't live with 'em, can't shoot 'em

Hi-fi writers often assume that the only restriction on volume levels is the quality of sonic performance. Treating the neighbours to a favourite Mahler symphony is regarded

as a sign of system machismo. In reality, I'm sure that while most of us want to do justice to music with 'realistic' sound levels, we'd rather not alienate our neighbours.

I recently moved to a house with thinner walls than those in my previous abode. Now it looks like I'll need to incorporate soundproofing in my alcoves!

Ian Ground, Newcastle upon Tyne

Stan Vincent replies... Start by reading our feature on room acoustics (page 50) to learn how sound interacts with rooms. From that you will glean that shelves full of books are a key weapon in the fight to control unwanted sound transmission. Perhaps it's time your alcove discovers literature!

OUR ADDRESS

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f 0171-917 5512.

e 100433.1130@compuserve.com.

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COMPETITION

X MARKS THE SPOT

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FIRST PRIZE!

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F2/FX2 £1,300**

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SECOND PRIZE	
X-DAC	£299
X-CANS	£129
X-LP	£129
X-PRE	£199
X-PSU	£129
Six X-LINX interconnects	£240
Total prize value	£1,125



COMPETITION

Musical Fidelity, noted purveyor of fine hi-fi wares, has teamed up with *Hi-Fi Choice* to offer superb prizes this month!

First prize in this exclusive competition is the F2/FX2, an awesome combination of pre- and power-amps that earned a Recommendation when reviewed in the April 1997 edition of *Hi-Fi Choice*. Worth £1,300, the combination delivers plenty of power yet sounds natural and unforced.

Second prize is a super-useful collection of Musical Fidelity's snazzy new X Series components. Included is the £299 X-DAC, as drooled over by David Vivian in April's *Hi-Fi Choice*. Its key feature is a High Definition Compatible Digital (HDCD) filter chip with eight times oversampling. The X-CANS, priced at £129, is a Class A, tube-based headphone amplifier whose low background noise maximises dynamic range and low-level detail resolution. The X-LP, a phono stage, costs £129 and has separate dedicated MM and MC inputs, while the £199 X-PRE is a Class A tube preamplifier deploying a single-ended triode. The X-PSU at £129 supplies top-quality mains feeds to its four partnering X-men. Completing the package are six pairs of MF's £40 X-LINK No Nonsense stereo interconnects.

Third prize consists of a £299 X-DAC, a £129 X-TONE with subtle adjustable bass and treble filters, and three pairs of X-LINX stereo interconnects.

Finally three lucky runners-up will each receive an X10-D Class A CD player accessory (as featured in *Hi-Fi Choice's* October and November issues last year) and a pair of X-LINX stereo interconnects.



THREE RUNNERS'-UP PRIZES COMPRISING:

X10-D	£119
One X-LINX interconnect	£40
Total prize value	£159 each

HOW TO ENTER

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

POST THIS ENTRY FORM TO:

Hi-Fi Choice Competition (CHFC706B)
Bradley Pavilions,
Bradley Stoke North,
Bristol BS12 0BQ

All entries must arrive by first post, Friday 20th June 1997.

THE QUESTION

What is different about the X-CANS amplifier?

- It was designed specifically for watching the X-Files
- It is a Class A, tube-based headphone amplifier
- It doubles up as a can opener
- It was designed in Cannes, France

YOUR DETAILS

Name _____

Job Title _____

Company Name _____

Address (inc. postcode) _____

Day-time Telephone Number _____

Please tick here if you are **under 18**

Please tick here if you do not wish to receive details of further special offers or new products from other companies.

Are you a current subscriber? **OR**

Are you a regular reader? **OR**

Are you an occasional reader?

COMPETITION RULES

- The Closing Date for this competition is Friday 20th June 1997.
- Winners of the Musical Fidelity Competition will be judged from all correct entries submitted, and drawn at random after the Closing Date.
- Winners will be notified by post.
- The Editor's decision is final and no correspondence will be entered into.
- The Musical Fidelity Competition is not open to employees of Dennis Publishing Ltd, Musical Fidelity Ltd, nor their suppliers, agents or associates.
- We regret this competition is open to UK residents only.
- No cash alternatives will be offered.
- By entering the competition you agree to be bound by the rules.
- For a list of the winners of the Musical Fidelity Competition, write, enclosing a stamped addressed envelope, to: *Hi-Fi Choice* Winners, Dept 167/2, 19 Bolsover Street, London W1P 7HJ.
- All entries must be on this official entry coupon. If you do not wish to cut your magazine, you may send a photocopy of the page instead. Please note: only one entry form per household.

CHFC 706B



THIRD PRIZE!

THIRD PRIZE

X-DAC	£299
X-Tone	£129
Three X-Linx interconnects	£120
Total prize value	£548

Proceed with confidence

Proceed's new CDP embodies Mark Levinson's digital technology in a one-box package priced to sell.

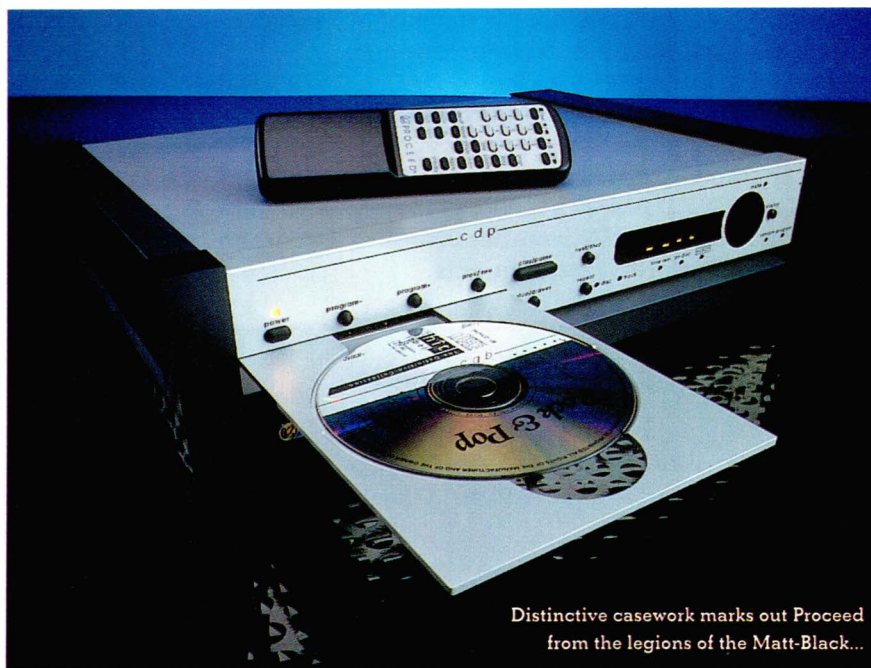
Alan Sircom and **Paul Miller** discover a rare blend of high-end quality and mass-market musicality.

In hi-fi circles, the name of Madrigal Audio Laboratories is synonymous with one brand: the ultra-high-end Mark Levinson range of digital and analogue electronics. Ask home cinema nuts about Madrigal and they'll respond with the name of Proceed, famous in high-end surround-sound for products like the PAV. However, Proceed started life in the late '80s/early '90s as the digital foil to the analogue reputation of Mark Levinson, so its audiophile credentials are impeccable.

Proceed's latest high-end audio product is the £3,395 CDP integrated CD player. It represents a fusion of Mark Levinson and Proceed digital audio concepts, blending the technology inherent to Proceed's CDD CD drive and DAP digital processor with the Mark Levinson No. 39 integrated CD player. In the process, Madrigal has developed a CD player of exceptional musicality and finesse.

One's company

Recent changes in the high-end have created a niche for upmarket, single-box CD players. This is driven partly by space and budget constraints, and partly by the consideration that a single box is less likely to fall foul of certain strains of the dreaded jitter-bug. This fact notwithstanding, the CDP provides plentiful connection options for digital



Distinctive casework marks out Proceed from the legions of the Matt-Black...

processors and recorders, offering numerous optical, electrical, balanced and single-ended digital outputs. On the analogue side, there are both single-ended phono and balanced XLR outputs.

The new CDP is based around an 18-bit, dual-differential, digital-to-analogue conversion system, with an eight-times oversampling digital filter from the Pacific Microsonics HDCD stable. Unlike many high-end CD players, the CDP comes with a volume control. Instead of the all-digital or all-analogue adjustment found in most CD players thus equipped, the CDP embodies a hybrid device that cuts the first 10dB of signal in the digital domain. The rest of the volume cut is performed by a combination of digital attenuation and precision bulk-

metal-foil resistors. This not only allows ultra-precise volume attenuation in 0.5dB steps, but effects it without incurring the distortion penalties inherent to an all-digital attenuator.

Words alone cannot describe the quality of this unit's construction. Everything meets or surpasses the standards one would expect from the high end. There are no creaks, gaps or badly-painted sections, and the light-grey finish lends a computer-style effect that is far more attractive than the traditional black box. Legend has it that the whole unit may be lifted by its ultra-slim aluminium CD tray, though I would not recommend this as a matter of course.

We noticed traces of an odd metallic smell wafting out from the circuitry during



That rectangular sliver is all you see of the retracted aluminium loading tray.



Proceed claims you can pick up the whole player with this tray!

warm-up, but the CDP has ample ventilation and runs considerably cooler than most amplifiers.

It's a family affair

The Proceed CDP's sound holds true to family traits demonstrated in Mark Levinson CD players such as the No. 36/No. 37 combo I reviewed in *Choice* 151. In an odd way, however, the CDP sounds even better than its stablemates by demonstrating less overt 'character' than the more up-market Mark Levinson. As a result the CDP may appeal to a wider audience than the bigger models.

What makes it better? Freed from the need to create deep, powerful bass and treble with the absolute peak of clarity, the Proceed CDP simply sounds far less cerebral, and more enjoyably musical in the process. It still makes a good fist of gut-churning bass and treble clarity à la Levinson, but at the same time offers a sense of spontaneity lacking in the bigger components.

It's a shame that when the Proceed CDP is demonstrated to would-be purchasers, the musical software will probably be glitzy, 'audiophile-quality' HDCD recordings. CDP deserves more. I fed it the beat-peppered new recording from The Chemical Brothers, *Dig Your Own Hole*, whose jacked-up, multi-layered mixes are very difficult for the average system to clarify. CDP, however, unravelled tightly-twisted strands without destroying the drive and energy of the music. It also sliced through the heavy-handed fader techniques employed in '60s and '70s rock, while keeping every ounce of the commitment and feel in the playing. Even Mahler came alive without denigrating the concert hall or half of the musicians.

Translating these observations in hi-fi terminology leaves one returning to sensational soundstaging properties and spatial abilities. If there is ambience in a recording, the Proceed will dig it out without flattening the musical perspective.

In tonal balance the Proceed is neutral to a fault, and this might be the stumbling block that debars its presence from unworthy systems. If a collection of components has been geared up to counteract the bright, shiny signal popularly associated with digital audio, don't be surprised if the CDP makes things a bit more mellow than you'd

like. We have become so conditioned to a 'typical' digital sound that the Proceed's lack of digititis can come as a shock.

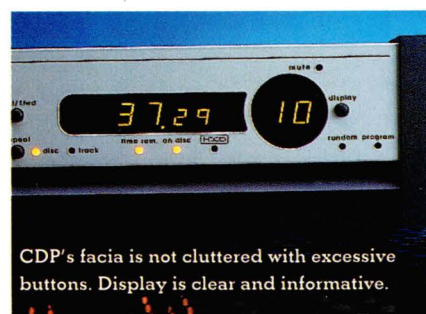
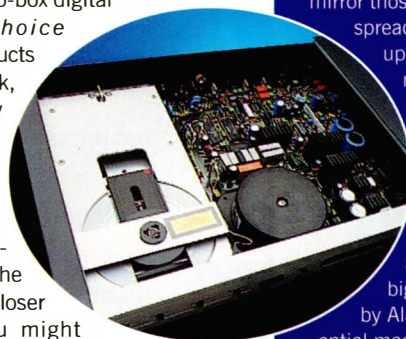
In the grand scheme of things...

In my distilled opinion, the Proceed CDP sounds dry and controlled. Perhaps too dry and controlled for my high-fat musical diet. But its musical portrayal is every bit as flawless as those of other top-flight digital systems, from Krell, Mark Levinson and Conrad-Johnson, which I have appraised over the past year. To decide between them would be like choosing a favourite Premier Cru claret, and just as bound up by matters of taste.

To zoom in a little further, I would say the Proceed can sound too stark by comparison with Conrad-Johnson's £1,695 DR-1 and £1,990 D/A-2B two-box digital combination (*Choice* 164). The two products are similar in outlook, even though they make very different statements about technology and design. I prefer the warmth of the Conrad-Johnson, but the two systems are closer together than you might think. Both sacrifice the last degree of absolute detail to good effect, and most of us do not need ultra-resolving, extreme-high-end CD players.

In many ways, the CDP is the perfect high-end cure-all. It's a single-box CD player that provides almost everything you need from high-end audio, yet also retains the musicality more often found in less expensive players. In short, the Proceed CDP is a bright new star. **AS**

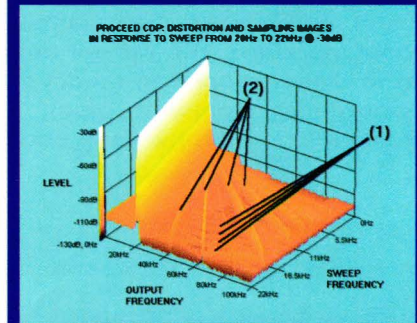
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CDP's fascia is not cluttered with excessive buttons. Display is clear and informative.

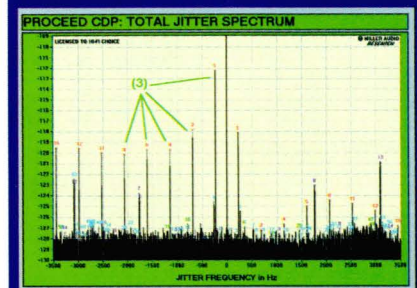
LAB REPORT: PROCEED CDP

On the basis of my lab tests, here's the low-down on what makes the CDP tick. Digital inputs are handled by Crystal's redoubtable CS8412 interface chip while Pacific Microsonics' PMD100 is provided to deal with HDCD-encoded software. However this HDCD 8x oversampling filter is evidently *not* employed when normal CDs are loaded into its transport — the latter is the 'industrial' version of Philips' omnipresent CDM12.



Instead, Proceed has engineered its own digital filter, complete with microprocessor and separate EPROM to store its coefficients. However, this is not a low-order, interpolative filter, as favoured by Wadia, Pioneer and Onkyo, but very much closer in performance to the high-order FIR-style filter recently engineered by Theta in its DSPro-series of outboard converters. Its rejection of digital 'images' is very good (>105dB) but the tracks of high-order sampling images (1) mirror those of Theta's products, while its spread of harmonic distortion (2) at up to 0.1 per cent (re. -30dB) is not uncommon with the dual-channel AD1864 18-bit DACs chosen by Proceed.

These DACs are a little long in the tooth but served well with older players from Teac and Counterpoint, and are largely responsible for the big and meaty sound described by Alan. Naturally, Proceed's differential mode of operation confers benefits in S/N and even-order distortions, but the AD1864s are notoriously difficult to trim, hence the substantial +6 to +7dB compression in linearity at 20KHz.



Nevertheless, Proceed's mastery of the digital art is faithfully revealed by its low, albeit asymmetric, jitter spectrum, composed mainly of data-induced sidebands (3) which are individually picked out using red-coloured markers. And the total amount? Just 184psec, which is up (or down!) with the very best in CD technology. **PMI**

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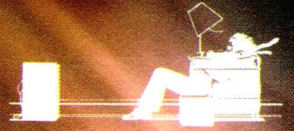
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DVD ébut

Thomson's DTH-1000 is the first DVD player to arrive on UK shores. In this exclusive review **Alan Sircom** assesses its potential – indeed, DVD's potential – as the hi-fi format of the future. **Paul Miller** explains what's under the hood.

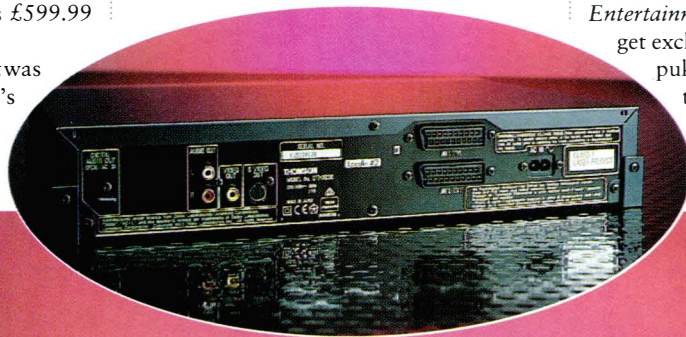
Whether you prefer the plain enunciation (Digital Video Disc) or the more grandiose (Digital Versatile Disc, imbued with future potential), the CD-sized data carrier known as DVD has finally arrived on British shores in the guise of Thomson's £599.99 DTH-1000 player.

Since the seed of this new format was germinated in late 1995, the world's largest consumer electronics companies have been locked in a war of words over who will be the first

to launch a working machine. Somewhat dogging this media onslaught, however, has been massive litigation both within the consortium of manufacturers developing the new technologies innate to the new format;

and between the consortium and the motion picture interests providing movies that will make DVD players worth buying. Depending on who you speak to, DVD will replace CD, LaserDisc or even VHS video.

Hi-Fi Choice and its sister title *Home Entertainment* are the first UK magazines to get exclusive hands-on experience with a pukka production DVD player. For the full run-down on its performance as a movie player, read the May/June issue of *Home Entertainment*, on sale April 24.



The shape of home entertainment sources to come? Thomson's DTH-1000 looks pretty regular up front, but the plethora of sockets round back tells a different story.



INSIDE THOMSON'S DTH-1000

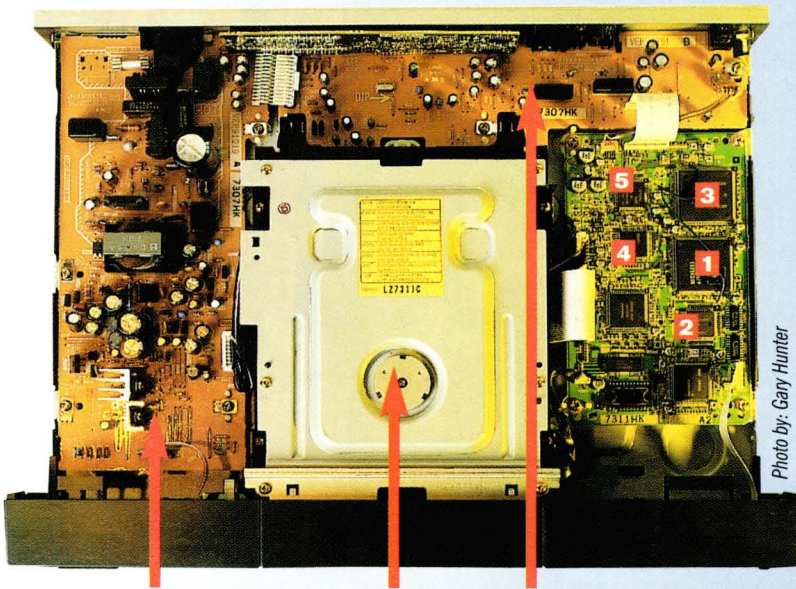


Photo by: Gary Hunter

PCB 1: Separate power supplies for the transport, audio and video processing sections of the player are located here.

DISC TRANSPORT

PCB 2: Audio, digital (including AC-3), and video (CVBS, S-Type, and SCART) outputs are routed via this board.

Chip (1): This optical disc controller LSI is the 'heart' of the player, controlling the speed of transport and track skip/search etc.

A host of servo and motor-control ICs play a supporting role.

Chip (2): Easily overlooked, but this small IC is the DTH-1000's main system microprocessor, the 'brains' of the DVD player.

Chip (3): This chip takes the RF signal from the transport laser and decodes into video and audio channels.

Chip (4): This is the decoder and signal processor for audio data.

Chip (5): This Matsushita (Panasonic) IC strips off the audio data and performs AC-3 or MPEG1 decoding. Compatibility with future MPEG2-encoded material and existing linear 16-bit PCM (CD) software is implemented here.

Under the board lies the 'hot chip' that takes the output of the DVD's decoder and feeds the video DAC with a de-scrambled video signal according to the 'Parental Control' facility.

However here in *Choice* we've addressed ourselves to assessing DVD's potential as a high-quality audio playback system.

Some technology notes

As far as DVD is concerned, the world is divided into regions. Region 1 is the USA, Region 2 is Europe and Japan, and so on. The DTH-1000 can play any Region 2 disc, whether it is coded in NTSC or PAL TV standards. This allows it to use DVDs from all over Europe and Japan, but not from anywhere else.

It also means the user can play standard audio CDs, but the player will not accept Video or Photo-CD, CD-ROM or CD-R (so it will not play recordings made on Pioneer's PDR-05 CD recorder, for example.) The DVD disc itself has 27 times more storage capacity than an identically-sized CD. There is also potential for both single and double-sided discs.

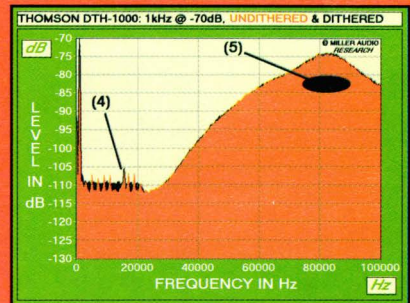
The first DVD movie title to be released in Region 2 PAL domains was the German-language version of Terry Gilliam's *12 Monkeys*, which was launched in March. Before that, only Japanese NTSC discs were available for use with Region 2 DVD players. To date, more than 30 titles have been released in Japan, and more are appearing every week. They include movies like *Outbreak*, *Blade Runner* and the first ever film to be released in Dolby Digital at the cinema, *Batman Returns*.

One bugbear for audiophiles is that the DVD-Audio standard is still to be finalised, even though there are a handful of proto-DVD-Audio discs available in Japan, one of which, from Pioneer, we used in this test. It's

LAB REPORT: THOMSON DTH-1000

Thomson's debut DVD player is a Panasonic re-build, and the costliest of three forthcoming models that are only available *en masse* in Japan. For this very early lab test, I have treated the DTH-1000 as a CD player, though my exploration of its prowess has been mildly blunted by its inability to read the CD-R discs containing my proprietary test signals! This is because the DTH-1000 distinguishes between DVD and (silver) CD discs by the focal length of the laser required to access the different pit run-lengths used by the two formats. CD-R discs confuse the laser pick-up, possibly because the run-lengths appear as 'bumps' on ordinary CDs and genuine 'pits' on green/gold CD-Rs. I'll clarify this matter at a later date.

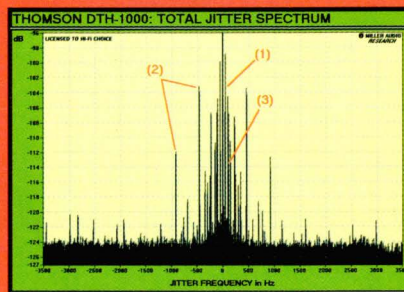
There are two chips that really interest us at this stage (see exploded view). First is the MN67730 [5] that strips out and decodes the audio data. This IC will handle AC-3 and MPEG1 encoded audio (with MPEG2 compatibility), while also recognising the linear 16-bit PCM code used by the long-standing CD format. This decoded digital data is then passed to Burr-Brown's hybrid PCM1710 [4]



DAC and a simple op-amp based output filter. As a result, the DTH-1000 performs rather like a pared-down version of Arcam's Alpha 7 CD player (HFC 163).

Jitter, for example, is a little high at 973psec and is composed of power-supply induced (1), data-induced (2) and an entire series of 'unknown' sidebands (3) all linked to precise multiples of 20Hz. Arcam managed 599psec with its Alpha 7, avoiding the 20Hz sidebands that seem specific to the DTH-1000. Distortion settles between 0.0015-0.05 per cent at its peak (2.1V) output, increasing to 1.8 per cent at -70dB (4), the practical S/N ratio is around 97dB and low-level linearity maintained over 100dB to 0.2dB at 1kHz and 2.7dB at 20kHz.

This is all typical of the PCM1710, as is the huge ultrasonic swell (5) produced by its noise-shapers. Noise at these frequencies and levels can easily result in Intermodulation Distortion *above the limits of hearing* in some amplifiers, though the products of such distortion fold directly back *into the audible range*. The end result is a typically brighter, more aggressive and generally disagreeable sound, much like that reported by Alan. *PMI*



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THOMSON DVD PLAYER

worth bearing in mind that there is a remote possibility that early players will be left out in the cold for DVD-Audio if the adopted standard requires circuitry that is not implemented in their specifications.

Many companies are keen that DVD-Audio should embody a 24-bit word length and 96kHz sampling rate (compared with CD's 16-bit word length and 44.1kHz sampling rate, which is now acknowledged as falling significantly short of perfection.). Inevitably, since these specs are still a pipe-dream, Thomson's DTH-1000 uses more humble chips. However on a recent visit to Technics' headquarters in Osaka, Japan, I heard a prototype 24-bit, 96kHz DVD demonstration disc that was stunning. Although the audio signal was controlled to maintain its integrity, the sound from that set-up alone could make CD as we know it virtually obsolete.

The proof, the puddings

On audition the DTH-1000 didn't exactly remind me of the magic I experienced in Japan. On conventional CD the Thomson player sounded thin, flat and pinched — this result would have been below par for a £100 CD player. Slipping in Pioneer's 24-bit, 96kHz Mozart/Salzburg disc, the DVD player fared little better. On this evidence the first DVD players will have to rely on their VHS-crushing picture-quality to part would-be buyers from their cash.

However, mould-breaking new formats like DVD are not established in a day. Belief in the future success of DVD is borne out by high-end audio companies prepared to add value to the basic feature set. Witness Meridian's £2,000 586 DVD player profiled in *Update*, HFC 164, and shown at the recent Sound & Vision Show in Bristol. And then there's Pioneer's combination CD/DVD/LaserDisc player, the DV-700, which is expected to arrive by early '98 at a cost of around £1,000. However Meridian's player will be particular noteworthy for not rolling off the production line of a consumer electronics giant. Aimed squarely at the high-end user, this player will have many advantages over the regular first-generation players thanks to its extensive configurability and, on the basis of the Bristol showcase, superb performance.

While Thomson's DTH-1000 heralds the dawn of a new home entertainment format, Pioneer's DV-700 will offer the greatest flexibility for those wishing to hedge their bets. Also, a majority of marketers agree that the most enthusiastic early purchasers of DVD are likely to be high-end videophiles with a LaserDisc collection and every intention to upgrade to DVD.

Look to the future

The audiophile jury is still deliberating DVD's potential for enhancing hi-fi music replay. But there is considerably less equivocation about the promise DVD holds for video and computer applications. DVD-



Pioneer music DVDs like the Mozart in Salzburg disc (left) and the Danube Story disc (above) are, together with a handful of movies, the first releases on this new format.

THOMSON DTH-1000: MEASURED PERFORMANCE

PARAMETER	20HZ	1KHZ	20KHZ
Channel Balance	0.0dB	0.0dB	0.0dB
Channel Separation	105dB	93dB	66dB
Frequency Response	-0.1dB	0.0dB	-0.3dB
THD vs Level, 0dB	-88dB	-96dB	-66dB
THD vs Level, -30dB	-77dB	-78dB	-49dB
THD vs Level, -60dB	-56dB	-50dB	-21dB
THD vs Level, -80dB	-28dB	-29dB	+10dB
Dithered, -90dB	-18dB	-18dB	+19dB
Dithered, -100dB		-8dB	
Dithered, -110dB		n/a	
Resolution @ -60dB		0.0dB	0.0dB
Resolution @ -80dB		-0.2dB	-0.5dB
Resolution @ -90dB		-0.4dB	-1.3dB
Resolution @ -100dB		-0.2dB	-2.7dB
Peak Output Level, L		2.105V	
Peak Output Level, R		2.110V	
Relative Output Level		+0.5dB	
Output Impedance		1.06 kOhm	

ROM drives for computers already exist: they double up as 16-times-normal-speed drives for CD-ROMs. In the near future computer software companies will start shipping their products on DVD-ROM.

There is so much potential in DVD that it would be a great shame if audiophiles missed out on the audible delights it promises. If DVD-Audio of the quality I heard in Osaka becomes a workable proposition, master tape will have reached the home. If, though, the DVD bigwigs cannot see a return to be had from investment in the audio side of DVD, audiophiles risk being left in a technological backwater. ▲

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S/N Ratio (A-wtd), w/o emp, 1LSB	-
De-emphasis Accuracy, 1kHz	0.0dB
De-emphasis Accuracy, 5kHz	0.0dB
De-emphasis Accuracy, 16kHz	-0.2dB
Total Correlated Jitter	973psec
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Crystal Clock Accuracy	+184ppm
Track Access Time	variable
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Help!

Malcolm Steward is here to answer your hi-fi queries this month.

Send your hi-fi queries to 'Help!' at Hi-Fi Choice, 19 Bolsover Street, London W1P 7HJ • fax on 0171-9175512 • e-mail on 100433.1130@compuserve.com

Query of the month

A moving story

I have moved to Singapore and had to leave a wonderful A/V system in San Francisco. I am looking to build a new system purely for listening to music. My maximum budget is £1,500 to £2,000, but less if I can get away with it. A friend suggested I look at Naim amplifiers, Marantz CD players, and Mission speakers. I listen to only jazz — Miles, Ella, big bands, etc. — and some classical.

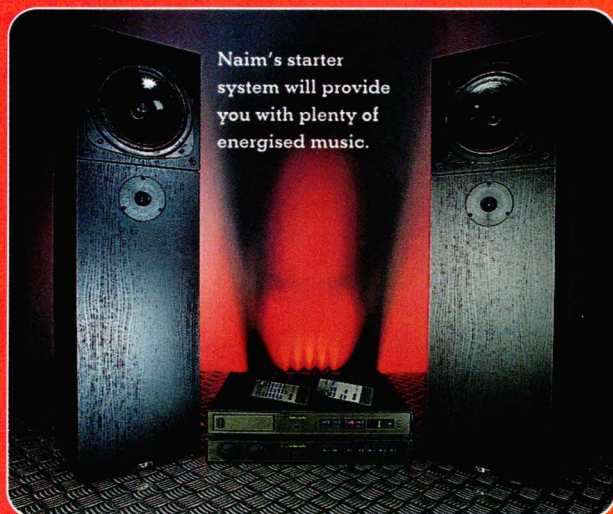
Should I be looking at separates or integrated amps at this budget? I liked the review you did on the Cambridge CD4SE CD player and would like to know if it would fit in with my listening tastes. Could you offer some suggestions on matching a system while making the best use of my budget?

Lincoln Wong, Singapore

Let me suggest three systems I might audition in your situation: one that uses your entire budget, one that will leave you some change, and one that you could buy with the change. Don't suppose, however, that you can't alter components within each system to suit your tastes. System matching is all about personal tailoring to obtain the right presentation.

The first would be a Naim CD3 CD player, NAIT3 amplifier and Intro loudspeakers. All the components follow a common design philosophy and will work well as a "team". The second would be a Rotel RCD970BX CD player, an Aura VA100 amplifier and Mission 751 loudspeakers, which marries musical fluency with a pleasant degree of tonal warmth and substance. The third would be the Cambridge CD4SE CD player, Rotel RA920AX amplifier and Mordaunt Short MS10i loudspeakers — a system that's easy to live with and all for the price of a good night out, assuming that you take the Hi-Fi Choice editorial team to the pub and curry house with you!

Start by listening to these systems and decide first which provides the performance level that most closely meets your expectations. Then start mixing and matching.



Naim's starter system will provide you with plenty of energised music.

Saving the King's Ransom

Having persuaded relatives to give us cash for Christmas, the missus and I bought a Rotel 930AX mkII amplifier, Aiwa ADF-460 cassette deck and Mordaunt-Short MS10i speakers on Atacama stands. We already had an old, dilapidated Sony CDP-M12 CD player, and very fine I think the whole thing now sounds. Then my



A Pro-Ject turntable will do the trick without breaking the bank.

father donated his turntable, a Pioneer PL-514X, which to my untrained eye looks the business but I'm sure has extreme limitations. My knowledge in the intricacies of such devices is pathetically lacking. It would be extremely useful to know if there is anything I can do to optimise the turntable, and the system in general, without spending anything like a King's Ransom.

Simon Forder, via the Internet

I pray you don't consider around £200 a King's Ransom because that's what you need to spend to obtain a decent turntable, one that will make the right noises and safeguard your vinyl. I wouldn't advise you to trust your records to anything less than a Rega Planar 2 or a Pro-ject 1. Add about £30 to £40 for a respectable cartridge such as an Arcam C77 or Rega Bias and you'll have a worthwhile and reliable record player. When you've a bob or two to spare, purchase a custom support for the deck; something like a Sound Organisation basic table or wall-shelf would be appropriate.

Upgrade for Tannoys

I currently have a Pioneer PD-9700 CD player, Pioneer A-400 amp and Tannoy 609 speakers. The sound I am getting, although warm, tends to be dull, almost muffled. I am thinking of replacing the A-400 amp with one that can make the system sound more exciting, with sharp treble and fast bass. I want to spend between £300 - £500.

Stuart Galt, Portsmouth

Your Tannoys will certainly relish an amplifier upgrade... but your CD player probably won't be quite as appreciative. Ideally, you need to invest in a new CD player and a more powerful amplifier. If you can afford to do that, then fine. If you can't, think about finding a less fussy loudspeaker. If you stick with the 609s, spend some time fine-tuning their placement. I've found them to be uncommonly responsive to positioning, far more so than other speakers. Their position and alignment in the room can dramatically influence the way they perform.

More detailed sound

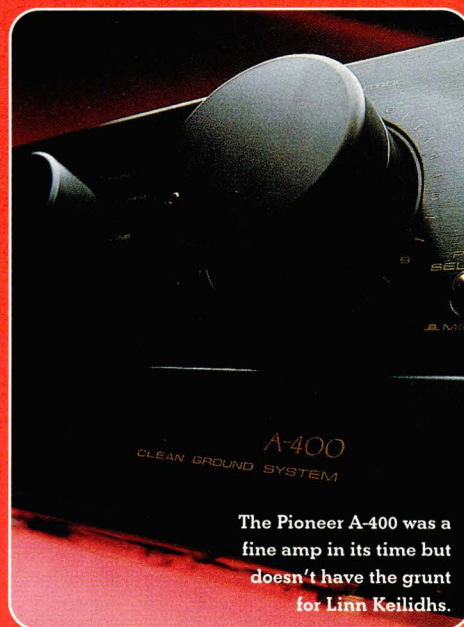
I happily own a Rotel RCD965BX CD player, Pioneer A-400 amplifier, Linn Keilidh speakers (with ceramic bases), SonicLink Silver Pink interconnects and Ixos 603 speaker cable (bi-wired). The CD player and amplifier live on Mana Reference tables and the Keilidhs sit atop two-tier soundbases. Though this produces excellent results, I feel that for all its strengths the A-400 cannot realise the potential of its partners.

Upon demonstration, I found pre/power combinations from Naim, Creek and the Moth 30 series very impressive. I'm seeking an emotive, dynamic and very detailed sound. What upgrades, at a cost of around £1,500, can you see making a significant improvement? Is it worth upgrading my Keilidhs to active status and if so what would be the most appropriate amplification? I'll consider changing most things but make no apologies for being a converted Mana-ite and extremely keen on the Keilidh's superb timing and drive. I'd appreciate it if you could work your advice around keeping these!

Ollie Garrett, via the Internet

The original RCD965BX was an exceptional machine — musically persuasive and very easy on the ear — but prone to a little looseness in the bass. The A-400, with which it was often partnered, conveniently masked this. Now, if you start using a more revealing amplifier you'll begin to discover the CD player's shortcomings — especially since the Keilidh has abundant low-end drive.

The answer is to upgrade both your amplifier and your CD player. I would recommend you start by auditioning an Orelle CD-100E or Micromega Stage 6; both these manufacturers' players handle bass lines and timing particularly fluently. Then, as you seem keen on further upgrading, look at amplifier ranges that offer scope for cost-effective upgrades, such as Naim and Exposure. It might also be interesting to try some of Linn's own options.



The Pioneer A-400 was a fine amp in its time but doesn't have the grunt for Linn Keilidhs.

Amplification first

I listen to all kinds of music and currently use: Neat Petite (original) speakers on Target R3 stands, Exposure XV amplifier, Marantz CD12LE CD player, Linn LP 12/Valhalla/Ittok LVII/Roksan Corus Black, Exposure speaker cable. All the equipment rests on a Target TT5.

I have a budget of around £3,000 for upgrading. My listening room is four by six metres. I want my system to have better dynamics, resolution and involvement. My short-list includes upgrading the amplifier to an Exposure XVII and XVIII, Naim 72/HiCap/250 or Naim 82/180, changing the cartridge to a Denon DL 304 or Ortofon MC 15 Super II.

After this upgrade, if funds allow, is it worthwhile to upgrade my Neat to Mark II status? I also plan to go to Armageddon on my LP12, but would I be better off going for Lingo? If I opt for Naim amps, do I have to change my speaker cable to NACA 5? And what would you recommend for high quality interconnects to use with a Naim system? I do not think that mid-market interconnects like Chord can match my Lapis. Kozit and friend, Thailand

As I've noted in another query this month, the Neat Petite really deserves a Naim NAP250, so that's the ideal amplifier upgrade, and if your Petites are in good shape I wouldn't rush to change them. To get the best from the system, however, leave the interconnects alone. Although they don't look pretty, Naim's own leads invariably extract the best performance from the components.

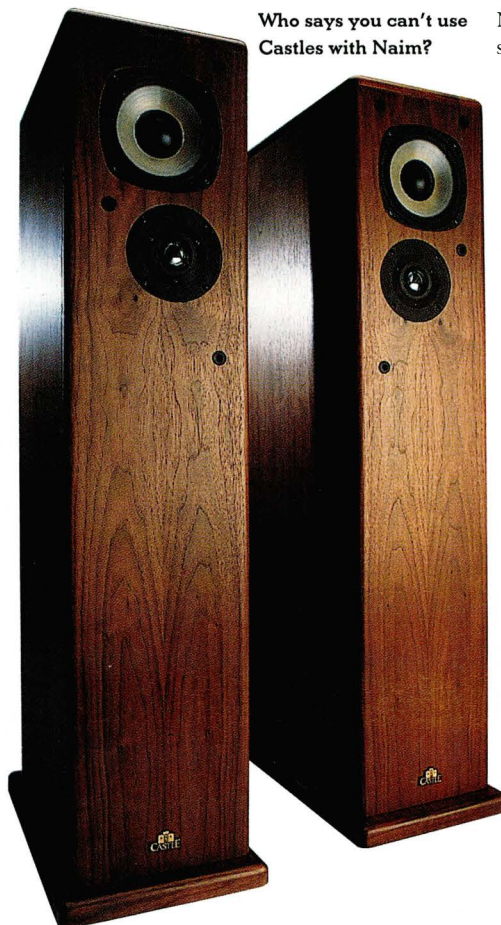
I've tried several power supplies with the Linn and I prefer the Armageddon to the Lingo for its sense of rhythmic urgency. As for cartridges, the Denon is a very attractive option.

Quality meets quality

I have a Trichord Genesis and Rega Planar 3 with Naim 92/90 amplification. Why do all dealers seem to discard the idea of my buying Castle speakers? It seems that no one who sells Naim sells Castle. I found the Avons a bit glassy with Trichord through an Exposure amp but I think that the Harlech might be just the thing for me (cf. your December review). I have heard the Intro/Credo (shrill), Epos ES14 (somehow not quite there, especially with my amp at low volumes), Neat Mystique (beautiful

voice but dynamics and detail?), Neat Petite (very tempted). I will soon have the room to do the Harlechs justice. Can you help? Baer Pettit, Brighton

Who says you can't use Castles with Naim?



I've used Castle speakers with Naim amps and have been well satisfied with the results obtained. There's no reason why you shouldn't give them a try. There must be a Castle dealer out there who will let you take a pair home for the weekend.

I am, however, a little concerned about the fact that you're also considering using speakers such as the Epos ES14s and Neat Petites with a Naim NAP90 power amp and a Rega Planar 3. I wouldn't use either of these with anything less than a NAP250. And I'd definitely want a top-of-the-line record player sitting in front of it. Budget source components rarely fare well with revealing amplifiers and speakers.

HELP!



◀ The magic of vinyl

I have spent £1,400 in the past month upgrading my amplifier, interconnect and speaker cables. My system now consists of an Arcam Delta 70.3 CD player, Naim Audio NAC92 (pre-amp) NAP90 (power amp) combo, B&W P4 speakers and van den Hul cabling throughout. Having spent eight years collecting hi-fi to get to this point, I was disturbed to hear my old components (Musical Fidelity B200 Integrated amp and Lifeline cabling) producing a more melodic sound when I gave them away to a friend. The difference is that he has an Ariston Icon record player.

Seemingly disturbed by my sudden lack of enthusiasm for it, my Arcam CD player broke down. This has led me to have a look at new CD players. But would I be better repairing the Arcam and looking for a suitable DAC, or should I bite the bullet and acknowledge that you really can get better sound out of record players and start looking at them instead? My budget is £1,000.
Andrew Spence, via the Internet

I certainly believe that the sound of a finely fettled record player has a special magic that CD fails to match. However, CD can be — indeed, has to be if you're a fan of classical music — nearly as satisfying these days. Whether you dive into the vinyl deep-end rather depends upon the size of, and your plans for, your record collection. Spending £1,000 on a deck to play, say, a hundred records, isn't cost effective unless you intend to go storming second-hand record shops every weekend. If you have or will be building a record collection, I suggest you listen to a secondhand Linn LP12 or Michell Gyrodec. If you opt to persevere with CD, start by auditioning Pioneer's PDS-505 Precision, which I feel is one of the most accurate CD players available for under £1,000. See how others you can afford compare with it.

Linn LP12: Something to conjure up the magic and musical majesty hidden in the grooves.

Getting the jitters

My system consists of a Marantz CD63SE and Audio Alchemy DITB connected with Audioquest Video Z, Cyrus III with PSX, B&W CDM2, van den Hul D102 mk3 interconnects and Flatline Twin bi-wire speaker cables.

I listen to all types of music, but have a particular interest in vocals. I recently auditioned a pair of ProAc Tablette 50 speakers at my friend's house. I was very impressed with their sweetness and vocal capabilities. Now I would like to improve the midband in my system. My friend recommended a piece of equipment that reduces jitter but I don't exactly understand what it does, how it improves the sound quality and whether it would be suitable for my system.

Ron Wood, via the Internet

The best improvement you could make right now is to upgrade your CD player. I know it's appealing to add gizmos to a budget player but it's not the best way to go. Add-on DACs, jitter-busters and tweaky interconnects all address certain problems in inexpensive players or enhance some aspect of their performance but none can effect transformation into a significantly better machine with improved all-round performance. They can't counter problems caused by, say, a lightweight chassis, an inexpensive circuit board, less than optimal internal earthing or shielding. And it's these fundamentals that determine the player's performance ceiling.

You also have an interesting mix of cables in your system that I would suggest you sort out promptly. I'm convinced that it's best to use matched cables throughout a system, so I would suggest that you swap to Nordost interconnects to match your speaker cables. You'll obtain a more cohesive, cogent sound by doing so.

Speaker placement

In the January issue of your magazine you list the B&W DM602 as being a "close to wall" speaker. I am trying to decide if I should upgrade from my current 601 to 602s. I have the 602s at home on loan but the brochure says that they should be placed at least 20 inches from the back wall.

I moved the speakers closer but got a big boom from the bass. Can you tell me if I am doing something wrong with my set-up?
Robert Stobie, Dublin

Without further details of your system and room, it's hard to give you a concrete answer. Just remember that the ideal placement for any speaker is not the one in the brochure, the instruction manual, or the guideline suggestion in a hi-fi magazine: it's the one that gives the best results in your particular situation.

All I can suggest is that you make sure you're not placing the speakers in or close to a corner where their bass will be boosted by the rear and side walls. Check that the floor spikes are properly adjusted and tight. And remember that with any ported speaker, you can always stuff a pair of rolled-up socks or a wad of foam in the port to tighten the bass. Finally, try listening from a different position. In my own room the level of bass from any given speaker can alter significantly if I move my chair back a couple of feet.

Where you put your B&Ws depends on the largely on the room.



CD choices

I am presently using an Audiolab 8000S and Mission 753 speakers bi-wired with Cable Talk cable. I use either an old Marantz CD-52 or a much newer Technics SLPS-770A as the source. Generally speaking, the Marantz sounds better than the Technics with rock discs, but with more acoustic intimate stuff the 770A comes into its own. Neither player displays the absolute level of clarity and resolution that I desire. I have recently been playing around with various interconnects borrowed from friends and was amazed at the differences that I heard.

Consequently, I have decided to upgrade (ditch) my CD players and acquire a single superior player. I would also like to buy some appropriate interconnect at the same time. I am willing to spend from £500-£800 on the CD player and about £80-£160 on the interconnect.

Chux, Queensland, Australia

Given your combination of amplifier and speakers, which can produce a variety of results depending upon the room in which it's used, I'm tempted to err on the cautious side when recommending a CD player. If your system currently sounds a little on the lively side of neutral, I would start by listening to players such as the Quad 77, Marantz CD17, Mission dAD3 and Myryad MC100.

That your system is so dramatically cable-sensitive suggests it's not ideally balanced. If one of the suggested CD players delivers a more even-handed appraisal of music you might find that the exceptionally neutral Trichord interconnect is suitable.

An ideal floorstanding speaker

My system consists of a Technics SLPS620A CD player, a Denon PMA350MkII amp, and a Technics ST3050 tuner, all using Chord Company Cobra interconnects. My current loudspeakers are home-made, and I am looking to replace them. I have a fetish for floor-standing speakers, but do not want to go beyond the £350 mark.

I have recently read the test results of speakers in Choice 164 (March 1997) and was taken with the Acoustic Energy AE109 speakers. However, I am not sure whether the current system would do justice to these particular speakers. What would you advise? I listen to most types of music (loudly) including dance, industrial, classical, rock, grunge etc.

Andrew Wood, Cardiff

Right now you have a well balanced budget system. Introducing a floor-standing speaker could disturb that balance. Fundamentally, there appears to be two types of inexpensive floor-stander: if you opt for the sort that's really just a bookshelf speaker with a bit more medite slapped beneath it to obviate the need for stands, you'll probably be okay. If you choose one that exploits the extra cabinet work to extend its low frequency response into the southern polar regions, you'll likely upset the system's equilibrium and wind up with a hi-fi that sounds like an oompah band.

The Mordaunt-Short MS251, however, is one floor-standing design that seems to offer a cleverly judged balance. Used in a budget amplifier test, it stayed tight and controlled with the cheapest models but provided low-end weight with the more capable models. It would, therefore, be a good place for you to start auditioning.

The Marantz CD-17 is a an even handed, high resolution player.

Improving the low-end

My system consists of an Arcam Alpha CD, Audiolab 8000A (very early version), linked with van den Hul The Source interconnects, and Monitor Audio 852 Golds on HB1 stands. Also included are an Ion tuner and an ancient Nakamichi BX2 cassette deck.

My problem is where to start as I can only afford to change one item at a time. I need to improve bass weight and tightness

as I constantly have the bass turned up on the Audiolab. I also want to improve the detail without it being too bright. Would the Audiolab 8000S or Arcam 9 & 9P combination improve things, or is a front-end change a higher priority? If so what do you suggest? I am aware that speaker technology has come on since I purchased my 852s, so should I be looking in this area? Perhaps a REL Q Bass might satisfy my needs. My initial budget is £1,000 and my room is 13' by 17' with the speakers set in the round bay either side of an armchair.

Graham Hill, Upminster, Essex

Your speaker placement doesn't strike me as being ideal. If you can, position them in front of a flat, solid wall with nothing between them. Adjust the distance between the speakers and the wall to see if that will improve the system's low-end performance. I wouldn't add a subwoofer purely because I've rarely heard one integrate well with third-party speakers.

A change of source and amplification would also help, however. Listen to the amps you list alongside the Precision series amp and CD player from Pioneer.

Getting to the bass

Some months ago I started to upgrade my system with a new Arcam Delta 290 amplifier and a Marantz CD63 mkII KI Sig CD player. I plan to upgrade my old AR14 speakers later with bi-wiring or bi-amping, possibly adding one or two Arcam 290P power amplifiers.

I bought the AR14s in 1979 and changed the bass elements' rubber foam suspension a year ago. They really benefited from the new amplifier and CD player. My living room is 21 feet by nine feet and I listen almost exclusively to classical music.

The speakers sound incredibly good with chamber music and jazz. With large-scale classical music, however, the sound becomes uninteresting.

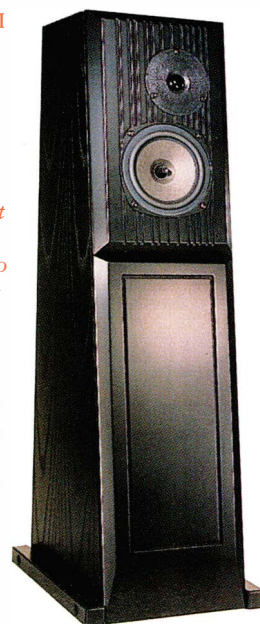
I have listened to many different speakers, but I find nothing that sounds considerably better than the AR14 at a reasonable price.

Magnus Lundh, Madrid, Spain

Let me straighten out a couple of things here before suggesting alternative speakers. Firstly, deep bass isn't solely a product of the loudspeaker: the CD player and the amplifier, not to mention things like equipment supports and cables, all influence the quantity and quality of a system's low-end.

I would suggest you look at speakers costing no more than £500. There are plenty of interesting designs you can try that won't unbalance your system, including the Cyrus 751, Rega ELA II and Origin Live OL-2A.

Rega's ELA II should prove the better of a vintage AR in most respects.



◀ Attention please

My system currently comprises the following: NAD 3240PE integrated amplifier, Aura CD100 compact disc player, Marantz DCC (hardly used! Ah, well... someone had to buy one), KEF Q30 loudspeakers and Cable Talk 3 loudspeaker cable. It seems time for a system upgrade and it's probably the turn of the amplifier to become homeless. The budget is approximately £900, although there is potential for more.

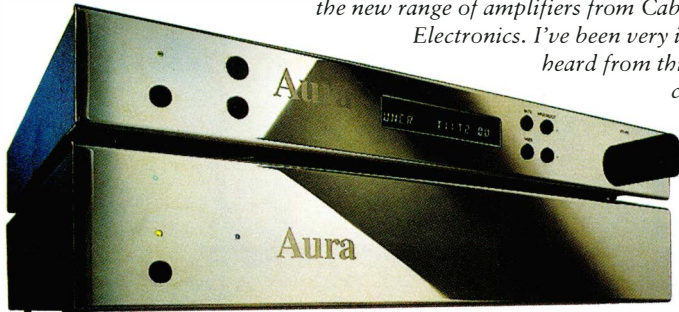
I am looking for something that will grab my attention, particularly with acoustic and classical pieces, but not a sound that will render me stone deaf. I prefer minimalism to gadgets, want a clear, open and detailed sound and don't mind whether the amplifier is integrated or a pre/power combination.

Simon Tonks, Nottingham

Aura's CA200/PA100 pre/power combo shines brightly.

You could check out Aura's CA200/PA100 pre/power combination which did so well in our April issue. It will match your CD player visually and sonically. You might also like to try the new range of amplifiers from Cable Talk's offshoot, Talk Electronics. I've been very impressed with what I've heard from this new range of musically communicative designs.

If you decide to go with a pre/power combination but can't afford to buy one in a single hit, buy the preamplifier first and use it with the power amp stage of your NAD until you have funds for a power amplifier.



One man's meat...

I realise you can't test all models, but what is the best CD player under £2,000 that has all the usual virtues, with a 'non-electronic' sound? Is it really worth spending over £400? I have an EAR 859 and Audio Note speakers.

Nick Miller-Jones, Manchester

There really is no answer to your first question: one man's meat and all that. For instance, I tend to prefer the players from Naim Audio and Micromega's ranges because they play tunes in the bass properly, which many machines don't. Others prefer the accuracy of the Acoustic Precision Eikos or Marantz CD-17 KI Signature. Go listen to what's around is the best advice I can give you.

I can be a whole lot more decisive about whether spending over £400 is worthwhile. The answer, if you're serious about your music, is an unequivocal yes, yes and thrice yes. You'll believe when you've listened!

**HINTS AND TIPS
NURSE, THE SCREENS!**

Jimmy Hughes reveals another novel tweak.

You should have been there. Friday the 21st of March; a New Ash Green hi-fi club meeting with Pink Triangle. But late that afternoon PT's Arthur Koubassarian rang to say he had car trouble and would have to pull out. So alas, we all arrived to find our star attraction had cancelled...

Luckily it just so happened I'd been experimenting with something simple that had greatly improved my sound at home. The club member hosting the meeting uses his Impulse H6 speakers reversed JMH style, so I was able to show how two bits of wood can transform your hi-fi, and the evening was spent listening to the effects produced by my audio screens.

Each screen needs to be about 45-60cms wide and at least as high as the top of the speaker. You set the screens up between and fairly close to the two speakers, angling them inwards. The result? Increased focus and clarity, plus greatly enhanced dynamic shading and tonal colour.

All in all there were a dozen or so people present that night, and it was a bit of a rowdy evening with much laughing and leg-pulling. Yet it was notable to see everyone fall silent when a track that began with a quiet acoustic guitar was played.

The sound wasn't loud, but it had presence and an incredible range of tone colour and dynamic shading. It was so good, it almost sounded as if someone were playing live over in the left corner of the room. Within a couple of seconds the room was silent; everyone was concentrating on the music.

If you recall my Silence is Golden article (issue 165), you'll know how significant it is to get a group of guys sitting quietly and listening

attentively. Within the club, musical tastes vary widely, and doubtless some would've preferred to have heard something else. But when a system almost sounds real it holds the attention and interest.

I took the screens away and the guitar seemed to lose its focus and presence. The sound was still good, but it didn't hold the attention as it had before; it no longer sounded as real. The change was big. Yet the system itself had not been changed in the slightest.

Trouble is, I'm not sure how to use the screens with a conventional set of forward-firing speakers. So it's possible this article has almost no relevance for the majority of those reading it. But what if it inspires you to actually try reversed speakers and audio screens...

Getting good sound is too often seen as something equipment based; if it doesn't sound right, buy a new amp or replace the speakers. Yet it's my firm belief that in many cases what determines a good or bad result is the way the sound is presented to the ear, not its absolute quality.

Why not try it? What have you got to lose? If it works for you the result will almost be beyond value...



Small is



The hi-fi's on the floor, the chair's on the wall, the tapes are in the ceiling... er... or is it the other way round?

beautiful

Richard Black pays homage to a Lilliputian listening room that proves you don't need massive space to make great sound.

At the beginning of our conversation, this month's Inspirer made an interesting request. "Please, don't refer to 'hi-fi'. Fidelity to what? It's all too arbitrary. I prefer to call it 'stereo' which comes, after all, from the Greek word 'steros' meaning solid. A solid impression; that's what I'm trying to create in sound".

It's a provocative point of view, maybe, but one not without justification, as I was to find out. Our host, whom we shall call K ("I'd rather some of the folks round here didn't know what I've got in this room"), was on the road with rock bands in earlier years and loves attending live music events, preferably unamplified. Failing that, he has recourse to an exceptionally finely-honed system in one of the smallest rooms ever to house serious sound equipment, which merits being featured not least on the grounds of illustrating just what can be achieved, with care and imagination, in a limited space.

K had a cheap'n'cheerful sound system in his teens, and progressed in mid-'20s to his first real stereo, consisting of a Garrard record deck, Metrosound amp and Wharfedale speakers, purchased second hand. "After a year or two I just didn't find it satisfying any more. I started fiddling around, trying to improve it, though really I hadn't a clue what I was doing. But I felt suf-

ficiently intrigued by the whole thing to go to college and take an HND in electronic engineering. It didn't actually teach me much about audio! So I taught myself slowly from books, and by experience."

For a while, K experimented with his stereo without necessarily getting true satisfaction; "I fell into the common trap of assuming that any change I made to the sound must be an improvement. Of course, you soon start going round in circles and I just felt I wasn't getting anywhere."

Amplifiers in particular came and went, including some fairly early Audio Research and a MOSFET amplifier built from a Maplin kit. "I didn't like it much but it's still working in a friend's system!"



This system sports three Nakamichi cassette decks, a Sony Elcaset machine, and myriad tapes of albums and radio broadcasts. ▶▶

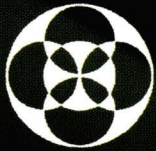
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◀ Back to basics

The change came when K realised that he needed to get back to the real thing, so he started frequenting live jazz gigs. "This made me realise the exact directions in which I needed to improve my stereo, and at last I began to find components which satisfied me once I'd tweaked them."

Tweaking in fact turns out to be K's forte, as it transpires that virtually every piece of equipment in his setup has had some modifications done. "The EAR 519 power amps I won't go inside. I can't find anything to criticise! But most of the equipment has had at least replacement connectors fitted, and in some cases a lot more than that."

Shoehorned into the tiny, ten-by-six-foot room, the system starts with a Garrard 401 record deck, with Syrnix arm and Decca London Super Gold cartridge. Power to the deck is from a synthesised supply, and fairly comprehensive mechanical modifications range from various damping materials glued under the chassis, to a Townshend front-end damping trough (as used on the various *Rock* decks). As with the rest of the equipment, the deck is isolated from the environment by a carefully selected cocktail of spikes, absorbent materials (Sorbothane and similar) and suspension devices, in this case industrial isolation feet, balanced up with pieces of lead sheet. The deck's platter is topped with a thin Perspex mat. Ingeniously, the arm is mounted at what should normally be the rear left of the deck, to make room for the trough at rear right; otherwise, the trough would have fouled the 401's controls.

CDs spin on a Pioneer PD-75, largely standard but with uprated op-amps and output connectors. "I'm still not happy with digital sources," says K, "but this sounds more bearable than most. I'm convinced we can respond to frequencies above 20kHz; why else, for instance, should I have suffered ringing in the ears for some time after being in a room containing an ultrasonic cleaning tank?" The other main source is radio, picked up by a Scott LT-10 of early '60s vintage, and decoded into stereo by an EAR decoder mounted directly on the tuner. An external four-element aerial is mounted 20 feet above the roof and provides ample signal for the Scott's surprisingly sensitive input stage.

He's got it taped

One striking feature of K's listening room is the vast acreage of cassette boxes adorning one wall. These feature not only radio broadcasts of interest but also 'safety copies' of many albums from K's substantial LP collection. He must be one of cassette's greatest fans, possessing no less than three decks, all three-head Nakamichi models. "I bought the Cassette Deck One several years ago, shortly after it came out, and realised just how useful a true high-quality machine with



Above: Spendor SP3s suspended from the ceiling on chain; Left: Garrard 401 record deck with Syrnix arm and Decca London Super Gold cartridge; Below: a spike cocktail.

adjustable azimuth was for replaying tapes, some of them made on rather iffy equipment. Then I picked up a second-hand Dragon, which after all has the reputation of being one of the finest cassette decks ever made. In fact I was rather disappointed by it at first, even after having it serviced, but little by little I tweaked it until now I feel it does a spectacular job."

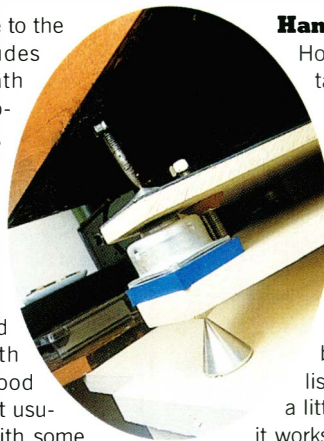
The list of changes made to the Dragon is long and includes replacing all the audio-path capacitors and all the op-amps with audiophile types, adding a minute, low-noise cooling fan and fitting a switch to defeat the deck's unique auto-azimuth system, which uses a split replay head to track the azimuth of the recording and correct for it. "In fact with tapes recorded on a good machine this system doesn't usually operate anyway, but with some pre-recorded tapes it will start 'hunting' in the middle of a track, which I find more annoying than the slight azimuth error in the first place." The third cassette deck is a rather older Nakamichi, the 700ZXL; "The transport I think is better than on the Dragon, but the electronics just aren't up to the same standard. Still, it's a fine machine." There's also a 'breathed-on' Sony EL-7 Elcaset machine, an unusual beast which comes in handy for off-air taping.

K's preamplifier is a custom valve design of which the most noticeable feature is that cables plug in from the top rather than the rear, something very useful to the tweeker

who may do a lot of plugging and unplugging! Likewise, the power amplifier on temporary duty when I visited was a custom solid-state design feeding the speakers via a switchbox which can divert the signal to headphones — Beyer DT-911s, rewired of course — for late-night listening. "I found some enormous mercury-wetted relays to switch the signal, and they're very transparent." Cables are all custom made, and all interconnect cables have interference-busting ferrites fitted. Mains cables are in fact sold as interconnects by Silver Sounds, and are literally 'plumbed in' — enclosed in 15mm copper pipe, for screening purposes.

Hangin' tough

How do you get a decent distance away from the speakers in such a small room? You hang 'em from the ceiling! A pair of Spendor SP3s dangle a few inches below the ceiling on lengths of chain, angled to point at the 'hot seat' (it's distinctly a one-listener room). This at once gives the greatest separation between each speaker and the listener and although at first it's a little disconcerting I have to say it works very well. In fact, 'solid' is a good word for the images it creates with decent source material. We listened to radio, CD and cassette and I was impressed by all three, especially cassette — a highly-tweaked Dragon using Sony Super Metal Master tape is a long way from the format's humble origins. And I never felt claustrophobic, as can happen in small rooms with unsympathetically assembled systems. Instead, walls and ceiling clearly fell away and images seemed to extend considerably beyond the room's confines. Earth-shaking bass? No; but there's not much else to criticise and I hope this system may give some ideas to others with space problems! ▲



TAPE

DIRECT

GIVE IT A BOOST

Alvin Gold (listening test) and Paul Miller (lab test)

rate five budget amps with big ambitions!

Hi-Fi Choice's group tests are a cut above the rest. Our regular big group tests tell you not only the best products at a given price, but also how less expensive components compare with their more exalted siblings.

However, from time to time it is also valuable to focus tightly on smaller, more closely-matched groups, to find out the definitive performers, for example, in the budget sector, from which the five amplifiers tested here are drawn.

The least expensive candidate commands serious attention for its superior component quality and other attributes; the dearest costs only £250, and is the entry-level offering in its maker's range.

Depending on how you define the term 'audiophile design', three, maybe four of the group are cast avowedly in this mould. The classic definition used to be an amplifier that subjugated features and facilities, even power output, in favour of maximum information retrieval and sound quality. In practice even an apparently objective attribute like 'information retrieval' is largely in the ears of the beholder. Moreover with added features, a product can appeal to a wider audience and be manufactured at a lower unit cost.

For example three of our test samples have infra-red remote control, which once upon a time would have been frowned upon because of its consequent potential for unwanted electrical noise and its need for a separate power supply. In this test one of the remote-equipped models is the Marantz, the most exuberantly audiophile model of

THE CAST LIST

AMC 3050a	£169.95
Arcam Alpha 7	£249.90
Cambridge Audio A3i	£199.95
Denon PMA-425R	£229.99
Marantz PM-66SE	£229.90

them all. It lacks tone controls, loudness or any other such trifles, but obviously remote-control is no longer such a stigma.

The PMA-425R from Denon was origi-

nally intended as a more richly specified alternative to the brand's more purist amplifiers such as the PMA-250SE; but in the widget department of this contest it is equalled, if not beaten, by some of the more specialist machinery, notably the £170 AMC. The Denon also acts as a quality marker in its own right. The obvious question is whether that rather nebulous term 'audiophile engineering' really makes any huge difference at the end of the day. The answer would appear to be yes, but to find out more you'll have to read the test!

HOW THE TESTS WERE DONE

Our test procedures include physical examination and functional testing; protracted hands-on listening by the author; and a listening test conducted by a panel of listeners who heard each amplifier more than once, as part of a random sequence, without at any time knowing which unit was playing. The volume level of each amplifier was standardised using test tones. Each amp underwent a rigorous programme of measured evaluation in Paul Miller's laboratory.

The listening panel chose the Castle Avon loudspeaker for use during the unsighted listening. This is a medium-sized but nominally full-bandwidth floorstanding column speaker, with a relatively benign impedance curve and excellent all-round performance. Normally one would expect to partner it with more exalted amplification, so it was sure to sort the men from the boys among our test candidates.

Cables were from Nordost (Flatline Gold) and Ixos (103), and the all-important equipment supports were from Mana Acoustics.

During the 'sighted', hands-on listening tests the amps were hooked up to more representative components including the Myriad MC 100 CD player and Tannoy Mercury M2 speakers.

WHAT MUSIC DID WE USE?

Alison Krauss: *I Will from Now That I've Found You*; on Rounder CD0325.

Johannes Brahms: *Clarinet Quintet in B min.* Op. 115.

Anthony Michaelson, clarinet; Adrian Levine, Colin Callow violins; Jeremy Williams, viola; Robert Bailey, cello; pre-release CD.

Rautavarra: *Isle of Bliss.*

Helsinki Philharmonic Orchestra/Leif Segerstam (cond.) on Ondine

(Taken from *Gramophone* Editor's Choice cover disc, April '97 issue).

Janis Ian: *All Roads to the River from Breaking Silence*; on Polydor 519 614-2

THE LISTENING PANEL

Our unsighted listening tests were conducted by a team of 'golden ears' drawn from the ranks of the hi-fi industry.

We extend our thanks to:

David Inman

(The Audio Marketing Department)

Guy Sargeant (JPW)

Keith Haddock (Gamepath)

Gareth Thomas (Suttons of Bournemouth)



AMC 3050A

Though the casework is not grey and the knobs are original, it is hard to exorcise the ghost of NAD from this amp. AMC is made in the same factory as many NAD products, but a number of factors distinguish the two marques. For example toroidal transformers are not, to the best of my knowledge, used widely in budget NAD amplifiers, and the same is true of the blanked-off, high-quality, gold-plated speaker terminals, which have a side entry for 4mm plugs.

There are only three line inputs, a tape loop and an MM/MC phono input, plus bypassable tone controls and a mute button. The remote-control source selector is a motorised knob which feels quite strange when operated manually. The preamp output and power amp inputs are fitted with external removable U links, allowing you to use a separate preamp, power amp or signal processor.

AMC's power specifications claim a 45 Watts power rating, or 80 Watts into four Ohms. Allegedly the circuit is protected only by fuses in the power supply. Line input impedance is claimed to be fairly low, which could be a problem for CD players or cassette decks with high output impedances; also it could limit the length of interconnect cable that can be used between the amp and its sources. The simple remote control handset operates the volume control and source selectors.

Sound quality

This amplifier elicited an almost unanimous response from the panel, though I had my reservations. We found common ground in the nature of the 3050a's sound, which was "big, easy and generous" (Alison Krauss) and "pretty good — balanced, confident and easy listening". That conjures up depressing images of Radio 2 at its most soporific, but I'm not sure that's the image the writer intended; perhaps the most telling remarks were made about the Rautavarra orchestral piece, which was summed up by one listener as follows: "Complex orchestral sounds are even more complex with this amp. It is not particularly clean or light, and it can get a little confused".

The problem as I hear it is that the 3050a is not particularly explicit and can sound muddled. The notes in a Mozart piano concerto recording (No. 25, Richard Goode, Orpheus Chamber Orchestra on Nonesuch) tumbled over one another with little evidence of order or discipline. The piano tone was woody, lacking image depth and harmonic complexity. The bass is billed in my notes as warm, soggy and plummy. Even the promised bags of power aren't quite as they seem, since the sound simply gets soggy and flatter at high volume levels. However, though it loses momentum as it goes louder, it never descends into hardness or aggression. In fact the amp actually seems to deliver a couple of decibels less than some of the others before musical deterioration sets in. All comments apply to the sound with the tone controls bypassed; this gives by far the best results.

Conclusion

The 3050a is a crisply-styled, svelte amplifier, but it lacks true grit. However it costs only £170, and provides a remarkable amount of engineering for this price.

Recommended for systems that require a smooth, easy-listening amplifier that is also inexpensive. **AG**

THE LAB REPORT: AMC

According to AMC's literature, the 3050a is simply a remote-controlled version of the 3050 reviewed in issue 154. In practice, however, its technical performance has benefitted from some marked improvements over the last year. Specifically, its S/N ratio has risen from 81.6dB to 90.7dB (re. 1W/80hm); while a pair of well-defined second and third harmonics now account for the bulk of its 0.01 per cent distortion. This figure remains impressively consistent right across the audioband, and over at least 70 per cent of its dynamic range. This will be a boon to sound quality. Importantly, the pattern of *intermodulation* distortion is equally consistent in both type and level, again in contrast with the original 3050.

The amplifier's middling 66W output is still reinforced by a substantial 19.9A of current, equivalent to bursts of 396W into loads as low as 1 Ohm. Alvin's subjective remarks, however, are most probably linked to the amplifier's slightly high 0.110hm output impedance which, depending on the speaker and its cables, could well be sufficient to de-focus the strongest bass. Otherwise, the 3050a represents a significant upgrade, remote or not, on the manual 3050. *PMI*

1	DYNAMIC POWER OUTPUT	-10%
2	SPEAKER LOAD TOLERANCE	20%
3	AUDIBLE DISTORTION	85%
4	NOISE	44%
5	SUSCEPTIBILITY TO RFI	30%

AMC 3050A - VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £169.95

▲ Sound isn't great, but you get a genuine £200-or-more's worth for just £170.
 ▼ Rather slack in frequency extremes; is as notable for what it doesn't say as for what it does say.

✉ Tangent Acoustics UK, 115 New London Road, Chelmsford, Essex CM2 0QT
 ☎ (0500) 828620



ARCAM ALPHA 7

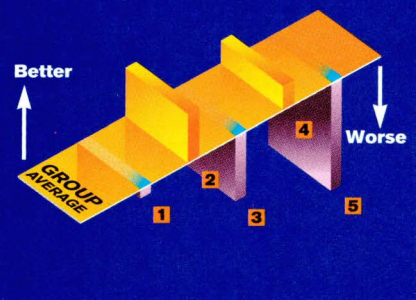
The Alpha 7 has replaced the Alpha 5 Plus as the entry-level 40 Watts per channel model in the range. Like all of the latest Arcam models it has a soft, curvaceous and rather busy-looking box. Apparently circuits are little changed from those of the Alpha 5 Plus, though Arcam claims the main printed circuit board has been re-laid with 'some tweaks'. One addition is a pair of pre-amp level outputs, which allow Alpha 7 users to

THE LAB REPORT: ARCAM

Technically and subjectively, Arcam's Alpha 7 mirrors the performance of its predecessor, the Alpha 5+, reviewed in issue 149. Once again, the MOSFET power amp stage is protected by fast-acting muting relays rather than the fuses employed by older Arcam amplifiers, but this does not prevent the 7 from delivering a fearsome 433W 'clout' into loudspeaker loads as low as 1 Ohm. Not bad for a mere 40W amplifier, eh? Of course, Arcam is typically conservative in its specification, so the 7 will deliver closer to 60W into 8 Ohms and 100W into 4 Ohms before running out of steam.

The S/N ratio has improved by about 1dB over the 5+ but the bugbears of that earlier model remain to haunt the 7. Specifically, the Alpha 7 remains moderately susceptible to RF interference, while more importantly its pattern of distortion varies wildly with power output and frequency. By all accounts Arcam's Alpha 7 is still a trifle under-biased, suffering an increase in distortion from a very low 0.0018 per cent at mid-power/mid-frequencies to 0.18 per cent at low power (1W/80hm)/high frequencies — a factor of 1,000 that is likely to exact some sonic penalty. *PMi*

1	DYNAMIC POWER OUTPUT	-5%
2	SPEAKER LOAD TOLERANCE	35%
3	AUDIBLE DISTORTION	-45%
4	NOISE	17%
5	SUSCEPTIBILITY TO RFI	-75%



bi-amplify their speakers with the addition of, say, Arcam's Alpha 8P power amp.

Like all Arcam amps, the Alpha 7 has a well-filled front panel, though its facilities are broadly in line with those of the other models, Marantz excepted. There are bypassable tone controls, and two pairs of speaker terminals of which the second pair may be switched on and off. Completing the package are a balance control, a tape monitor switch and a headphone socket. There is the generous provision of five line inputs available, and a single tape loop. A two-colour LED indicates power status.

Alone among its competitors here the Arcam accepts the new 6mm Camcon loudspeaker plug (a joint development between Arcam and Deltron Components Ltd, as previewed in *Update!*, *Choice* 164). This satisfies the new EU safety standard that effectively bans the traditional 4mm 'banana-plug' connector. The Camcon plug accepts spade terminals and cable up to 10 swg.

Unlike its close-relation, the somewhat more powerful Arcam Alpha 8, the Alpha 7 sports a phono input that cannot switch to line operation. There is no remote control, and less support for upgrade options such as the ability to drive two power-amp channels from a single input channel.

Sound quality

Certain persistent themes recurred during the panel listening tests. There was a consistent set of scores and comments from all but one listener, who gave different scores to the repeat, though the tone of his comments was similar in both instances. One listener even managed to match the repeat to the original presentation correctly.

In general the panel felt the Alpha 7 was a smooth yet analytical amplifier, not very expressive or dynamic, and lacking the euphonic warmth of some of its competitors — but very revealing of source material. "Very controlled and dry midrange", commented one listener of the Rautavarra piece, which presented by far the stiffest challenge to all five amplifiers. Another described the piece as "generally flat", though the same listener's sum-up comments described the Arcam as "very musical and enjoyable".

Another remarked that "the dry attack and focus (of this amplifier) may prove very attractive to some, but I'll take the lushness of (the preceding model)". Persistent comments of dryness, less often of thinness, peppered the score sheets.

Hands-on testing confirmed these general points. The sound does become a little gritty at higher volume levels (higher than those the panel was subjected to), but within its limits the Alpha 7 has plenty of vitality and stereo precision, though the depth plane tended to concertina. Even so, it presented sound that was accurately and explicitly layered in a manner that eluded some of the others.

System matching is a particular issue with this amplifier, which was generally happier with compact to medium-sized speakers of moderate sensitivity — say 89dB/W or higher — given an average size room. It lacked the grip to deal effectively with a large, bass-heavy loudspeaker, but the Alpha 7 was never designed for such situations. Oh yes — make sure to use the 'direct' switch for critical listening, which adds tonal variety, bass depth and focus, which are missing when the tone controls are in circuit.

Conclusion

This is an assured, disciplined and articulate amplifier, but it needs careful system matching if its limited internal resources are not to be overextended. There were occasional complaints of a loose feel in the bass, and of a certain pervading 'greyness'. This amp can provide glimpses of the performance you'd expect from much more expensive fare, but it didn't always have the muscle to turn those good intentions into action. *AG*

ARCAM ALPHA 7 - VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £249.90

▲ Articulate, open and highly detailed; impresses for its musical and communicative qualities.
 ▼ Sometimes seems rather dessicated and dry; lacks authority.

✉ A&R Cambridge Ltd, Pembroke Avenue, Denny Industrial Centre, Waterbeach, Cambridge CB5 9PB
 ☎ (01223) 203203

CAMBRIDGE AUDIO A3i

The A3i, from Richer Sounds' manufacturing offshoot Audio Partnership plc, looks like a mildly modified version of its recent predecessors. It is a slim, if not particularly elegant amplifier, whose extruded alloy fascia has a matt-black finish. Its unusual oval control knobs (with blue position indicators) are laid out symmetrically either side of a large, central volume control. A couple of horizontal feature lines and a blue power LED are other cosmetic touches, but what really sets this unit apart is its weight. For the price this is one heavy mother.

Controls are fitted for bypassable tonal correction, balance, tape/source monitoring and input selection. The volume control is supplemented by both full and partial mute facilities, the latter offering 22dB of attenuation — the 'telephone switch' as it used to be called. The makers suggest that low-level listening using mute (which is labelled 'gain') allows better use of the volume control over its most linear region, and superior channel balance, though I felt the sound was slightly damped this way.

The A3i is not over-endowed. There are three line inputs, a single tape circuit (with monitoring) and a rather good MM phono input, which can be switched to line operation using a recessed control. Good-quality output terminals accept bare wires or 4mm plugs using side-entry holes, and are doubled for bi-wiring.

High-quality internal components include "the same output devices that Audiolab uses" (according to Audio

Partnership), glass-fibre circuit boards and an R-core power transformer. Equipment levels, however, are nothing special. This is the only amplifier of the five with no headphone socket.

Sound quality

The A3i ranked as a straight excellent in our tests. This is clearly a very accomplished newcomer, and as one panel member pointed out, it is "a bigger, grander and much more ambitious model than most of the rest." "A brassy sound — plenty of punch if slightly unrefined" said another of the Allison Krauss track, following up in the Rautavarra by pointing out the "clear separation of instruments, the excellent timing and rhythm, and the ease with which the complexities of the piece are unravelled without pulling the sound to pieces". Another wrote of a "lovely nutty viola", and of "well-differentiated strings, and the full-bodied clarinet (whose) harmonic structure was preserved" in the Brahms. A third commented on the "rich variety of tonal colours and dynamic contrasts" in the Brahms, and of the "tidy, pure and immediate" Rautavarra.

I was as impressed as the panel by the A3i's vivid and dynamic demeanour. It could certainly become fatiguing in the wrong surroundings, and the partnering equipment should be chosen with a great deal of care. This does not mean choosing dull speakers which would simply neutralise one of the A3i's great assets. I particularly admired the bright, ringing quality of a recorded Steinway: my listening notes talk of "vivid, somewhat brash colours and liquid, expansive textures". This is a truly dynamic amplifier in every sense, and one that goes quite loud, very securely, with no change of timbre as it reaches the limit. It offers more grip and definition than the others, and notably good, confident timing.

Conclusion

The Cambridge Audio A3i stands tall. It could offend in the wrong system, but sings

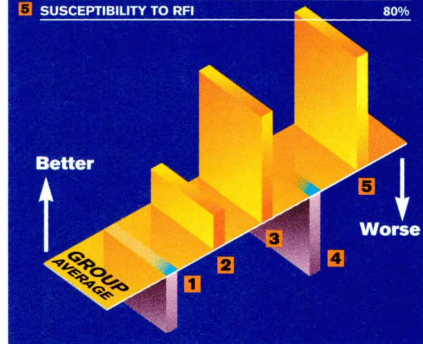
songs with a good outfit, and could be described as a 'maximum information' design. This may sound like a cliché, but it is nothing less than the truth to say that this amplifier brought the music to life. If you don't like your music al dente, you can of course apply elsewhere. **AG**

THE LAB REPORT: CAMBRIDGE

All the amplifiers in this mini-test are remarkably tolerant of difficult speakers, so though the Cambridge tots-up 25 per cent on the bargraph, its score against the 'average' £200 amplifier would be closer to 90 per cent. In practice it will deliver 60W into 8 Ohms and bursts of up to 360W into the trickiest 1 Ohm loads. With its fabulously low 0.034 Ohm output impedance and virtual immunity to the ravages of RF interference, the A3i should give a grand account of itself with almost any CD player/speaker combination.

The consistency of distortion versus power output and frequency (maximum variation is 0.0018-0.018 per cent) also bodes well for sound quality while the relatively high 425mV input sensitivity will maximise the range of the volume control while minimising the overall gain of the amplifier. The S/N ratio is some 10dB behind others in this test at 81dB/1W/8 Ohm, but even here the figure is still more than acceptable and composed of 'white' noise rather than intrusive hum. A similar sort of 'inaudible noise' lends many valve amplifiers a favourable subjective impression, I might add. *PMI*

1	DYNAMIC POWER OUTPUT	-40%
2	SPEAKER LOAD TOLERANCE	25%
3	AUDIBLE DISTORTION	75%
4	NOISE	-55%
5	SUSCEPTIBILITY TO RFI	80%



CAMBRIDGE AUDIO A3i - VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £199.95

- ▲ Vivid, holographically clear and dynamic; exceptional value.
- ▼ Occasionally unrefined; somewhat lacking in soundstage depth.

✉ Audio Partnership plc, Gallery Court, Hankey Place, London SE1 4BB
 ☎ (0171) 586 5977



DENON

PRECISION AUDIO COMPONENT/INTEGRATED STEREO AMPLIFIER PMA-425R

VOLUME

REMOTE SENSOR

MUTE/STANDBY

POWER

ON/STANDBY OFF

PHONES

SPEAKERS

A B

ON OFF

SOURCE DIRECT

ON OFF

DAT/TAPE 2 COPY OUTPUT 1 ALC TONE 1 2 3 4 5 6 7 8 9 10

BALANCE BASS TREBLE

PHONO

HEADPHONE

DENON PMA-425R

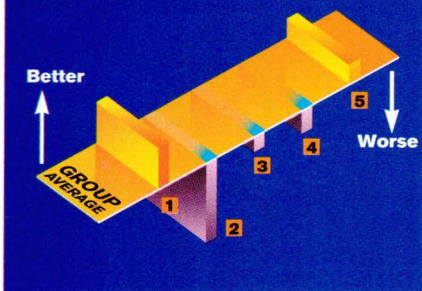
There is some history here. The PMA-425R was introduced several years ago as a counterweight to the prevailing hair-shirt amplifiers available from all manner of brands. It

THE LAB REPORT: DENON

For what is ostensibly a somewhat less specialist, remote-controlled amplifier, the PMA-425R still puts up a good fight. Sure enough, its tolerance of tricky loudspeakers (see *Oasis*, issue 166) may lag behind that of the other amplifiers in our test, but then that particular quartet are *unusually* robust at this price point. In this light, the 74W/8 Ohm performance of the PMA-425R is more than adequately reinforced by a healthy 17.7A reserve of current. Once again, in more 'average' company, the bargraph indicating its tolerance of different loudspeakers would have been firmly positive.

Otherwise, everything else about the PMA-425R is straight down the line: no nasty shocks or surprises, just a straightforward 85.5dB S/N ratio, an 11V overload margin to cope with the highest output of any CD player and a very high 83kOhm input impedance to ensure those aforementioned players are placed under minimal duress (unlike Cambridge's 11kOhm and Arcam's 14kOhm loading, I might add). Add to this its fine channel balance and near-zero DC offset and you've a recipe for broad compatibility, if not sonic fireworks. *PMI*

1	DYNAMIC POWER OUTPUT	30%
2	SPEAKER LOAD TOLERANCE	-56%
3	AUDIBLE DISTORTION	-10%
4	NOISE	-15%
5	SUSCEPTIBILITY TO RFI	14%



was presented as a respectable but not audiophile amplifier for those willing to trade a little sound quality for added features, notably remote control, but also tone controls, switching for two pairs of speakers, even a loudness contour (progressively increasing bass and treble boost as the volume is reduced) in the form of a continuously variable control. Ironically many competitors have since undermined the PMA-425R's raison d'être by introducing remote control and most of the other value-added features that distinguished the PMA-425R, but here it remains.

The nuts and bolts are as follows: power output is claimed to be 45 Watts per channel, about average at this price. There are inputs for phono (moving magnet), three line-level components and two tape decks, though surprisingly off-tape monitoring is not available on either circuit. The control layout is particularly clear and friendly, with plenty of LEDs to liven up proceedings, though aesthetically the amp looks a little old fashioned, and the plastic fascia cheapens its appearance. The remote control is a full system type that handles just volume, source-selection and muting.

There are outputs available for a pair of headphones and two pairs of independently-switchable loudspeakers, and you can use 4mm plugs if you remove the EC-specified push-in pegs first. Mechanically the amp is simple, though its case is thin and rattly and there is little evidence of much money having been expended inside.

Sound quality

There were no strong criticisms of this amp's sound. The panel seemed happy that it gave an acceptable, even enjoyable account of the music; that it is a fundamentally accurate design that favours no part of the frequency spectrum over the rest.

At the same time, the panel felt the sound was a little 'transistory', and lacking the organic qualities that mark out the really

great models. The "soft and unresponsive" bass and the "lack of intelligibility" with vocals were typical comments following the Alison Krauss. One listener went on to describe the Brahms as "less sophisticated [than the previous amp] and slightly two-dimensional". The Rautavarra was described by another as having "some granularity", though the quiet string passage near the end of the extract was praised. A third said the Denon "lacked warmth and colour" in the Brahms strings and clarinet; in fact the strings can sound a little bright in this non-commercial recording, though the clarinet is rich and opulent in tone. On the Allison Krauss track the same panellist felt the music sounded "smaller and less substantial" than the preceding amp, and that it was "lacking clarity and vigour".

There's little to add from my own observations: the most critical comments refer to the relative lack of "spark" that can distinguish the best products at this price; though the warm, open balance was a plus point.

Conclusion

In one sense this amplifier has passed its sell-by date, and its rather rattly construction only serves to reinforce this conclusion. Also this unit's performance underlines the benefits available from the more 'audiophile' designs among the other amps on test. At the same time, however, the PMA-425R did not disgrace itself on audition. It's a competent, safe all-rounder, even if it won't set the world on fire. *AG*

DENON PMA-425R- VERDICT

SOUND ★★★★★

VALUE ★★★★★

PRICE £229.99

- ▲ Slightly ragged sound; yet on the whole still enjoyable and well equipped.
- ▼ Compared to latest models, past its sell-by date.

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

MARANTZ PM-66SE

Marantz's 'SE' suffix indicates a model which has been enhanced to provide 'audiophile' quality at a still-affordable price. In fact, there was never a straight PM-66, but the PM-66SE is easily the tallest and most bulky of the five contenders here, though its front panel still offers only basic facilities. 'Source direct' claims to shorten the signal path by applying the juice directly to the volume control, bypassing the tape-monitor switch and balance control. The instructions suggest that the signal also bypasses a mono switch, but curiously there isn't one. You do get a headphone socket, though.

Inputs are available for a record player (moving magnet only), three line sources and two tape decks. One of the latter supports off-tape monitoring, and there is a tape-dubbing feature thrown in for good measure. The amp can be plumbed into Marantz-branded systems using system-control sockets, which is when the supplied full-system handset comes into its own. It only works volume and muting on the amp.

With a claimed 50 Watts available per channel, this amplifier allegedly has the top-quality internal components that the SE suffix implies, and Marantz reckons the layout of the '66SE's circuits has been optimised to give the best possible stereo imagery. Non-indicating push buttons can lead to some confusion about the operating status of the amp unless you look carefully, but this is a minor issue.

Sound quality

The PM-66SE was auditioned twice during the panel listening sessions. It was the first amp of the day and consequently was presented to the panel immediately after the £1,100 Copland CSA-14 that I used to set up the system. Inevitably, it suffered by comparison and the panel members marked it down. On the second occasion, in sequence with other members of the test group, it achieved a much higher score, but on both occasions similar comments were recorded: "slightly boxy and forward, with a bit too much presence" (Allison Krauss); and as having a "full, extended bass and some loss of detail" (Janis Ian). At the same time, it drew plaudits such as "smooth" and "commands attention... fine percussive detail" (Rautavarra) and "good timing" (Janis Ian).

The Rautavarra orchestral piece incited the most clear-cut reservations. As one listener put it, this complex and unusually densely scored music was "not quite unravelled". Overall, however, this is a solid performer: "very communicative" as one pointed out, "it draws you into the music". Another panellist wrote that the PM-66SE was impressive with the tom-toms and plucking sounds in the Janis Ian track, and that the bass sounded "full and well extended, if a bit lumpy". My own hands-on listening with various speakers came to very similar conclusions. This is a gentle, relaxed and colourful amplifier, spacious in presentation if not especially weighty. When pressed hard it veers towards harshness, and it lacks the precision and dynamics of some. At the same time, however, there is an undeniable rightness about this amplifier. It succeeds in making music credible, and does so in style.

Conclusion

The Marantz PM-66SE favours euphony over definition when push comes to shove, but it allows vocals ample room to breathe,

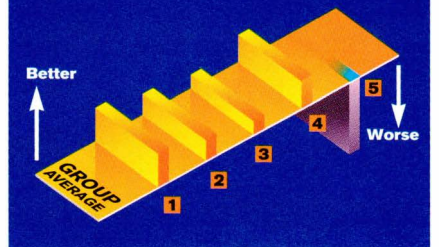
and the smooth, spacious sound quality is always at the service of the music. Things harden up noticeably at high volume levels, but this is a musically pleasing amp at an affordable price. It appears particularly well suited to the limitations of typical budget CD players and speakers, especially those that can sound edgy or bright. Next month, we'll review the new 'K.I. Signature' version. AG

THE LAB REPORT: MARANTZ

The PM-66SE behaves like a slightly beefier PM-55SE (last reviewed in issue 149), offering 69W into 8 Ohm and 105W into 4 Ohm by comparison with its forbear's 56W/92W respectively. The amplifier's dynamic output has increased from 71W to a more useful 97W while its handling of difficult speakers is bolstered by a substantial 21.2A reserve of current.

The PM-66SE provides a slightly easier load to partnering CD players but is also more susceptible to any spurious RF noise they might produce. Otherwise it's a match for the PM-55SE with a small 1dB drop in S/N ratio (still fine at 88.4dB, re. 1W/8 Ohms), channel balance within 1dB over a 60dB range and a 63dB/20kHz separation which suggests no great change in selector technology and/or board layout. Once again, distortion is very low at 0.0016 per cent midband, increasing to 0.02 per cent at higher frequencies. *PMi*

1	DYNAMIC POWER OUTPUT	25%
2	SPEAKER LOAD TOLERANCE	15%
3	AUDIBLE DISTORTION	10%
4	NOISE	20%
5	SUSCEPTIBILITY TO RFI	-50%



MARANTZ PM-66SE - VERDICT

SOUND ★★★★★☆
VALUE ★★★★★☆
PRICE £229.90

▲ Open, spacious, warm, communicative sound; purposeful controls.
 ▼ Some loss of definition and dynamics; can sound forward and raw when pushed.

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



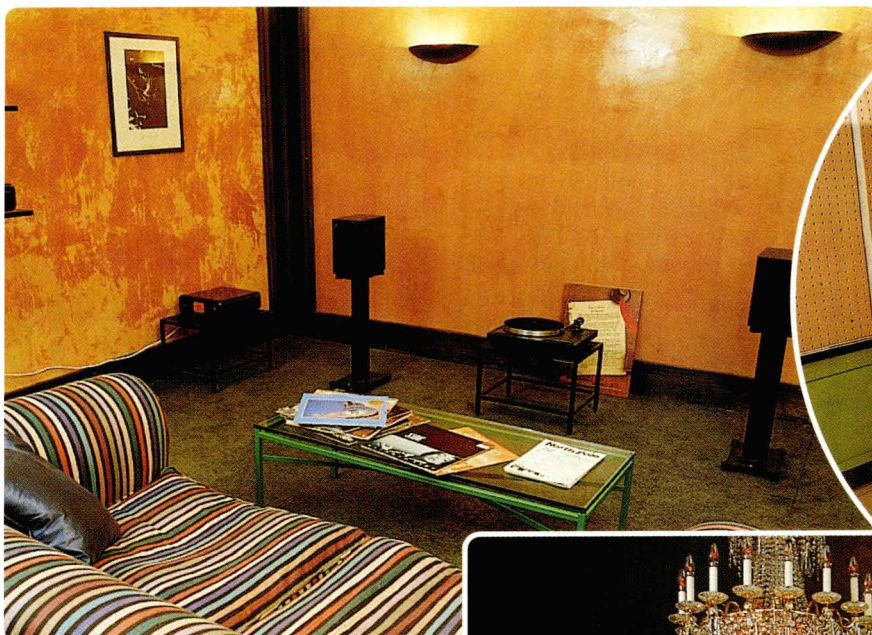
OVERALL CONCLUSION

The Arcam Alpha 7, one of the UK's top sellers, acquitted itself well as an articulate, if dry sounding amplifier that prefers fairly sensitive, smallish loudspeakers. The Marantz PM-66SE is a somewhat warmer, more generous sounding animal, but it lacks the Arcam's easy precision. Both outflank the Denon PMA-425R, an enjoyable enough refugee from a time when amplifiers were deemed to be either feature laden or stripped for action, but not both. It looks very well equipped, but musically is easily outclassed, though not disgraced by the others.

The star budget turn is the AMC 3050a, a perfectly respectable £200+ amp that happens to sell for £170. The unit that provides the real musical excitement however is the Cambridge Audio A3i. A great deal of work has clearly gone into bringing a highly articulate and finely detailed amplifier to this level of achievement. At £200, it is a steal.

Room Service

Worried that your listening room is affecting your sound? **David Lewis** explains what's going on, and advises you how to overcome acoustic gremlins.



I often think how lucky we are to have been born with two ears — otherwise, how would we ever indulge ourselves in stereo mania? Of course, the drawback of binaural hearing is that often it seems more like a poisoned chalice, as we sit in our listening rooms tinkering with bits and pieces in the ongoing search for audio nirvana.

Tales of audible differences in components, circuit topology and isolation plinths are what stoke the mighty furnaces of hi-fi. Some pundits suggest that we should rely on measurements; others encourage us to replace our capacitors in search of ever tauter bass and wider soundstages.

With such emphasis on the hardware, it is easy to overlook the rooms we listen in. Yet arguably, rooms are just as important to sound quality as hi-fi equipment. To appreciate the effect a room can have, step outside with someone and talk to them from around two to three metres. Go inside, talk again, and you'll see what I mean.



Above: one of the demonstration rooms at Graham's Hi-Fi in North London, where the challenge was to ameliorate the acoustic effects of a air-conditioning cross-wind. **Below:** Alastair Robertson-Aikman's stunning 36-foot 'Music Room', the back wall of which is a specially designed resonator (pictured right, behind Quad speaker and Krell amp).

Something in the air tonight...

While most people can visualise how a stream of water creates power, the idea of energy from an invisible medium can be quite baffling. Even to experts, acoustics is a complex subject, involving elaborate calculations accompanied by a certain amount of intuitive speculation.

In this article, I hope to simplify the subject by putting it in terms of the informed lay person. Most of all, I want to encourage you to believe in your own ears and remember that in this game there are no absolutes. Just listen to your system analytically. How does it sound? Spacious? Reverberant? Dry? Where does the sound come from?

The acoustic gremlins in our rooms are more than likely caused by a combination of factors, including reflections, resonance and, most importantly, room proportions. Let's look at these in turn.

Wailing walls

It is common knowledge that sound is reflected from a wall. But why do walls reflect sound at all? When a sound wave hits a wall boundary, it is actually reflected at full strength less whatever is either absorbed by the wall or transmitted through it. The harder and denser the wall, the more it will



reflect — those of you who sing in a tiled bathroom and sound like one of the Three Tenors will know what I mean.

Reflections are highly directional and cause images of the speaker to be formed from wall reflections. Unless controlled, these are likely to impair the clarity of the sound-stage. The reason for this is better illustrated by Diagram 2 (overleaf), which shows initial images of a single speaker produced outside the room boundaries by flat walls. Remember that these are the first of multiple images that will exist in reality.

When you consider what is happening with two speakers reflecting in all directions from the six room surfaces, you will see why reflections need to be controlled. Diagram 1 (below) shows a simplified version of what typically happens in your listening room.

The diffusion solution

The best way of dealing with reflections is by diffusion, when sound waves are randomly scattered by an uneven surface. When satisfactory diffusion is achieved, listeners should have the sensation of sound coming from all directions at equal strength.

Probably the most domestically acceptable solution is to use bookcases or shelves of records to provide the random surface. If

you don't have enough books or records, then get down to the local car boot sale and buy some more! Otherwise it could simply be a number of egg trays fixed to the walls.

Positioning of diffusion is critical and it should, ideally, be symmetrical along both side walls. Don't forget to put some diffusion behind the listening position to control primary reflections from the rear wall. The side diffusion should be positioned at the point where the 'reflection' of the speaker from the wall is seen from the listening seat. A mirror and friend can be useful, though generally I do this by eye, knowing that the sound wave reflects from the wall at equal angles between speaker and listening seat.

Homes and gardens

At this point, it is worth advising caution on the positioning of other furniture in your room. The average loudspeaker is capable of producing wavelengths of less than one inch and more than 30 feet. The longer (low frequency) waves will have little difficulty negotiating pieces of furniture projecting in front of the speaker. But this is not so with higher frequencies where sound can be diffracted by obstacles. It is crucial to avoid

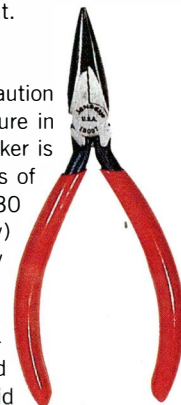
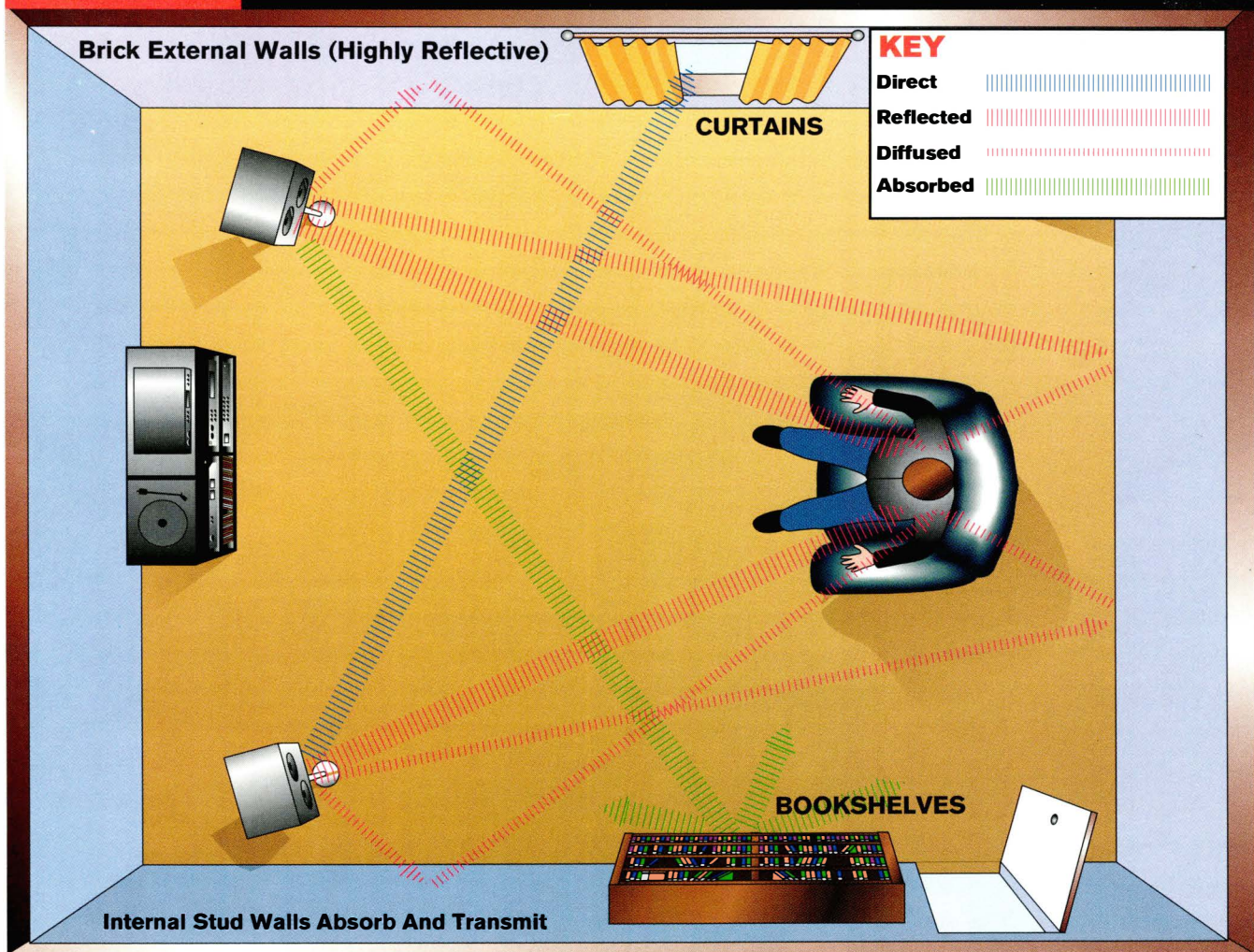


DIAGRAM 1 WHAT'S HAPPENING TO THE SOUND IN YOUR ROOM



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◀ positioning large objects where they might affect sound distribution from the speaker.

Remember too that it is important not to confuse diffusion with absorption created by curtains. Although hanging banners or drapes are often specified by acousticians to adjust the reverberation time in a concert hall, a smaller-scale domestic room presents a different challenge. A large area of curtain in a domestic room will have the effect of sucking out all mid and treble energy, leaving a dull and lifeless sound. Try Venetian or timber slatted blinds instead, which will give some diffusion but won't absorb.

This same principle applies to carpets and rugs. Any room with thick, fitted carpet and lots of curtains will make the sound even more lifeless. As with Venetian blinds, experiment if you can with thinner, open rugs such as rush matting or sisal to diffuse the sound rather than absorb it.

Having said all this, reflections can be useful, and some listeners (me, for example) prefer a room to be slightly 'live'. Ultimately it's a matter of personal preference, so as usual some experimentation may be required to achieve your preferred sound.

Rooms and resonance

The average domestic living room's dimensions are compatible with wavelengths at the lower end of the audible spectrum, typically between 70 and 140Hz. These frequencies are in the range where the room is most vulnerable. If music is played with notes whose wavelengths are twice a room's dimension, or any multiple thereof, resonant modes are formed that are likely to be the most troublesome of all acoustical problems associated with normal rooms.

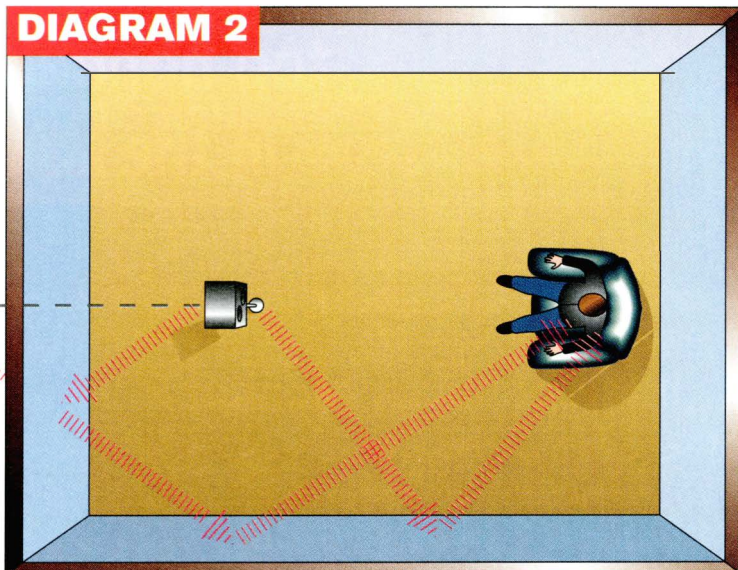
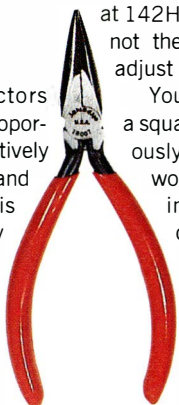
Sound waves travel at a fairly uniform speed of around 1,130 feet per second, so a pure tone (single frequency) of, say, 31.5Hz, has a wavelength of 1,130/31.5 or around 36 feet. If this tone is generated in a room whose length is half of this wavelength i.e 18 feet, the sound wave will be reflected back from the rear wall, less whatever is absorbed or transmitted, and will reach the other end at precisely the moment when the second tone is being generated, thereby reinforcing it and creating resonance.

Length/dimension resonances also occur at multiples of the first resonant frequency, and the same effect is occurring simultaneously in the two other room dimensions — width and height. Where resonances coincide in two or more dimensions, an unpleasant boominess will be heard.

Check your room

Arguably the most significant factors affecting resonance are the relative proportions of the room. A room check is relatively simple to do with a pocket calculator and tape measure. Needless to say, this should be top of the checklist for any audiophile intending to move house!

Assuming the room is basically rectangular, measure the room in all



From a single point source of sound, typical images created by wall reflections.

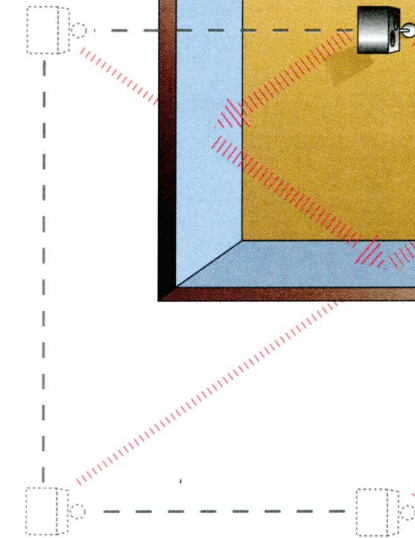


TABLE 1
ROOM 16' LONG x 12' WIDE x 8' HIGH

16'	12'	8'	Room Dimension
35.5Hz	47Hz	71Hz	First mode
71Hz	94Hz	142Hz	Second mode
106.5Hz	141Hz	213Hz	Third mode
142Hz	188Hz	284Hz	Fourth mode

dimensions — height, width and depth to main surfaces. Then make up your own table by dividing 1,130 by twice the room dimensions, as a starting point for the first mode, then at two times the first for the second, three times for the third and so on. This should give a fairly clear picture of the effect your room is having on the sound. There is little point going beyond the fourth mode as, by then, you are out of the danger zone.

As an example, I have taken a typical living room of 16 feet length, 12 feet width and eight feet height. Table 1 shows the results. What becomes apparent is that where resonances coincide in more than one direction, in whichever order, the result will be uneven bass response and unpleasant boom, in this case at around 71Hz and then at 142Hz. Please note that this is the room, not the system, that's at fault. Do not adjust your equipment!

You will correctly deduce from this that a square room will be resonant simultaneously in two directions and will sound worse. This would only be surpassed in awfulness by a room that is a cube. Thankfully, except for those in badly-converted Victorian houses, not many cuboid rooms exist.

Similarly, mechanical reso-

nances, such as those produced by speaker stands spiked to a timber floor, can create problems. In effect, a timber floor acts as a sounding board, amplifying cabinet resonances. Those with this sort of configuration may find the perceived increase in bass response an improvement but, in reality, the sound is being degenerated. This effect is much less of a problem with a concrete floor, so count yourself lucky if you have one.



How to improve your room

If you've taken note of the points mentioned earlier on the control of reflections, probably the simplest way to start improving your room is by optimising speaker placement. This is critical because resonant modes are excited most when speakers are placed close to boundaries; worse still in corners when, in effect, the corner turns into an uncontrolled horn. As box speakers with narrow baffles sound better well away from corners, positioning your speakers against the longer wall can help to avoid this effect.

Although your room may appear to be physically symmetrical, it is unlikely to be acoustically symmetrical, so you may find that the sound can be improved by reversing the layout of your system to the opposite end of the room. Somewhat more of an upheaval is to move your listening room to another part of the house, in a room with better proportions. Needless to say, remember to do a room check before moving your kit!

By experiment, I have found that the best results are obtained with the speakers placed around a quarter of the room length from the end wall, with each speaker a quar-

ter way across the room width, then the listening seat a quarter of the room length from the rear wall. I'm not sure if there is a scientific explanation for this, though there may be something in the fact that this dimension approximates to the stage depth in a concert hall, which can be 25-30 per cent of the total hall depth. Whatever the reason, it does seem to work.

Floors and ceilings

If your speakers are spiked to a timber floor, and you are suffering from the resonances I pointed out earlier, you can improve matters by placing a dense paving slab, or better still, a piece of slate from your local monumental mason, on a thin resilient layer of carpet felt on the floor, then spiking the speaker stand to the slab.

The height of the average listening room is often the main culprit, since a typical ceiling height of around 2.4 metres corresponds to a half-wavelength of 71.5 Hz which can cause an irritating boom. You may not be able to install bookshelves on the ceiling, but an alternative would be to fix random-thickness, narrow timber battens to your ceiling to act as diffusers and thus prevent the sound reflecting. This could be done tastefully and is likely to work well.

Tubular belles

In the USA, there is currently a move afoot among audiophiles to install tube traps in their listening rooms to control resonances and reverberation, particularly in corners. These are typically cylindrical devices, with fibreglass tubes around nine to 11 inches in diameter, having half of their circumference covered with a perforated metal sheet, the bowed metal surface facing out into the room. The theory is that the trap works partly through pipe resonance and partly through cavity resonances caused by interaction between the perforated metal and the fibreglass tube.

The trap is said to be transparent to low-frequency sound so that acoustic energy below 440 Hz is absorbed, but mildly reflective at higher frequencies when it acts as a diffuser.



One manufacturer of tube traps in the States is ASC, which has a web site (www.tubetrap.com) for anyone wishing to delve further into this matter.

Keep this frequency clear

Not unlike tube traps are the resonators used in recording studios to selectively absorb or control undesired frequencies. These are typically flat panels, either perforated or plain, mounted on the wall and sometimes partly filled with mineral wool such as fibreglass, with an air gap behind.

The principle of these devices is that the air acts as a spring which absorbs the sound energy, rather like when you blow across the top of a bottle and get a note. In this case the neck of the bottle provides the mass, while the air acts as a spring.

Construction of a resonator device is relatively simple and cheap, with timber battens fixed to the wall to provide the air gap, and the facing pinned to the battens. Design of these devices is, however, another matter, so if you feel inclined to pursue this it would be worthwhile getting an acoustics specialist to analyse your room and advise on the best approach. Professional organisations in the UK include the Building Research Establishment [☎ (01923) 664664], the Institute of Acoustics [P.O. Box 320, St Albans, Herts AL1 1PZ], and the Association of Noise consultants [☎ (01763) 852958]. This is not necessarily as expensive as you might think, and probably a fraction of what you might spend otherwise on your next hardware upgrade.

Come to think of it, I haven't tried leaving a pile of empty wine bottles lying around in the corner of my room, but anything is worth a shot for the committed audiophile.

Behold the Golden Section

Talking of wine brings me to the killer room solution — though I should warn you right away that this is not intended for the faint hearted, as it probably involves rebuilding or extending your house! I was idly wrapping myself around a bottle of Beaujolais one evening about a year ago, jotting down cal-

TABLE 2
ROOM 21' LONG X 13' WIDE X 8' HIGH

21'	13'	8'	Room Dimension
27Hz	43.5Hz	71Hz	First mode
54Hz	87Hz	142Hz	Second mode
81Hz	130Hz	213Hz	Third mode
108Hz	174Hz	284Hz	Fourth mode

culations based on my own room proportions, when I wondered what would happen if the room dimensions were based on what's called a Golden Section.

There is no doubt that other room proportions might perform equally well. But being an architect, I was aware of the many systems of proportion used by Renaissance architects and painters, of which this was one of a group that became known generically as 'sacred geometry'.

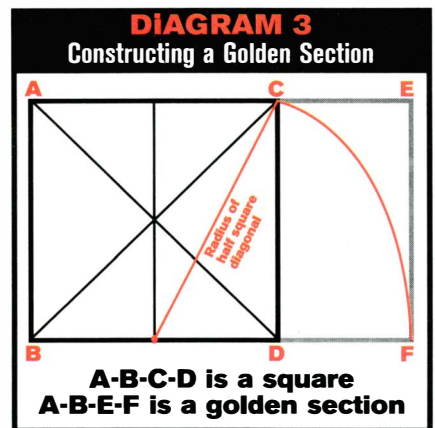
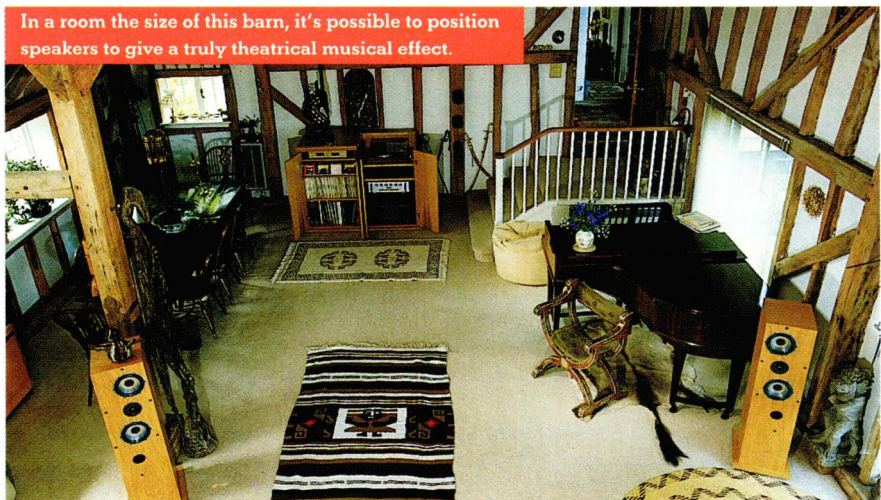
The Golden Section is essentially based on a Fibonacci sequence — 1, 2, 3, 5, 8, 13, 21, 34, 55 etc. — where the two preceding numbers are added together to form the subsequent number. As you get higher up the sequence, dividing any number by the preceding one gives a value that is very close to the Golden Section, whose more precise value is 1.6180339887.

Diagram 3 shows how a Golden Section is constructed. I discovered that for a room based entirely on Golden Section proportions, the resonant modes for height, length and width would be indivisible and would therefore null each other rather than resonate. Table 2 shows the results.

What's more, as I was intending to build an extension to my house, I decided to put my money where my mouth was and build it to these proportions. Guess what? It works!

So there you have it. Before dashing out to throw money at the upgrade, get out the tape measure and check your room. You may waste time, but it could save you lots of cash and years of tears and bed-wetting.

By the way, I did replace my capacitors! ▲ *David Lewis has worked as an architect for 27 years, has had experience of buildings for the arts, music and broadcasting and is currently involved in the design of a rehearsal space for a major London orchestra. The author is grateful to Carl P Giegold of Kirkegaard & Associates, Downers Grove, Illinois, USA, for his patient assistance in explaining the principles of tube traps.*



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SPEAK UP!

Is it worth spending that little bit extra on a real thoroughbred speaker? **Paul Messenger** (listening test) and **Paul Miller** (lab test) check out 15 upmarket enclosures.



Rehdeko RK115a p.71

The brief for this group test was to explore the luxury speaker market, with a selection of 15 models priced between £800 and £2,000. That's serious money, therefore one has the right to expect serious performance.

What you also get is a much wider range of choice than you'll find at more mainstream prices, and that in turn makes all the more important the buyer's active participation in the selection process.

From a bargain-book-shelf buyer's perspective, all these speakers are expensive. From the designer's point of view, there's a huge difference between what can be provided for £800 at retail, and what can be done for £2,000, so we've split the cast list into three sub-groups, with price-breaks at £1,201 and £1,550.

Variety is what adds spice to upmarket speakers, and the contrast between the various models is much greater than you'll observe at the bottom end of the market.

Not unexpectedly, the overwhelming majority of our candidates are floorstanders, but there are three genuine stand-mounts, another one which looks that way (the integral-stand RMS), and Neat's pretty sat/sub system. Most have three or more drive units, but the two-ways are not necessarily outclassed, and even the single-driver Rehdeko can show a clean pair of heels to the others.

The three-driver systems include all manner of variations on the theme; the Dynaudio, for example, is actually a twin-driver two-way. Some designs operate the midrange driver right down into the bass, augmenting its bottom end with an extra driver. Others are genuine three-ways which split the incoming signal into three separate bands before feeding each driver its intended portion of the spectrum.

There so many different approaches because each one involves its own set of compromises. It stands to reason that a



QLN Signature II HD p.63

THE CAST LIST

MODEL	PRICE	PAGE
B&W Matrix 804	£1,695.00	p76
Dynaudio Contour 1.8	£1,842.00	p77
JBL L40	£1,000.00	p60
KEF Reference Model 2	£1,599.00	p78
KAR Torino	£899.00	p61
Mission 754	£1,300.00	p69
Neat Gravitas	from £1,840.00	p79
Origin Live Conqueror	from £1,695.00	p80
QLN Signature HDII	£1,199.00	p63
Rehdeko RK115a	£1,550.00	p71
RMS Revelation Series 1	£1,299.00	p73
Rogers Avanti C628	from £1,399.00	p75
Roksan OJ3X	from £1,195.00	p65
Ruarik Crusader	£1,599.00	p81
Tannoy Definition 300	£999.90	p67

single drive-unit with a single voice coil creates the most coherent sound possible. (That's one reason why headphone listening is so communicative.) The trouble is, at the sort of signal levels loudspeakers need to produce, a single drive unit will only remain coherent over a limited frequency range, so the result is usually limited bass and treble.

Moving to a two-way design allows both bass and treble to be reproduced competently, but adding a crossover network and splitting the input signal into two have undesirable side effects. Life is still tough for a main driver that must cover two whole decades from 20Hz up to 2kHz. Adding a port can make a drive-unit's life easier at the bottom end of its working range, but it's inevitable that somewhere in this broad five-octave spread there will be a compromise.

The three-way looks like the obvious solution, and certainly does mean each driver can be tailored more precisely to its operating band. But the phase-shifting crossover network is significantly more complex, as is the load the amplifier has to drive.

There are no easy routes to loudspeaker nirvana, and in the end we all make do with some compromises. Those shopping for speakers within the price ranges here can at least be confident that serious speaker performance follows as a matter of course. Our reviews can help you pick the sort of speaker which suits your lifestyle and peccadilloes!

HOW THE TESTS WERE DONE

Each of the 15 speakers underwent a programme of tests comprising a physical examination, computerised performance measurement, hands-on listening and, most important of all, a panel audition in which listeners were kept from knowing which pair of speakers was being auditioned. To give all 15 candidates the chance to acquit themselves, 'unsighted' listening tests were spread over two days, thus allowing a number of repeat presentations.

The main reference system used for the unsighted and hands-on work consisted of Mana-supported Naim and Linn components, viz: Linn LP12 turntable, Naim ARO tonearm, Linn Arkiv cartridge, Naim CDS CD player, NAT01 tuner, NAC52 pre-amp and NAP135 power amps. Speaker cables were NACA5 and Nordost SPM. The speaker stands used with the stand-mount models were Slate Audio, Kudos S100, RMS Vivas (and QLN's own).

WHAT MUSIC DID WE USE?

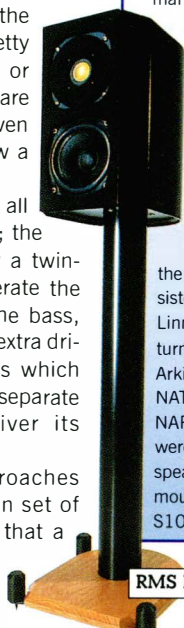
- Fugees:** *(Refugee Camp) Bootleg Versions*; on Ruff House-Columbia 486 824-1
- The Prodigy:** *The Prodigy Experience*; on XL Recordings XLLP110.
- Underworld:** *Second Toughest In The Infants*; on Junior Boys' Own JBOCD4
- Massive Attack:** *Protection*; on Wild Bunch 7243 8 39883 1 0
- Christy Moore:** *Live at the Point*; on Grapevine GRA CD 203
- Sibelius:** *Symphony No. 6*. Maazel/VPO; on Decca Stereo D7D4
- Rutter:** *There is Sweet Music*. Cambridge Singers on Collegium COLCD 104
- Craig Armstrong:** *Sly (Movement 1)*; on Virgin/Wire Sampler CDJ96

THE LISTENING PANEL

Our unsighted listening tests were conducted by a team of 'golden ears' drawn from the ranks of the hi-fi industry.

We extend our thanks to:

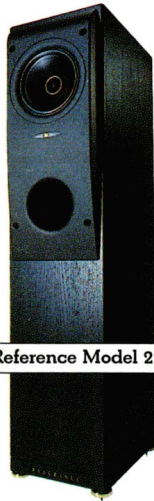
- David Inman** (Audio Marketing Department)
Russell Kauffman (Morel, Densen)
Ken Weller (B&W)
Keith Haddock (JBL/Gamepath)
Chris Beeching (freelance writer)
Phil Tyndale (Dynaudio)
Jason Kennedy (Hi-Fi Choice)



RMS Revelation Series 1 p.73



Ruark Crusader p.81



KEF Reference Model 2 p.78



Tannoy Definition 300 p.67



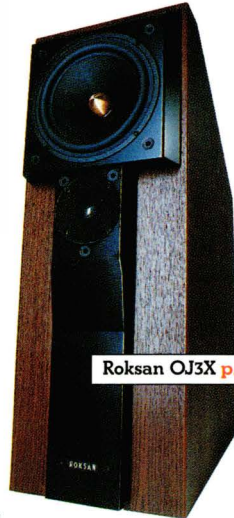
KAR Torino p.61



Rogers Avanti C628 p.75



Origin Live Conqueror p.80



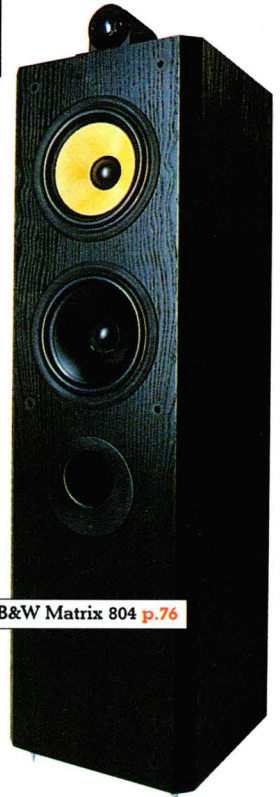
Roksan OJ3X p.65



JBL L40 p.60



Mission 754 p.69



B&W Matrix 804 p.76



Neat Gravitas p.79

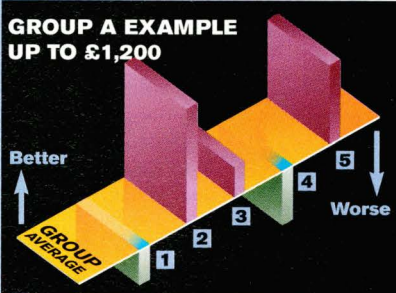


Dynaudio Contour 1.8 p.77

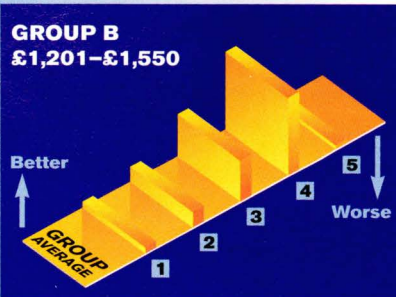
UNDERSTANDING OUR BAR-GRAPHS AND GROUP AVERAGES

There will be significant differences between the cheapest product in our test and the most expensive. For this reason we always segregate our test candidates into two or more categories based on price. Our aim is to assess every product's performance in the context of its closest rivals. Each lab-report panel is colour-coded according to the key given below:

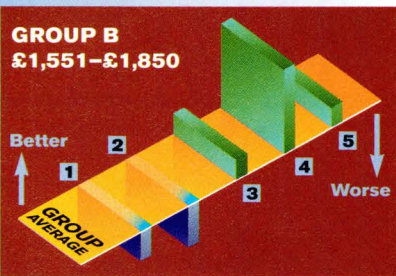
GROUP A EXAMPLE UP TO £1,200



GROUP B £1,201-£1,550



GROUP B £1,551-£1,850



UNDERSTANDING OUR BAR-GRAPH MEASUREMENTS

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

1 Ease of drive:

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

2 Relative loudness:

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

3 Maximum loudness:

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

4 Audible distortion:

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

5 Off-axis uniformity:

This provides an indication of how the speaker's axial response deteriorates, or otherwise, as the listening position moves to the left or right.

JBL L40A

Tradition is close to the heart of JBL, the long-standing US giant of the specialist speaker scene. But because it follows tradition and requires a stand, the £1,000 L40A is one of a dwindling band. Finding a suitable support (under 400mm high) might prove problematic.

The L40A's size and shape closely follow the classic two-by-one-by-one-foot model established 30 years ago by the BBC compact monitors. These played a crucial rôle in the evolution of British hi-fi speaker engineering, by introducing stand-mounting and the concept of high-performance, two-way designs. At the same time over in the USA, such speakers tended to be regarded as bookshelf models, and the three-driver lineup was obligatory.

The L40A might have a nostalgic shape, but it's bang up-to-date in execution, with a vertical driver array that implies free-space stand mounting. It's the second model up a six-strong L-series range, which includes three larger floorstanders and the 'bookshelf' L90 (a *Choice Best Buy* in issue 143).

The hefty construction uses a 27mm thick 'sandwich' front panel for superior self-damping, while the separate bass, midrange and treble drivers add up to a total weight that matches many of the floorstanders.

Cosmetics are classy, with black real-wood wrap and two contrasting red/brown wood strips forming the baffle grille, either side of a moulded frame grille. Both cone drivers have cast chassis: the bass unit uses a 150mm ridged paper cone, loaded by the main enclosure, its rear port tuned to 35Hz; while the midrange is covered by a 100mm polypropylene diaphragm. The treble is handled by JBL's clever titanium dome with integral pleated surround.

Bi-wire terminals are fitted, even though there are three quite separate drivers here. JBL has elected to split the drive between the bass unit and the mid/treble combination, which is probably the better solution for bi-amping than bi-wiring.

The room response shows a decent sensitivity, and a fine overall in-room balance, provided the speaker is kept well clear of walls and floor. The mid and treble are reasonably smooth and held within quite tight limits, while the bass is a little on the full side.

Sound quality

This well-below-average price model turned in above-

average listening test results. Our panel's reactions did vary somewhat, apparently according to taste. One panellist even correctly identified the JBL sound, and after slipping in a quick polemic against the so-called 'West Coast Sound' went on to admit: "It's quite fun to listen to; quite dynamic."

The decent broad-band dynamics do bring some welcome tension and authority to the proceedings, but there's also a slight lack of transparency. Several people found the treble just a touch obvious, and the midband a bit cuppy and boxy. But the fine balance, good dynamics and decent bass weight all help win the day.

Conclusion

The L40A doesn't deliver the most refined or subtle sounds around, but it does go about the business of music-making with an honesty and gusto that bring their own rewards. Better still, the recent strengthening of the pound against the dollar has helped increase this model's undoubted competitiveness by facilitating a 10 per cent price reduction. Recommended. *PMc*



VERDICT

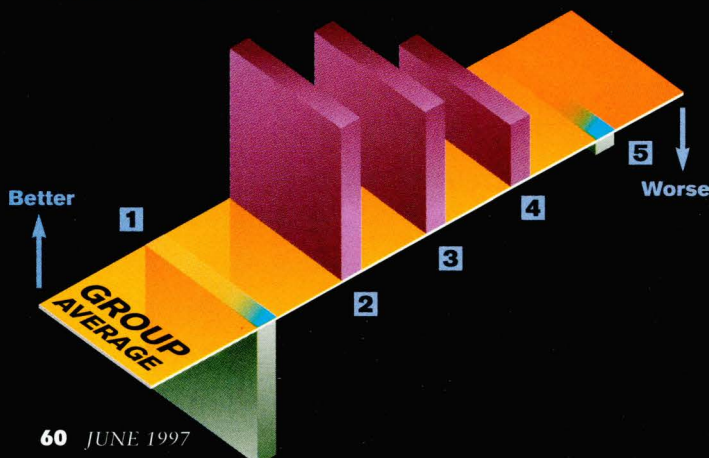
SOUND ★★★★★☆
VALUE ★★★★★☆
PRICE £1,000.00

▲ Decent dynamics bring some real tension and authority.
 ▼ Mid and top could be cleaner and more transparent.

✉ Gamepath Ltd, 25 Heathfields, Stacey Bushes, Milton Keynes, Bucks MK12 6HR.
 ☎ (01908) 317707

HOW IT COMPARES

1	EASE OF DRIVE	-55%
2	RELATIVE LOUDNESS	60%
3	MAXIMUM LOUDNESS	48%
4	AUDIBLE DISTORTION	24%
5	OFF-AXIS UNIFORMITY	-5%



THE LAB REPORT

This chunky and very traditional three-way system holds few surprises. A third-octave analysis of its on-axis response reveals a generally even output across the important 400Hz-8kHz band, though a narrow-band analysis does show the odd irregularity at 1.8kHz, at the 2.5kHz crossover region and around 3.3-3.8kHz. And the titanium tweeter provided a little extra energy between 8-18kHz. Off-axis, there's a steady decline in extreme HF, and the midband crossover region starts to look less regular.

At the other end of the spectrum, JBL has engineered a very high Q-port resonance centred on 36Hz, which provides substantial bass reinforcement with an equally abrupt third-order roll-off. It also provides access for internal resonances to make their presence felt (200Hz at -14dB). Distortion is also a little higher (1.1 per cent at 96dBA) at bass frequencies, but reduces to around 0.5 per cent once the mid (odd-order) and treble (even-order) drivers take over.

The speaker's impedance trend remains above eight Ohms between 400Hz-4.5kHz, with worst-case phase angles of 19 and 11 degrees associated with the 350Hz and 2.5kHz crossover frequencies respectively. As a result, the L40A is perhaps not as fierce a load as its four Ohm rated specification might suggest. *PMi*

Keswick Audio Torino

Keswick Audio has dropped the 'Research' suffix from the end of its name, to stop everyone using and becoming confused by the acronym KAR! This small but burgeoning operation is based in Ferrybridge, West Yorkshire, and has several different ranges of speakers on its lists. *Choice* has reviewed (and Recommended) two models from the Classic series. The Torino is the second of three Italia series models, which have their own very distinctive styling and finish.

The shape is an attractive, unusual and very logical variation on the familiar floor-standing theme. It's not the first enclosure tapered to be narrower at the top than the bottom (Polk, for example, adopts a similar strategy), but the idea is very sensible for many good reasons.

I'm surprised the practice isn't more widespread: the taper not only looks good but also promotes overall physical stability by enlarging the speaker's footprint. On more technical grounds, the taper spreads and de-focuses the internal lateral standing wave modes and external baffle-edge diffraction point.

The finish is also unusual, and rather good looking in its own way. Most of the

enclosure is covered in a heavily textured, matt-black leatherette, which is decorated by a panel of real-wood veneer over half the front panel.

The Torino's three-driver line-up operates in so-called two-and-a-half-way mode. The two main drivers work in tandem through the bass region, together with the reflex port. The lower unit is then rolled off above 600Hz, allowing the upper driver to continue more or less alone through the upper midband to integrate with the tweeter.

The main drivers have pressed-steel frames and 120mm doped, flared paper cones, while the tweeter has a 30mm soft-fabric dome. Two cable terminal pairs only are fitted, despite the three-driver line-up. The dividing network separates the bass-only driver from the main/tweeter combo.

The in-room response shows a most impressive combination of high sensitivity with serious bass extension.

Sound quality

An average listening test result is a fine outcome for the least expensive speaker in the group, reflecting the fact that this isn't the smoothest or least coloured

model around. But it does have plenty of basic honesty and integrity, thanks in part to its essential simplicity.

The Torino is a good all-round performer in most respects. Lively and communicative dynamics are its best feature, though the cosmetics of the sound brought criticism of a slightly hollow quality, a touch of shut-in and nasal coloration on voices, and some hardness and brightness at the top end, too. There's some fatigue potential here, so care needs to be taken with system optimisation. Ultimately, this speaker's heart is in the right place and the Torino does a good job of inviting the listener into the music.

Conclusion

Unusual styling and finish set the Torino apart from the pack, while the deep box and essentially simple 2.5-way configuration help to create an impressively coherent and lively sound at a realistic price. Recommended. *PMc*



VERDICT

SOUND ★★★★★☆
VALUE ★★★★★☆
PRICE £899.00

- ▲ Fine sensitivity and a lively sound with good bass; good looking too.
- ▼ Not the sweetest or smoothest sound around; needs careful matching.
- ✉ Keswick Audio, Ferrybridge Enterprise Centre, Pontefract Road, Ferrybridge, W. Yorks WF11 8PL
- ☎ (01977) 671823

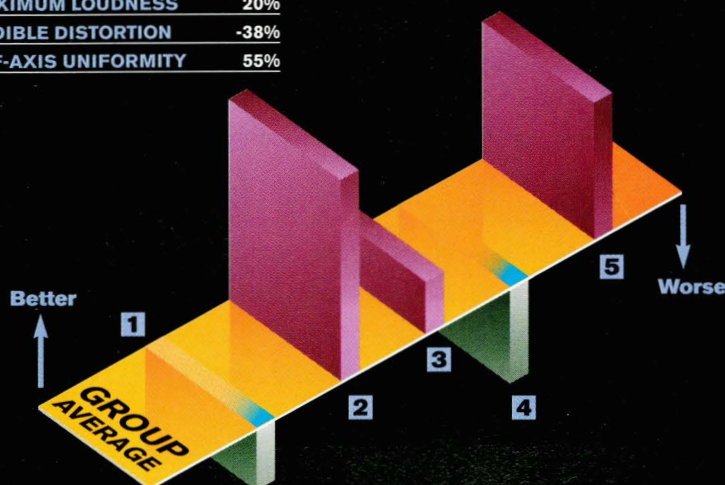
THE LAB REPORT

In certain respects, this large and sensitive loudspeaker (91dB/2.83V/1m) is reminiscent of the Rogers Avanti C628. Both are three-way designs and both use a bandpass driver to 'fill in' the gap between bass and treble. Though in this case, the bass/mid crossover is a first-order affair at a substantially higher 800Hz. The impedance trend is very similar too, falling to an acceptable minimum of 4.3 Ohms at the low-Q-port resonant frequency of 31Hz. Beyond 290Hz, the speaker's impedance is uniformly greater than 6 Ohms and features a double resonance, trading an extra phase swing for a generally easier drive.

Its response, however, is not so impressively integrated, with an obvious 'lump' at the 800Hz crossover point, a prominent 1.7-4.6kHz mid-treble, and then a depression until the far treble picks up again beyond 9kHz. Keswick Audio is also one of the very few manufacturers to quote distortion figures (<0.7% second harmonic, <0.55% third harmonic at 1W) which is rather unfortunate because under *dynamic* conditions there is a deterioration of some 10dB, with the bass and mid typically suffering up to 2.2 per cent THD at 96dBA. The port output is very broad, with -6dB points stretching from 18Hz-90Hz, but it also lets slip a 185Hz resonance at equal amplitude! *PMI*

HOW IT COMPARES

1	EASE OF DRIVE	-25%
2	RELATIVE LOUDNESS	80%
3	MAXIMUM LOUDNESS	20%
4	AUDIBLE DISTORTION	-38%
5	OFF-AXIS UNIFORMITY	55%



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QLN Signature HD II

The ancestry of this Swedish loudspeaker extends more than a decade to the QLN One, which I tested before taking on regular speaker reviews for *Hi-Fi Choice*. I did review a 'standard' Signature way back in issue 78 (January 1990), and from the outside, this HD II variation looks very similar, at least as far as the box is concerned. However, the main driver cone is now a completely different colour, having changed from Kevlar to carbon-fibre-impregnated paper. The tweeter looks different, too, and the impedance changes are equally significant.

Impressive too is the fact that, while the 1990 Signature carried an £1,100 price-tag, it's still available at £999.95; whereas the new HD II comes in at £1,199. It's true that the original did seem decidedly expensive seven years ago, and one could hardly call the HD II cheap, but it does look like a more acceptable proposition.

It is, in essence, a compact, rear-ported, two-way stand-mount. That bald description doesn't take account of the superior build and presentation, or an engineering content that adds up to a full 12kg of weight from a very compact, enclosed volume.

The *pièce de résistance* is the enclosure,

which is built from thick, self-damping Q-board, and cunningly shaped for optimum acoustic performance. For the technically minded, the shape is a truncated pyramid (the top is sliced off). The base is a deep rectangle and the back vertical, but the other three sides all narrow towards the top, so the lateral internal standing waves are well spread. The edges of the front panel are carefully post-formed to minimise edge-diffraction effects.

Bi-wire terminals are fitted, which seems entirely unnecessary since the crossover adopts an unusual configuration. The four terminals are there to allow upgrading of the speaker by removing the internal crossover and substituting an external network dubbed 'split-field'.

The in-room, far-field resonance shows some significant departures from neutrality. The mid-bass (50-80Hz) is rather heavy and, while the broad midband is quite flat, output falls about 5dB between 1kHz and 1.5kHz prior to a smooth, flat treble.

Sound quality

A disappointing listening test result is due partly to this speaker's balance anomalies, especially a slight lack of clarity through the presence region, though the comments still included plenty of compliments for a fine dynamic range and stereo imaging, and a general lack of boxiness.

The net effect is a relaxing and comfortable sound. The bass heaviness adds a touch of chestiness, but bass is still clean, agile and dynamically literate, while the treble is sweet and integrates well with the rest. The dulled presence pro-

vides some incentive to wind up the volume. While the sound is always musically expressive, voices seem to lack projection and exhibit clipped consonants.

Conclusion

An impressively smooth performer, the Signature HD II is somewhat hampered by its characteristic balance, notably the heavy mid-bass and recessed presence, as well as low sensitivity. That said, if the laid-back presentation appeals, the reward is a notable freedom from boxiness, and lovely stereo soundstaging. *PMc*



VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
PRICE	£1,199.00
▲	Lovely freedom from boxiness, sweet treble, musically expressive.
▼	Low sensitivity; some mid-bass heaviness and dulled presence.
✉	QLN (UK) Ltd., Unit 7 Aber Park Ind Est, Aber Road, Flint, Flintshire CH6 5EX
☎	(01352) 730251

THE LAB REPORT

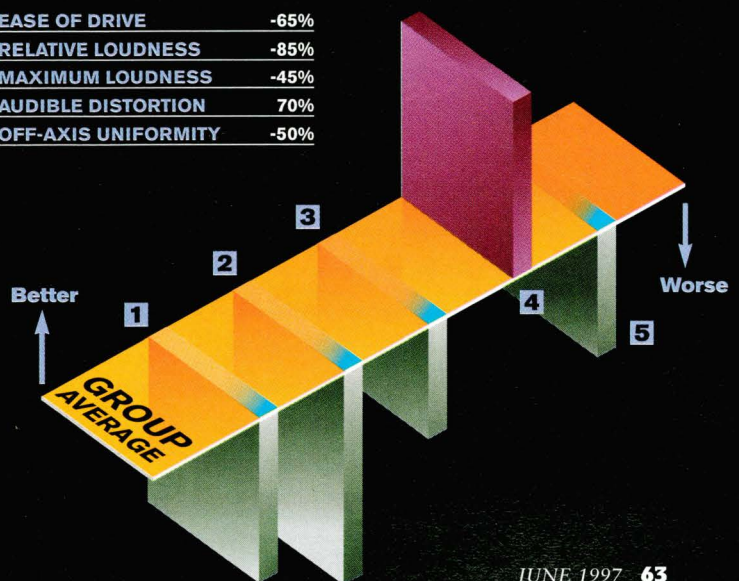
QLN's eight-Ohm impedance rating is a little optimistic, because the HDII has an *average* value of 7.1 Ohms, falling to a minimum of 6.7 Ohms at 160Hz. It stayed uniformly below eight Ohms from 950Hz-20kHz, with a particularly nasty dip to 3.5 Ohms at 3.8kHz and an attendant swing in phase angle after the second-order crossover.

Indeed, the speaker is not terribly well integrated around the crossover region. Its on-axis response shows an obvious cluster of peaks some two to three dB above the mean level between 2.8-4.5kHz. The main treble region peaks at 12kHz but, as Paul's listening panel suggested, there's very little useful high-treble energy beyond 15-16kHz or so. The three kHz cluster and rolled-off treble become progressively more exaggerated as the listening position moves off-axis.

The port is tuned to 46Hz, though maximum bass reinforcement actually occurs at 65Hz, below which there's a gentle first-order roll-off. Cabinet and port resonances are very well controlled, though the on-axis response still indicates a slightly 'lumpy-looking' upper bass region. All of this adds up to the sweet but uninvigorating sound described above. Distortion remains very low (typically 0.3-0.5 per cent at 96dBA under dynamic conditions), which reinforces QLN's 'low-coloration' tag. *PMI*

HOW IT COMPARES

1	EASE OF DRIVE	-65%
2	RELATIVE LOUDNESS	-85%
3	MAXIMUM LOUDNESS	-45%
4	AUDIBLE DISTORTION	70%
5	OFF-AXIS UNIFORMITY	-50%



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Roksan OJ3X

Now operating alongside Mission under the Verity plc banner, Roksan, like Quad, shows no signs of losing the special identity of its highly innovative brand. The Ojan 3 speaker, reviewed and Recommended by *Choice* some three years back (issue 132), continues as before, but now it's joined by this rather more expensive variation, the OJ3X. It retains the features of the original but uses two new drivers that are significantly more expensive. There's real-wood veneer here too, but sadly, one of the least attractive I've seen.

Look at the photograph to appreciate just how comprehensively Roksan has jettisoned the rule book. The total volume of this low-but-deep box is equivalent to that of the much taller floorstanders featured elsewhere in this group test, so it's a bonus that the OJ3X is one of the most discreet to look at. Home horticulturists might despair at the sliced-off top, but that feature helps deflect the rear radiation from the main driver down into the body of the box, rather than directly back through the cone. Most interesting of all, perhaps, is the large decoupled paddle, hinged at the bottom, on which the tweeter is mounted, ensuring it remains undisturbed by the energy generated in the main driver.

The new main driver is a relatively large

eight-inch-frame affair, with a 152mm paper cone operating around a streamlined protuberant copper pole-piece extension, and out of a cast frame. The tweeter uses a 25mm metal dome, and the enclosure has a port at the rear, tuned to a low 25Hz.

That's one reason why the OJ3X offers prodigious deep-bass extension. The other is a rather modest sensitivity rating (fortunately it is an easy amplifier load). The in-room traces show arguably a bit too much deep bass, but fortunately the midbass is better controlled, and provided the speakers are well clear of walls, the overall balance is rather good, if a little uneven at 1-3kHz.

Sound quality

As with all loudspeakers, there are pluses and minuses, but the panel reacted quite positively to this Roksan. Bass reproduction is the OJ3X's most notable strength, not only because of the fine weight and depth — which was a little too rich and juicy for some — but

also for its fine dynamic range, purposeful timing and considerable tunefulness.

However, the midband and top end might be sweeter. Voices are slightly pinched and hard, and while there's plenty of explicit detail, there's also some fatigue potential, so choose ancillaries with care. The hands-on work gave more time to explore the total dynamic range. The speaker still sounds good playing very quietly, but even more impressive is the way it hangs together when you wind up the volume. The sound stays consistent and clean right up to amplifier clip.

Conclusion

The funny shape and dodgy veneer are a matter of personal taste, but there's no disputing that the OJ3X has one of the best bass deliveries around, at a very realistic price. It's classy in other respects too, and goes loud with great aplomb, but it does need a big amp to give of its best. *PM*



VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
PRICE	£1,195 (Black); £1,395 (Rosewood)
▲	Interesting and clever shape; great value for bass freaks.
▼	Mid a bit pinched and hard; tacky veneer work.
✉	Roksan, 30 St. Peter's Road, Huntingdon PE18 7DB.
☎	(01480) 433777

THE LAB REPORT

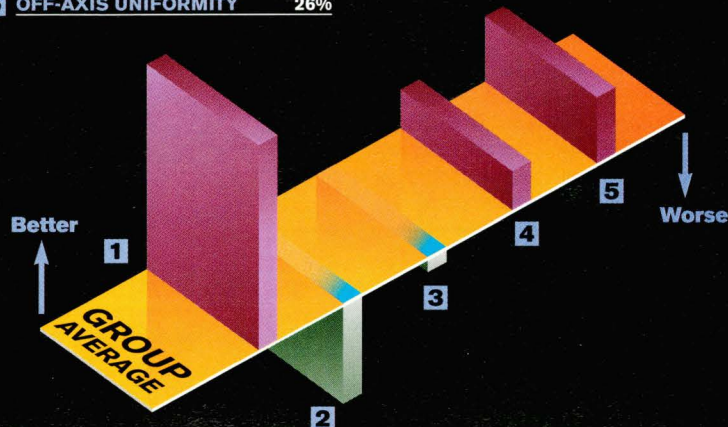
Roksan is using Excel series drivers from SEAS with revised suspension and surrounds for this 3X version of the Ojan 3. The copper-plated pole-piece termination improves heat dissipation while also acting as a phase plug. The overall response is fairly even, save for an unfortunate notch at 5.8kHz caused by diffraction off Roksan's floating tweeter sub-baffle.

The rear-mounted reflex port is tuned to an improbably low 25Hz (closer to 30Hz in practice) which, like the main system resonance at 33Hz, is largely undamped. As a result, it's very likely you'll achieve a -6dB bass extension close to 20Hz in the average room. The speaker's bass response looks remarkably flat and extended, however beyond 91dBA, levels of distortion suddenly increase from an already high two per cent. This is probably explained by the fact that sensitivity is lower than claimed at 86.2dB/2.83V/1m (500Hz-8kHz). Distortion through the mid and treble is held to around 0.45 per cent.

The 3X provides an easy amplifier load with an impedance minimum of 7.15 Ohms at 140Hz. Beyond 460Hz, the impedance never drops lower than 12 Ohms, though it does reflect a rather obvious cone mistreatment at 710Hz (that new surround, perhaps?). *PM*

HOW IT COMPARES

1	EASE OF DRIVE	80%
2	RELATIVE LOUDNESS	-40%
3	MAXIMUM LOUDNESS	-5%
4	AUDIBLE DISTORTION	15%
5	OFF-AXIS UNIFORMITY	26%



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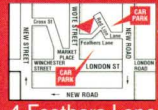
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making the most of the music

Tannoy D300

The D300 is the smallest floorstander in Tannoy's steadily growing Definition series of upmarket domestic hi-fi speakers. It's a seriously cute package. Add together beautiful, high-class veneer (especially around the top surface), an interesting and unusual shape and the most diminutive profile in the group, and you have an extremely lounge-friendly proposition.

The top view shows an irregular six-sided shape, which is very much a Tannoy trademark. Not only does it look attractively distinctive, breaking with the cubed stereotype, but it offers certain acoustic advantages by spreading the standing-wave frequencies in both lateral planes and reducing direct internal reflections from the back panel.

Another even longer-standing Tannoy exclusive is the solitary dual-concentric driver: technology which must be approaching its 50th anniversary. It is, in fact, two drivers in one. The tweeter is mounted just behind the main cone motor, firing its output through a horn which replaces the usual pole-piece at the centre of the main cone. The obvious benefit of this co-axial arrangement is that all the sound originates from virtually the same place, facilitating crossover integration.

VERDICT

SOUND ★★★★★☆
VALUE ★★★★★☆
PRICE £999.90

▲ A very pretty and lounge-friendly package; good all-round sound.

▼ Sounds a bit small, and rather untidy at the top end too.

✉ Tannoy Ltd, Rosehall Ind Est, Coatbridge, Strathclyde, ML5 4TF.
 ☎ (01236) 420199

The whole thing sits on a solid and well-spiked MDF plinth, and a large rear port is tuned to 40Hz. Sensitivity is respectable, especially in view of the easy amplifier load, and in-room bass extension goes down to 25Hz. The far-field room responses show a very well-ordered (if somewhat forward) broad midband, and bass which is a little dry and detached.

Sound quality

This wasn't a personal favourite, but the rest of the listening panel put me right by coming out pretty strongly in favour of the D300. One commented: "As soon as this and the previous track began, there was an overwhelming sense of relief in the 'rightness' of the sound."

The even, extended and slightly forward broad midband is a major strength, ensuring that detail is explicit and coherent, with a fair measure of dynamic integrity. The bass hangs in pretty well, even though it doesn't exactly take the lead and drive the music



along. Ultimately, the fact that it's one of the smaller models in the test group may be reflected in a slightly limited sound. As a result this speaker would perhaps be better suited to smaller rooms.

There's a touch of hardness and nasality on voices, and the top end could be a little sweeter too, though it does avoid the slightly aggressive nature of the D100s I tried. There's a nice close-up intimacy about the sound too, even though it could be a little more transparent.

Conclusion

This is one of the best looking models in the group and, thanks to very classy veneer, it's also physically just about the most discreet too. It sounds pretty good, albeit without the scale and grunt of bigger models, and with a few of its own colorations towards the top of the band. All told, it's a very effective and confidently Recommended package. *PMc*

THE LAB REPORT

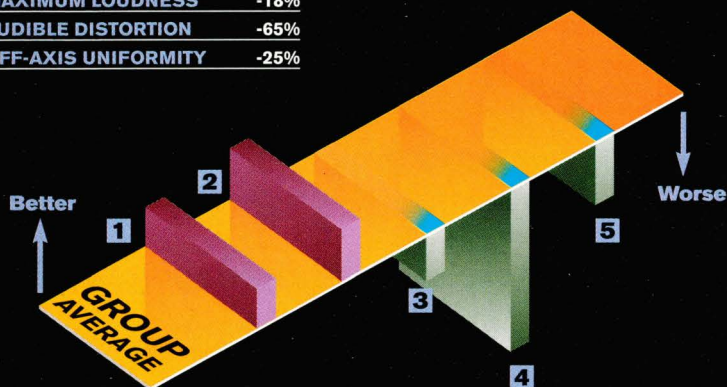
This Tannoy's load is nothing out of the ordinary. A sensible 5.2 Ohm minimum appears at 170Hz, beyond which the crossover network (1.8kHz, second-order low-pass/first-order high-pass) prompts a rise to a substantial 72 Ohms. The resonance of the rear-firing port is equally well controlled and tuned to 41Hz, which is appropriate for an enclosure of this size. It provides a second-order roll-off beyond this point and a -6dB figure of around 28Hz.

Sadly, with its moderate 88.7dB sensitivity and modest driver size, distortion quickly adds up to four/five per cent through the bass at our 96dBA SPL. This is substantially higher than boxes with a larger internal volume, higher sensitivity and larger bass drivers — such as the Mission. Distortion continues to fall from 1.3 to 0.6 per cent from mid through treble, even though the output of the HF driver is somewhat less uniform than that of the 6.5in bass/mid driver which encloses it.

Narrow-band analysis shows a loss in output from 4-7kHz, followed by a series of peaks at 8.1kHz, 10kHz, 12.5kHz and 14.8kHz, at which point the tweeter is some +6dB above the mean midband level. Listen 10-20 degrees off-axis for a smoother treble balance. *PMi*

HOW IT COMPARES

1	EASE OF DRIVE	15%
2	RELATIVE LOUDNESS	20%
3	MAXIMUM LOUDNESS	-18%
4	AUDIBLE DISTORTION	-65%
5	OFF-AXIS UNIFORMITY	-25%



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Mission 754/ Freedom 5

Market leader Mission scored a Best Buy bulls-eye with its revised Freedom variation on the familiar 753 theme, in our last major group test. At a first glance this larger, heavier and significantly more expensive 754 model (aka Freedom 5) looks just like a scaled-up version of its stablemate — entirely logical, as the gorgeous slimline styling has been a major reason behind the 753's considerable success, and translates very well into this bulkier box.

The second glance reveals two important differences. Absent is the 753's impressive top-to-bottom driver lineup and full height grille; instead there's a simple two-way panel at the top, and a lot more nice wood veneer to gaze at beneath. The other clue is in a separate plinth, which you get to fit onto the base with large brass spacers before you start, noticing two very purposeful looking ports at the same time.

In fact, with its Aerogel-cone midrange driver, this 754 has more in common with the 752 than the 753, and could arguably be described as a 752 with a built-in sub-woofer, of the coupled-cavity or band-pass persuasion. Most of this large enclosure is devoted to sub-110Hz bass reproduction. A partition carrying a bass driver divides the

upper, sealed section from a lower ported one, exciting the latter to create the sound. It's an arrangement which offers good efficiency, but takes up a lot of space for the extension provided.

I'm puzzled by Mission's claim that the 754 minimises room boundary interference. Placing the mid and treble off the ground will do just that, as indeed the listening confirms. But placing the bass output at floor level is likely to maximise floor/ceiling mode excitation, which is exactly what the in-room responses show. The mid and treble are very well ordered, but output peaks up about +8dB around 55Hz, and falls away rapidly below that point.

Sound quality

The 754 met with a rather mixed reception from the listening panel, across two separate presentations. Most of the assembled company was reasonably positive, especially about the clean, clear and generally smooth mid-band, which is expressive and informative, with some openness and air.

There's a welcome freedom from chestiness on speech here too, and the bottom end is clean, powerful and agile. But it's also

slightly detached and 'one-note', giving a slightly larger-than-life impression, without quite the reach and weight the enclosure size implies.

Dynamics are handled well and the overall range is good. Stereo soundstages are well formed with admirable depth and an impressive 'out-of-the-box' sound. Speech was particularly clear, if slightly spitty, and several listeners commented on a thin overall character, alongside a top end which is a little over-exposed. The hands-on work revealed that top power was handled with aplomb, and high levels are attained with no extra strain.

Conclusion

Bigger and heavier than most of its fellow competitors, the 754 is unquestionably a lot of very-good-looking speaker for the money. The fine quality midband, all the better for being generated well off the floor, is rather let down by bass that lacks ultimate extension, and tends to be too strong around 50Hz. However,

this is a great party animal, with bags of headroom for filling the larger room. *PMc*



VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £1,300.00

▲ Lovely midband, lovely presentation, good material value.

▼ Bass alignment is suspect, treble a bit obvious too.

✉ Mission Electronics, Stonehill, Huntingdon, Cambs PE18 6ED
 ☎ (01480) 451777

THE LAB REPORT

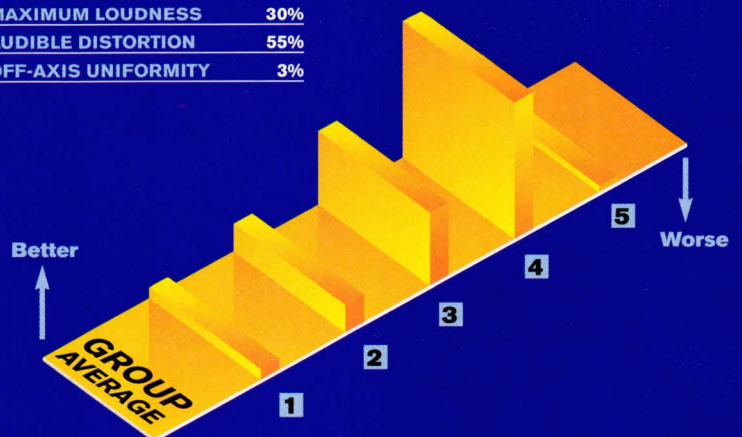
The Freedom 5 is both sensitive and amplifier-friendly, offering its lowest impedances at the LF end of the spectrum where Mission's coupled-cavity loading produces an unusual trend, registering 4.75 Ohms at what appears to be the 50Hz tuned frequency. In practice the cavities are tuned to 50Hz and 93Hz respectively, extending the bandpass of the two downward-firing ports at the expense of a sharper third-fourth-order LF roll-off. As a result, bass extension in-room is unlikely to be greater than 38Hz without additional rear-wall reinforcement.

On the plus side, Mission's implementation has kept distortion firmly in check. Better than 0.9 per cent through the bass, a low-colouration 0.4 per cent through the midrange and just 0.15 per cent in the furthest reaches of the treble. And all under realistic, dynamic conditions at a healthy 96dB SPL. Mission's claimed 90dB sensitivity was met, right on the nose.

The forward response is fairly uniform and the drivers well integrated, save for a notch at 650Hz (coinciding with a mistermination blip on the impedance trace) and a peak around 1.3kHz, in common with past Mission speakers. You will enjoy a slightly smoother-sounding treble, incidentally, by tuning in the speakers by 10-20 degrees. *PMi*

HOW IT COMPARES

1	EASE OF DRIVE	5%
2	RELATIVE LOUDNESS	12%
3	MAXIMUM LOUDNESS	30%
4	AUDIBLE DISTORTION	55%
5	OFF-AXIS UNIFORMITY	3%



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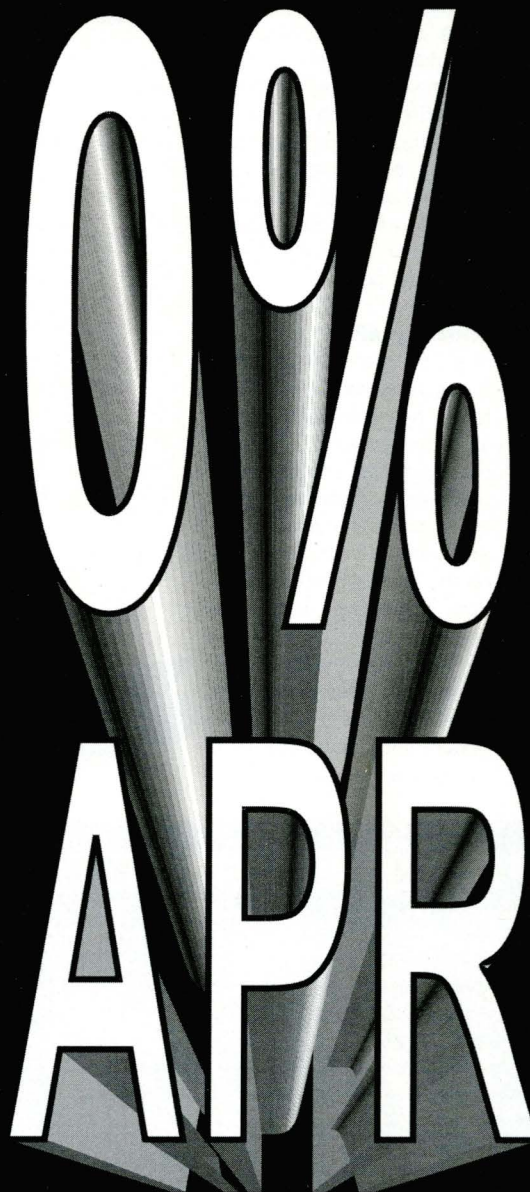
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Rehdeko RK115A

Are Rehdeko loudspeakers made in south-east France, or do they originate from another planet? Barring a box and a moving-coil drive unit, they have virtually nothing in common with anything else out there in hi-fi land today. However, students of hi-fi and speaker archaeology might notice similarities to technology of the '40s and '50s.

I first encountered Rehdekos three years ago, and after the initial shock became a firm fan, purchasing a pair of very big RK175s for my own personal use. My review of these much smaller RK115s will therefore inevitably be coloured by a sympathy for what Rehdeko is trying to achieve.

This smallest entry-level Rehdeko model costs £1,550, which seems a great deal of money for a single driver-unit in a compact stand-mount box. It is a very solid little box, however, built from solid beech wood that on our samples is finished in a beautifully lustrous dark-brown veneer.

The driver itself is the key to Rehdeko's distinctness, and it is a quite remarkable affair with a massive cast frame and a very stiffly suspended 190mm paper cone, giving a driver/box resonance right up at 140Hz (compare with a typical average of 60-70Hz in more orthodox designs). Sub-resonance

bass output is augmented by a large port tuned 60-90Hz.

The mostly dark-blue cone is decorated at the boss by a tiny 25mm gold-coloured dust dome (implying a low inductance voice coil), and rather larger in size, a similarly gilt-encrusted 'whizzer' cone/horn. The idea is to attempt coverage of the entire range of audible frequencies with just the single drive unit, and so avoid the phase-shifting introduced by a crossover network. Other brands also adopt the single-driver approach, but Rehdekos opt for an eclectic execution in which maximum possible midband sensitivity is the goal, at the expense of bandwidth.

The result in this case is a speaker with a sensitivity far higher than average through the broad midband, that is still an easy amplifier load. The port helps give some in-room bass extension down to 50Hz, but that's your lot, while at the other end of the spectrum, output drops sharply above four kHz into a -20dB notch at eight kHz, before the horn comes in at 10kHz.

Sound quality

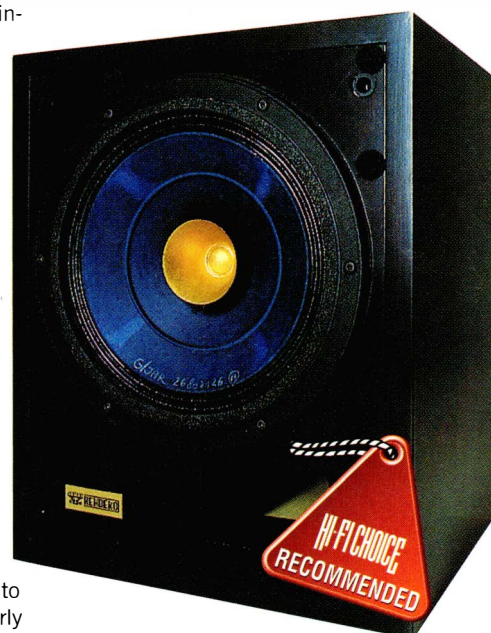
I said it would be impossible to blind-test a Rehdeko successfully, and was proved right within two bars of the first test recording. The RK115's tonal balance comes as such a surprise that the inevitable reaction is immediate and hostile rejection.

Even I couldn't quite stifle a hysterical giggle, but I left the 115s in the room at the end of the test day and continued playing them during an evening's relaxation. It took a couple of hours to get used to their oddball presentation and to begin appreciating what they do particularly

well. To these ears at least, the freedom from time-smear and vivid dynamics are ample justification for the limited bandwidth and rainbow of colorations. Indeed, for sheer coherence, these little 115s are even more precise than my big 175s.

Conclusion

For many listeners the Rehdeko 115 will remain forever an aberration, stuck between a giant transistor radio and a small PA system. A minority of aficionados (myself included) will find their drama, immediacy and intimacy impossible to ignore. The best advice is go and decide whether you find the sound unacceptable, or whether you're seduced by the magic. Maybe both at the same time! *PM*



VERDICT

SOUND ★★★★★
VALUE ★★★★★
PRICE £1,550.00

▲ Remarkable time-coherence and dynamic shading; a great communicator.

▼ Sound is very coloured, with limited bandwidth; a real oddball.

✉ Virtual Reality Audio Systems, PO Box 383, Brentwood, Essex. CM14 4GB

☎ (01277) 227355

THE LAB REPORT

A single pulp driver with a relatively non-compliant surround, limited throw and a paper whizzer at its centre give rise to a complex system resonance at 125/150Hz. The latter appears to be a resonance of the 74Hz box-section port tuning which provides a very broad, low-Q output that peaks at 55Hz and 135Hz. The end result might have been a lot cleaner had Rehdeko used a conventional cylindrical port.

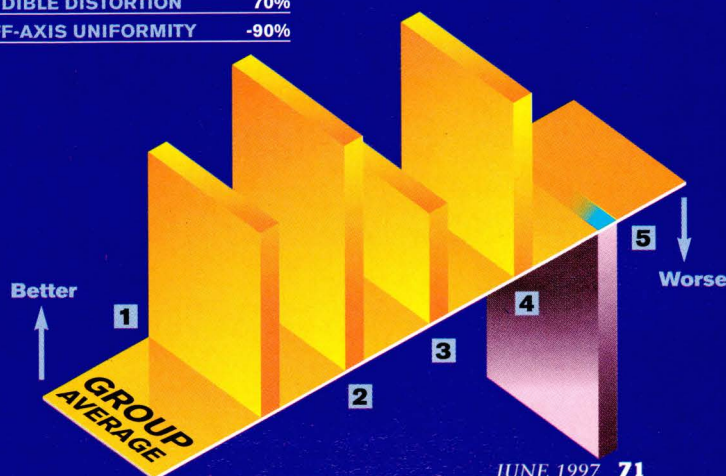
The axial response is a trifle irregular, with various peaks from 1.5-3.6kHz followed by a 20dB cancellation centred on 7.2kHz before the paper whizzer takes over. The mid-band is smoothed-out off-axis, though the 7kHz dip is exaggerated and the far treble inevitably muted.

The impedance minimum of 6.7 Ohms is largely determined by the DC resistance of the voice-coil, though as its inductance takes over, the impedance trend is ever upwards beyond 500Hz or so, betraying various 'bumps' caused, presumably, by the large cone struggling to handle mid and high frequency signals.

The overall sensitivity is very high at 97.3dB/2.83V/1m which, despite being 6dB short of specification, ensures that dynamic distortion remains very low at high SPLs. Figures vary from 0.6 per cent (bass) to 0.18 per cent (treble). *PM*

HOW IT COMPARES

1	EASE OF DRIVE	75%
2	RELATIVE LOUDNESS	90%
3	MAXIMUM LOUDNESS	45%
4	AUDIBLE DISTORTION	70%
5	OFF-AXIS UNIFORMITY	-90%



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RMS Revelation Series 1

Loudspeaker design is still one field in which small companies can come up with the most imaginative and inventive ideas. Few brands do more to prove this generalisation than RMS, which operates under the watchful ears of North Midlands enthusiast and guru Les Wolstenholme.

This £1,300 Revelation Series 1 is the lesser of two Revelation models, and is laden with interesting concepts. It is quite different in character and execution to all other contenders in this group test. From a distance it looks like a tall but otherwise conventional compact stand-mount model — 'medium bookshelf' — in size. There are some rather nice decorative touches courtesy of Stands Unique manifested in the hardwood top, matching base-plate and chunky, chromed, spike bosses.

Try picking up the speaker, however, and you'll be mildly shocked to find it's as heavy as most of the floorstanders in this group test. Presumably that's because it's almost totally made of metal. The enclosure proper has a curved back surface (the better to dis-

sipate internal reflections), and is covered up by a black grille cloth. The integral tensioned stand-tube claims to act as a port to reflex-load the enclosure, while an integral plinth deliberately decouples the whole thing at very low frequencies. The small main driver has a 90mm papercone, while the tweeter has a 25mm inverted Kevlar composite dome.

The drawback of reviewing offerings from small brands like RMS, especially for the reviewer, is that the product is often an evolving 'work in progress'. I'd already finished my part of the test programme when news came in of two modifications. The easy one was to reverse the phase of the tweeter (which actually made surprisingly little difference). The other intention is to add 4.7 Ohms in series with the tweeter, which should have the dual benefit of taking some sting out of the top end and buffering the particularly evil impedance drop above 10kHz (that had already triggered my amp's protection circuitry once).

The room response is decidedly idiosyncratic. The bass is well balanced from a low 30Hz up to 300Hz, but above that point the broad midband falls away strongly to a -10dB minimum around 2kHz, before rising again some 8dB by 10kHz.

Sound quality

The balance peculiarities (similar to the effect of a 'loudness' contour button found on some amplifiers) undermined the blind listening tests, making it

impossible, for example, to set an equable level. Played at a 'typical' volume control setting, there were complaints that voices were too distant, but when I turned it up to compensate there were similar complaints

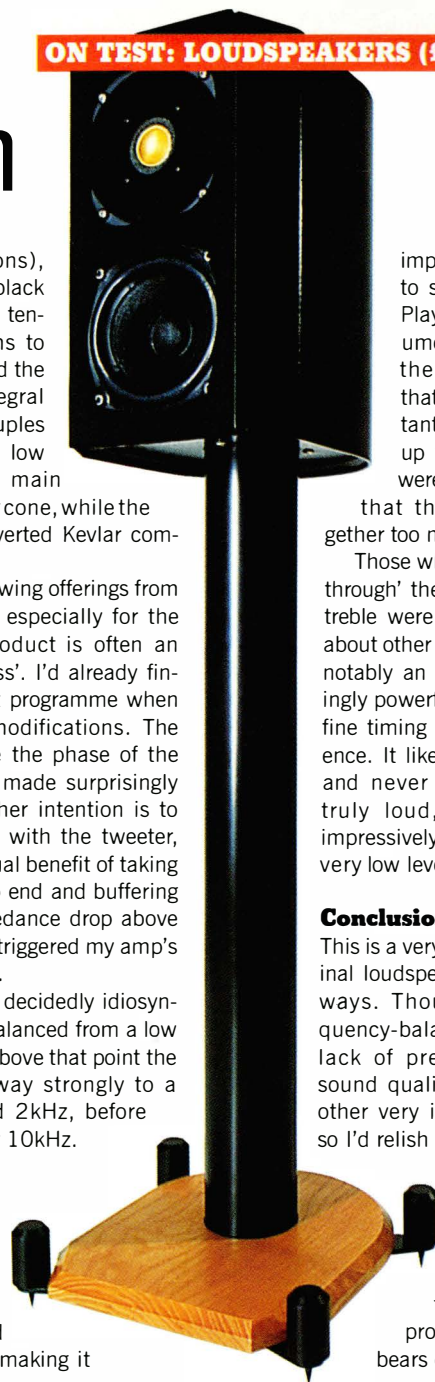
that there was now altogether too much bass energy.

Those who managed to 'listen through' the dull mid and bright treble were very complimentary about other aspects of the sound, notably an agile, clean, surprisingly powerful and weighty bass, fine timing and excellent coherence. It likes to be driven hard, and never manages to sound truly loud, but also sounds impressively clear and detailed at very low levels.

Conclusion

This is a very interesting and original loudspeaker in a number of ways. Though flawed by frequency-balance anomalies and lack of presence energy, the sound quality nevertheless has other very impressive qualities, so I'd relish the chance to hear a

more conventionally balanced variation on the Revelation theme. In the mean time, this is a 'work in progress' that definitely bears close scrutiny. *PM*



VERDICT

SOUND ★★★★★

VALUE ★★★★★

PRICE £1,299.00

▲ Innovative metal-case compact sounds fast, clean and coherent.

▼ Low sensitivity, a tricky load, and a sucked-out midband.

✉ RMS Ltd, The Old Cannon Brewery, Cannon Street, Bury St Edmunds, Suffolk IP33 1JR

☎ (01284) 769848

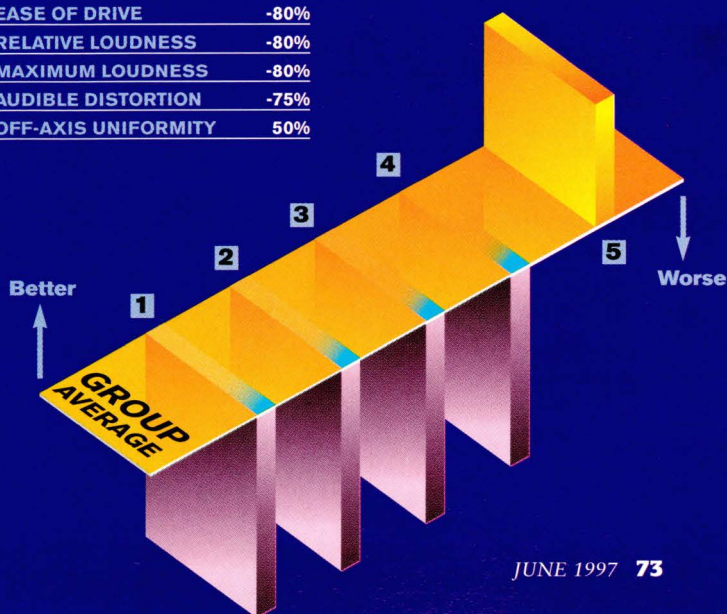
THE LAB REPORT

This speaker is flawed. Given that the Revelation has an *average* impedance of 22.6 Ohms, falling to a mere 6.7 Ohms at the port resonance of 38Hz, you'd be forgiven for thinking the speaker was an easy load. And that it could be if RMS revises its network which currently causes a 72 Ohm resonance around 1kHz before tailing off to a dangerously low 1.9 Ohms at 20kHz. Its forward response simply collapses in the midband, creating what amounts to a 6-8dB suckout from 500Hz-4kHz (crushing its claimed 88dB sensitivity to 80.2dB) followed by a 5-8dB peak from 8-20kHz.

A pre-tensioned aluminium tube support acts as the speaker's reflex port, complete with what it describes as an 'acoustic wave trap' at the base. Nearfield analysis of this structure shows a broad bass reinforcement at 40Hz but several more significant resonant modes at 255Hz (+10dB), 485Hz (-5dB) and 720Hz (0dB) that puncture the main, forward response. The small bass/mid unit rolls-off below 150Hz, leading to a -6dB bass extension no better than 73Hz in a typical application. *PMi*

HOW IT COMPARES

- | | | |
|---|---------------------|------|
| 1 | EASE OF DRIVE | -80% |
| 2 | RELATIVE LOUDNESS | -80% |
| 3 | MAXIMUM LOUDNESS | -80% |
| 4 | AUDIBLE DISTORTION | -75% |
| 5 | OFF-AXIS UNIFORMITY | 50% |





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GRAMOPHONE

The Naturally Neutral Chain

Rogers Avanti C628

This new and decidedly substantial floorstanding speaker appears hot on the heels of a new management team's arrival at Rogers. It's been christened Avanti but designated C628: 'C6' refers to the use of a moulded carbon-fibre composite dome for the tweeter diaphragm — the first example of such an application to grace my listening room, and undoubtedly a key point of interest in this design.

These interesting unique selling points aside, the C628 costs £1,400 when supplied in the basic real-wood veneer shown here. Described as 'rose-ash', it's by no means the prettiest example of the breed, but several alternatives are available. Rogers tradition demands that the shape and styling are rather nondescript too, so one would be hard-pressed to call this an attractive design, even though a velour-type material adds some originality to the grille treatment.

Besides the abovementioned tweeter, which takes over 2kHz, there's a main/midrange driver, which is loaded by its own sealed section of the enclosure, plus a port-loaded bass unit. Both of these have cast frames and polypropylene diaphragms, the main/mid with an injection-moulded 120mm cone, the bass with a 140mm

cone. Regardless of this multi-driver line-up, there are just two pairs of terminals on the rear panel, to isolate the tweeter's signal feed if this is desired.

Although the amplifier load is quite complex, it stays above a comfortable six Ohms throughout, which is encouraging in view of the fine bass extension (-6dB at 20Hz in-room) and decent sensitivity (88dB/2.83V). In-room response is interesting, with an impressively flat and slightly forward mid-band decade (200Hz-2kHz), a treble which definitely verges on over-restraint, and bass with good ultimate extension but some leanness higher up (100-200Hz).

Sound quality

To take top honours in a day's worth of tests is commendable for any speaker, never mind one in the middle range of our price bands. The C628 is not strictly neutral, but its balance is cunningly effective. Its smooth, even, and quite lively midband has sufficient forwardness to take the lead.



The bass is deep, fairly even and quite dry, avoiding chestiness. It's quite nimble too, if a little lacking in drive and urgency. The relative lack of treble energy seems to leave the midband a bit quacky and shut in, but what top end is there seems pleasantly discreet and amply informative, and the lack thereof doesn't seem obvious; indeed its lack of obviousness is a positive strength. Good dynamic range, decent stereo imaging and a fine sense of scale are further icing on the cake.

Conclusion

Thanks to its bulk and rather bluff appearance, this isn't the prettiest floorstander around, but it is one of the better sounding examples of the breed, thanks mainly to an impressively smooth broad midband. The boom-free bass hangs in there well, and the carbon-fibre tweeter seems very sweet, if a little over-restrained. The whole package adds up to a confident Recommendation at the price. *PM*

VERDICT

SOUND ★★★★★☆
VALUE ★★★★★☆
PRICE £1,399.00 (Black, Walnut, Rose-Ash)
 £1,499.00 (Birds' Eye Maple)

▲ A fine all-rounder with quality midband and sweet but restrained top end.

▼ The package isn't the prettiest around; voices are a bit shut in.

✉ Rogers International (UK) Ltd., Swisstone Electronics,
 310 Commonsides East, Mitcham, Surrey CR4 1HR
 ☎ (0181) 640 2172

THE LAB REPORT

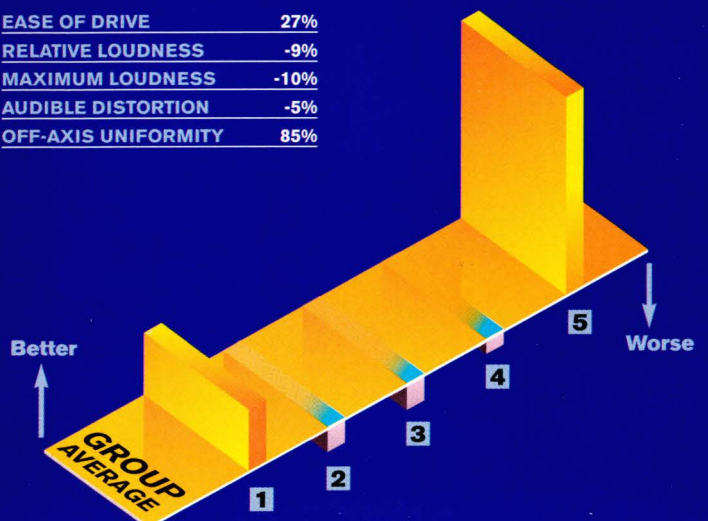
Despite its 40-litre enclosure volume and eight-inch polypropylene bass driver, this speaker's distortion around the upper bass (200Hz or so) region is increased to 1.4 per cent (re: 96dBA, dynamic conditions) by the smaller 6.5-inch midrange 'filler' driver that covers a full 110Hz-3.5kHz. These units are otherwise very well integrated though there's a clear four-five dB drop in output as the dome tweeter takes over (hence the recessed treble) while a notch just before the mid/treble crossover at 2.5kHz suggests the six-inch mid driver is also a little unhappy near the top of its range.

The port is deliberately offset to take advantage of the reduced turbulence at this part of the cabinet, but it is still tuned to a very low and thoroughly undamped 26Hz (electrical). In practice, however, the port provides maximum reinforcement at 48Hz, giving a useful -6dB position of 19-20Hz.

The Avanti responds like a typical two or three-way system. In practice it features an additional impedance peak at 120Hz which corresponds to a 'closed-box' resonance of the midrange unit. It's a trade-off between a few extra LF phase angles while avoiding the severe upper bass/midrange impedance drop typical of so many three-way speakers in this test. *PM*

HOW IT COMPARES

1	EASE OF DRIVE	27%
2	RELATIVE LOUDNESS	-9%
3	MAXIMUM LOUDNESS	-10%
4	AUDIBLE DISTORTION	-5%
5	OFF-AXIS UNIFORMITY	85%



B&W Matrix 804

The Matrix 800 Series comes from Britain's most successful international speaker brand, B&W, and comprises seven models including this floorstanding Matrix 804. The 800 Series is the prestige high-tech line, with some roots extending to the 801 studio monitor in 1979, and others to the mid-'80s arrival of Matrix. Among the current crop, only the bookshelf-size Matrix 805 has come under formal *Choice* scrutiny, and that was back in 1991, so this chance to examine a serious floorstander is well overdue.

Matrix refers to a clever technique for stiffening the cabinet without adding too much extra mass. The insides are subdivided (rather like a case of wine) with a honeycomb of ventilated MDF stiffeners, running to-and-fro in the upper compartment and up-and-down in the lower ported bass section of the box. Care is taken to maintain the acoustic contiguity of each sub-enclosure.

Another long-standing B&W technique is putting the tweeter in its own little nacelle on the top. This will obviously frustrate those who like to decorate their speakers with pot plants and other bric-a-brac, but it does assist time alignment, avoid baffle edge-dispersion discontinuities and (perhaps most important) cuts the height of the monolith.

However, it could have been more securely mounted...

The grille is an elaborate affair, with a curved, ribbed, metal extrusion to break up baffle-edge effects. The box is clothed in good-quality real-wood veneer, and the net result is a compact, chunky design, more purposeful than elegant, but neat and discreet.

The configuration is what's sometimes called a two-and-a-half-way design. The lower Cobex-coned bass driver operates only up to 300Hz, while the port tunes the lower enclosure to a very low 25Hz. The upper Kevlar-coned main driver operates under sealed-box conditions over the bass region and right up to the 2kHz crossover to the tweeter. Despite the three-driver configuration, terminals are provided for bi-wiring/bi-amping only, separating the tweeter drive from the bass/midrange units here.

The room responses show a most impressive combination of deep bass extension and good sensitivity. While the overall balance is a bit bass heavy, it's free from mid-bass boom. There's some midband unevenness, and the pres-

ence band is rather restrained, but the treble is well integrated, smooth and extended.

Sound quality

A 'best of the day' rating came as no surprise. B&W speakers have a history of doing well in my blind listening tests, partly because they're well-voiced for the sort of operating levels I use. But that's in no way intended to sell short what is clearly one of the stand-out models in this group.

Serious weight and grunt give a measure of real authority alongside considerable subtlety, combined with a lovely, open spaciousness and an impressive freedom from boxiness. The presentation is a bit cautious, and voices have a slightly 'shut in' quality with a soupçon of nasal coloration. The treble is also just a little obvious. But those are minor criticisms of what is essentially a very fine all-rounder indeed.

Conclusion

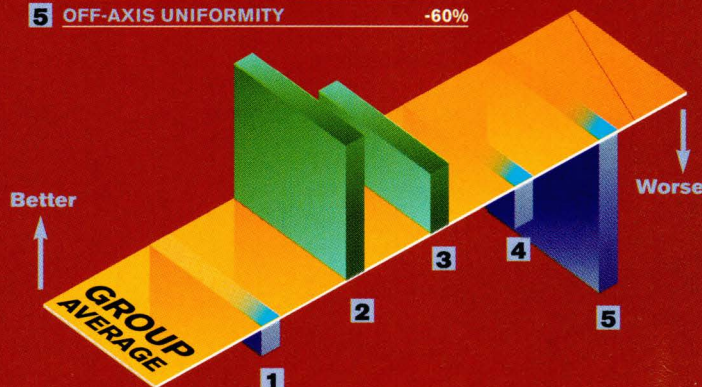
Warmly Recommended, the Matrix 804 combines serious weight and authority with subtlety and impressive stereo soundstaging. *PMc*



VERDICT	
SOUND	★★★★☆
VALUE	★★★★★
PRICE	£1,695.00
▲	A very fine all-rounder, with deep, clean bass plus spacious mid/top.
▼	A little cautious and shut in on voices.
✉	B&W Loudspeakers, Marlborough Road, Lancing, W. Sussex BN15 8TR.
☎	(01903) 750750

HOW IT COMPARES

1	EASE OF DRIVE	-10%
2	RELATIVE LOUDNESS	55%
3	MAXIMUM LOUDNESS	25%
4	AUDIBLE DISTORTION	-15%
5	OFF-AXIS UNIFORMITY	-60%



THE LAB REPORT

Tested without B&W's Bass Alignment Filter, the Matrix 804 is just about the only speaker in this survey whose bass tuning is both technically and subjectively 'on the nail'. B&W has settled for an overdamped, fourth-order (reflex) bass alignment, tuned to an exceptionally low 24Hz. The port's broad output extends usefully to 80Hz in one direction and 15Hz — yes, 15Hz — in the other, and is free of spurious resonances and/or harmonics.

The 24Hz Helmholtz frequency coincides with the speaker's mild five Ohm minimum impedance — lower still than the usual minima beyond the system resonance (in this case 6.4 Ohm at 110Hz), thanks to the relatively high DC resistance of the bass unit's voice coils. Otherwise, there's so much 'network' in the way that the impedance sky-rocketed to 126 Ohm at 1.5kHz before collapsing back to 5.3 Ohm at 11kHz, where phase angles approach 40 degrees — a hallmark of B&W loudspeakers we have tested in the past.

The speaker's response is uniform (save for a slight notch at 2.3kHz) but perhaps slightly smoother some 10-20 degrees off the main listening axis. Distortion, meanwhile, is fractionally higher than anticipated at between 1-1.4 per cent through both bass and midrange — sufficient to add the 'character' so appealing to our listeners, perhaps? *PMc*

Dynaudio Contour 1.8 mkII

Danish speaker specialist Dynaudio is probably best known for its drive units, which are unusual, expensive and have a habit of turning up in some of the best places (PMC, Totem and a number of pro-audio products, for example). However, the company also makes several ranges of complete speaker systems.

Choice first encountered the Contour series back in 1993 (issue 122), with the small-but-expensive 1.3 model. Price stability since that time has ensured that this Contour 1.8 is much more in line with the competition. Incidentally, anyone captivated by this model but unable to find the readies should check out the Applause 1.8, which includes the same basic driver line-up in a £1,100 vinyl box. No, it doesn't sound or look as good, but it does retain much of the essential flavour.

The Contour is more compact than most of the floorstanders in this report. The lounge-friendly 1.8 looks discreet and gorgeous in an understated way, though for best results you do need to keep it well away from walls. Styling is restrained in the extreme, with some of the best-finished woodwork on the planet hunkered down on a small, spiked MDF plinth.

The overall configuration is very simple. The enclosure and large rear port (tuned to a

claimed 27Hz) reflex load twin main drivers that operate in tandem up to the tweeter crossover frequency. These drivers use fabricated 118mm plastic cone/dome diaphragms, driven from large (75mm) aluminium-wire voice coils and mounted in substantial cast frames. The tweeter has a 28mm soft-dome diaphragm, and all units are magnetically shielded (so you can put the speakers either side of a TV). A single pair of 4mm socket/binders (paralleled by a special OCOS connector which Dynaudio favours) introduce amplified signals. Dynaudio doesn't believe in bi-wiring/bi-amping, though the network follows a parallel configuration, so modification isn't impossible.

The in-room far-field response looks promising, with impressively deep (sub-40Hz) bass that might actually be a little strong, though there is no sign of midbass boom.

Sound quality

"Grief; the bass and mid are playing the same tune!"



exclaimed one listener, as the Contour 1.8 turned in a fine listening test performance. The bass was considered a little too full by some of the panel, but others relished its power, control and drive.

The midband is a particularly classy affair. It sounds a little under-projected on first acquaintance, and some might prefer a sound with more obvious punch and drama. But the 1.8 succeeds through subtlety and understatement, with a natural transparency and freedom from nasality on voices that rivals struggle to match. During the hands-on work I kept going back to the Dynaudios, and they seemed to get better every time, reminding me of classic BBC-inspired monitors like the Spendor BC1 in their relaxed, easy-going naturalness, and ability to define programme quality.

Conclusion

It was one of the more expensive models in our group, but the Contour 1.8 justifies that price tag with a combination of classy finish and tantalisingly delicate vocal reproduction. Its understatement belies considerable subtlety and the promise of long term satisfaction. *PMc*

VERDICT

SOUND ★★★★★☆
VALUE ★★★★★☆
PRICE £1,842.00

▲ Delightful vocal reproduction, fine bass, beautiful cabinetwork.

▼ Low sensitivity, a bit heavy, lacks dynamic dramatics.

✉ Dynaudio UK, 29 Robyns Way, Sevenoaks, Kent TN13 3EB
 ☎ (01732) 451938

THE LAB REPORT

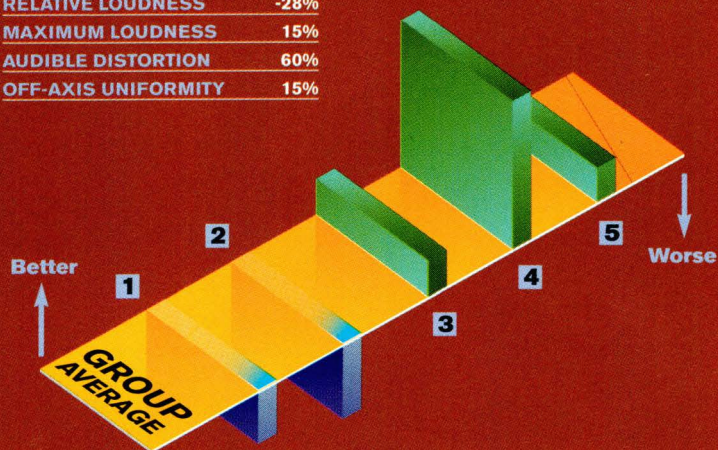
Dynaudio is marrying two 17cm bass/mid units with a 28mm soft-dome (all with aluminium-wire voice coils) at 2.6kHz via a first-order network. As there's a -5dB notch at 2.4kHz and a further -6dB cancellation at 6.2kHz in the forward response, the driver integration could evidently stand some improvement, though the averaged, third-octave response looks (and sounds) very smooth indeed. Furthermore, at just 0.18 per cent, midband distortion is by far the lowest in this 15-way test, accounting for the remarks of our listeners.

Again, the speaker load is not so severe as even Dynaudio might suggest with its 4.7 Ohm minimum coinciding with the very broad, low-Q port resonance at 28Hz. Its impedance-corrected network ensures the usual resonances are avoided, sitting between six to eight Ohm from 200Hz-20kHz with an average impedance of 7.5 Ohm, which places a very consistent demand on the amplifier.

Bass extension, meanwhile, is very impressive indeed, with the port providing an even boost from 65 to 25Hz, followed by a relatively gentle second-order roll-off to a potential 18Hz (-6dB) in-room! The penalty for low coloration and a deep bass, if it can be described as a penalty, is extracted in the form of a low 87dB sensitivity. Meaty amplifiers are duly recommended. *PMI*

HOW IT COMPARES

1	EASE OF DRIVE	-20%
2	RELATIVE LOUDNESS	-28%
3	MAXIMUM LOUDNESS	15%
4	AUDIBLE DISTORTION	60%
5	OFF-AXIS UNIFORMITY	15%



KEF Reference Model 2

KEF's Reference series loudspeakers can trace their lineage back in time more than 20 years. The objective is not just to create a range of great loudspeakers, but also to ensure that production samples always closely match the original design prototype.

The current Reference line-up consists of four floorstanders, and this Model Two, as you might expect, sits on the second rung up the ladder. Even so, it's quite a hunk, standing over a metre tall and tipping the scales further than all but one of the group assembled here.

While the Model Two fits logically into the current product hierarchy, there's no disguising the influence of the famous Model 104/2 from the '80s, which pioneered the twin-driver, coupled-cavity bass arrangement in a similar three-way configuration. A key difference between then and now is that the midrange and treble here are handled by one of KEF's Uni-Q co-axial drivers, in which a compact neodymium magnet tweeter is mounted on the pole piece in the middle of the midrange cone.

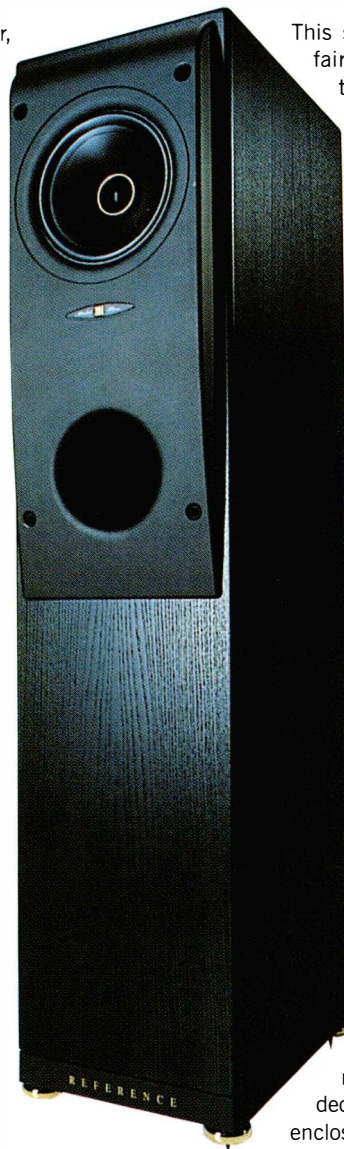
Quality real-wood veneer, softened edges and pretty brass feet (which lock-nut the spikes) are nice details, but the protruberant

sub-baffle does loom rather, giving the whole thing a slightly top-heavy appearance. A reversible screw inside one terminal of the crossover cuts the bass level by about 2dB 45-100Hz. Bi-wire terminals are fitted, despite the use of a three-way driver configuration.

The in-room response in our reasonably large test room has a rather curious characteristic. Reflecting the way a coupled-cavity favours efficiency rather than bandwidth, sensitivity is over 90dB from 50Hz-300Hz (even at the lower pre-set bass level), but falls to -15dB at 20Hz (in-room).

Sound quality

Model Two found some favour with one panellist, but the others reacted against the rather dark, hooded and heavy balance, and the general lack of air and openness, even with the minimum bass level selected. On the plus side, there are massive reserves of headroom and loudness. The upper bass and lower mid deliver convincing dynamics with impressively low box coloration, and total dynamic range is very good.



This speaker likes to be played fairly loud, but the overall top-to-bottom coherence is a bit suspect — the adjective 'processed' cropped up more than once. The top end is rather obvious and isolated, the mid somewhat recessed, and while the bass is clean and firm, it somehow lacks punch and tension.

Voice reproduction lacks solidity and focus, managing to sound both hooded and edgy. There's something of the satellite/subwoofer character about the sound, in the way the bass and mid-band don't quite gel together convincingly.

Conclusion

High efficiency through the bass region is not matched further up the midband, leaving a balance that sounds hooded and shut in under in-room conditions.

The impressively even and clean bass end has massive reserves of headroom and high loudness capability, but the overall coherence does not convince. Alas, this might be the down side of decoupling the drivers from the enclosure. *PMc*

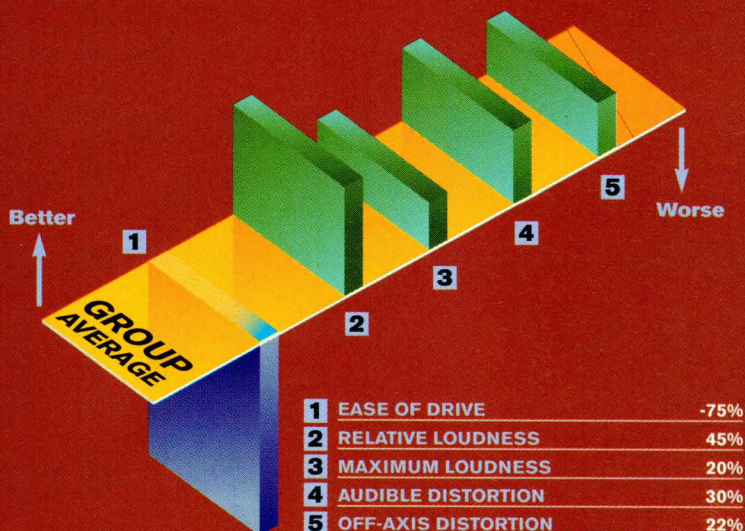
VERDICT

SOUND ★★☆☆☆
VALUE ★★☆☆☆
PRICE £1,599.00

▲ Loads of headroom, clean bass goes plenty loud; neat feet.
 ▼ Rich, heavy and hooded balance with some top end fizz.

✉ KEF Audio (UK) Ltd, Eccleston Road, Tovil, Maidstone, Kent ME15 6QP
 ☎ (01622) 672261

HOW IT COMPARES



THE LAB REPORT

As supplied, KEF's proprietary bass-loading technique has an implied (electrical) tuned port centred at 41Hz with subsequent resonances appearing around 125Hz on the impedance trend. Nearfield analysis shows that bass reinforcement is, in practice, centred at 60Hz and 130Hz, with a sharp third-order roll-off (compare with the Mission lab report). The impedance curve also reveals what appears to be a substantial mis-termination at 1.07-1.28kHz.

The latter is reflected in a peak on the on-axis response while the LF resonances may, equally, be associated with the unexpectedly high-ish levels of third harmonic distortion (1.8 per cent at 96dBA) suffered through the bass and particularly through the low 150Hz crossover region. KEF's technological rival, the Mission 754 Freedom 5, fares significantly better in this same regard.

I would advise listening marginally off the main axis to avoid both the slightly lumpy-looking bass and, in particular, the +4-5dB treble 'sting' that occurs above 12kHz. Meanwhile, sensitivity is lower than specified at 88.5dB, and ease of drive is compromised above 7kHz where the impedance drops between three-four Ohms, and where current/voltage phase angles demanded of the amplifier approach the extremes measured in some B&W loudspeakers. *PMi*

Neat Petite II/Gravitas

Neat Acoustics' little Petite has built up quite a cult following over several years. Our original review Recommended it back in 1992. Since then one major change — a ribbon-type Tonagen tweeter replacing the original conventional dome — has triggered a revision to mkII status. Neat's Gravitas system (£1,840 in black, but £2,040 in the pretty cherry veneer supplied) is much more recent, combining a pair of Petite IIs with much larger bass modules that also act as stands.

The net result is both interesting and good looking, the more so, perhaps, because Neat eschews any form of covering for the drive units and ensures that the front panel and driver mounting is as sleek and clean as possible. Precisely-radiused edges all round the enclosures enhance this effect.

If only to satisfy the aesthetes among us, Neat has ensured the Petite II defines the width of the combination; but this puts an upper limit on the usable driver frame diameter. Gravitas goes much deeper in search of volume and fore/aft stability, and gets part of its oomph by using two drivers, operating in acoustic series (Linn Isobarik-style), one on the front and another hidden inside the box.

The low-frequency enclosure is a com-

plex and beautifully-built affair, asymmetric front-to-back with three separate cavities, and featuring slate inserts top and bottom for spike coupling to floor and Petite II. The upper 12 litres are sealed (though driven by both drivers operating in phase so that no pressure is built up), while the 26-litre middle cavity is rear-ported. The lowest 10-litre section consists of an additional acoustic resistance/trap.

The wiring simply runs the bass module in parallel with the Petite II satellite. There is a high impedance to ensure the combined load remains easy to drive, and since the Petite II has twin terminals, any combination of bi-/tri-wiring or bi-amping is feasible. Foam bungs are supplied to block the ports on the bass module and/or the Petite II, giving the user significant flexibility when matching the system to individual rooms and systems.

In-room bass is good to below 30Hz, and remains impressively smooth and well balanced up to 350Hz, but the subsequent broad midband is three-four dB lower in level, while the treble

stages a rather uneven recovery above 5kHz.

Sound quality

Neat's Gravitas combo received a mixed response from the listening panel and, while I gave it a high score, the overall rating came out slightly below average.

The bass was well praised for its clarity, articulation and timing. The sound as a whole is even-handed and smooth: open, spacious and unboxy. But the midband is really too cautious, laid back and shut in, lacking vitality and convincing dynamics. The treble is a bit bright but notably sweet with it, and this does help balance out the bottom end.

Conclusion

Given that the Petite II is nominally a full-range speaker in its own right, adding extra bass is bound to shift the balance of the system markedly. Neat took this into account when voicing the mkII ribbon-tweeter Petite, but the latter's modest midband sensitivity remains a limiting factor. Petite

owners should certainly check out the Gravitas upgrade, but the complete package is less convincing at the price. *PMc*



VERDICT

SOUND ★★★★★

VALUE ★★★★★

PRICE **£1,840.00 (Black);**
£2,040.00 (Cherry)

▲ Lovely presentation, fine bass and an open, spacious sound.

▼ Midband is a little under-nourished; low sensitivity.

✉ Neat Acoustics Ltd, Unit 1a, Stainton Grove Ind Est, Barnard Castle, Co Durham DL12 8UJ

☎ (01833) 631021

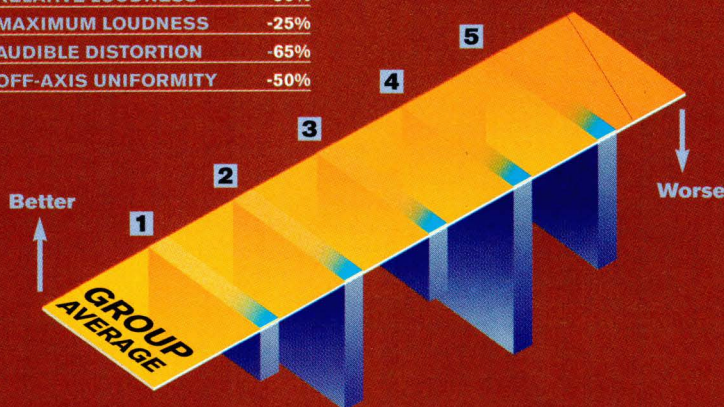
THE LAB REPORT

Neat's 8 Ohm rating should really be revised to 6 Ohms, for though the average impedance is high at 15.5 Ohms, this is offset by the 50-odd Ohms' worth of crossover network through the mid. Otherwise, the Gravitas's well-engineered 31Hz port tuning coincides with a minimum of 4.7 Ohms, and the trend is broadly below eight Ohms right up to 300Hz (save for the mild system resonance). At very high frequencies, meanwhile, the impedance drops away again, falling below five Ohms above 20kHz. Sensitivity, also, is very low at 86.7dB.

The midband also came a cropper in our distortion tests, which showed an anomalous increase from (typically) one per cent (bass) and 0.4 per cent (treble), to between five to six per cent at the same 96dB SPL. This extended spray of harmonics must contribute to the Petite's 'character', but it could just as easily be indicative of a faulty crossover component or bass/mid driver. The response also becomes rather ragged in the three kHz or so before this unit crosses over to the EMIT tweeter at six kHz. Its elevated treble level foreshadows what is a generally depressed midband. The peaky treble and sagging midband become more apparent as you listen off the horizontal axis, I might add. *PMi*

HOW IT COMPARES

1	EASE OF DRIVE	-20%
2	RELATIVE LOUDNESS	-50%
3	MAXIMUM LOUDNESS	-25%
4	AUDIBLE DISTORTION	-65%
5	OFF-AXIS UNIFORMITY	-50%



Origin Live Conqueror

Origin Live, the brainchild of Mark Baker, is a small speaker company based just outside Southampton, which has shown signs of steady growth over the past several years. *Choice* has reviewed four OL speakers over this period, mostly of the compact, floorstanding variety. Most have been well received. In my perception, a common thread has been a sense that this marque's speakers are always very carefully voiced.

The Conqueror is a whole lot bigger, more elaborate and more substantial than any OL we've seen before, which is only to be expected as it has hefty price tags to justify: in black, £1,650; in other real wood, £1,745. Our samples came with pretty, pale, natural oak panels with matching MDF post-formed edges all round, some distinctive styling grooves up the sides, and an all-up 20kg weight which is a corollary of the thick 26mm panels used in construction. The whole thing looks chunky and purposeful, sitting on (and carefully decoupled from) a generous matching plinth with fat spikes.

This is a genuine three-way design, despite having only two pairs of terminals on the rear. An eight-inch-diameter, cast-frame driver (with 150mm doped paper cone) handles bass duties. Port loaded high up on

the rear, the system is tuned to a relatively high 60Hz. As OL acknowledges, this means a limited deep bass extension, but it should help to control the driver excursion. The midband is handled by an unusual 55mm soft fabric dome (from Morel), while the tweeter is the high-class Focal device with inverted 25mm Kevlar dome.

Room measurements confirmed that there is little bass extension below 40Hz, but the sensitivity is modest and the amp load is easy. The in-room balance could be smoother.

Sound quality

While it didn't really live up to its name, the Conqueror was nevertheless well received by the listening panel. It attracted particular praise for lively across-the-band dynamics and a level of coherence that is difficult to achieve in a genuine three-way configuration.

Some listeners felt the

sound might be a bit too up-front and in-er-face, with some potential for fatigue when replaying unsympathetic music and/or partnered with disagreeable ancillaries.

But for most panellists, the lively exuberance and zest was a welcome relief from the over-restraint often encountered elsewhere. The lack of really deep bass deducted a point or two, and the presence band is a little shut in, with some nasal coloration. For sheer bounce and brio, however, the OL Conqueror takes a fair amount of beating.

Conclusion

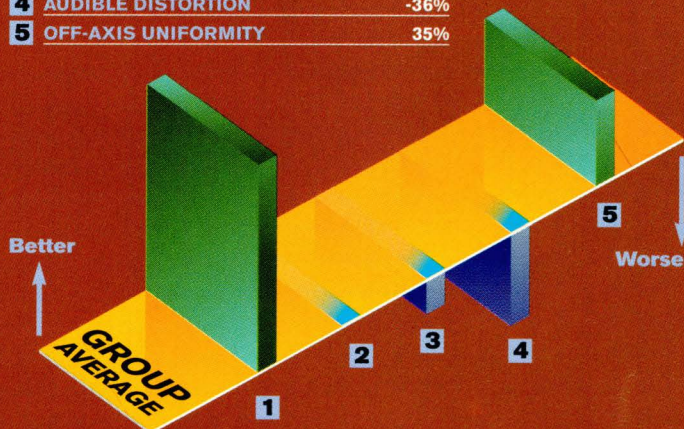
It's always a risk with big and expensive speakers that they will do everything very competently but lose the musical plot along the way. For me, the biggest strength of the Conqueror, is the way it has managed to retain all the charm and coherence of the best baby speakers and translate that into a beautiful big box with bags of extra dynamic punch and headroom. *PMc*



VERDICT	
SOUND	★★★★☆
VALUE	★★★★☆
PRICE	£1,695.00 (Black); Add £95 for other finishes
▲	Punchy, dynamic and thoroughly entertaining.
▼	Could have deeper bass; a bit in-er-face.
✉	Origin Live, 87 Chessel Crescent, Bitterne, Southampton SO19 4BT.
☎	(01703) 442183/576677

HOW IT COMPARES

1	EASE OF DRIVE	85%
2	RELATIVE LOUDNESS	0%
3	MAXIMUM LOUDNESS	-12%
4	AUDIBLE DISTORTION	-36%
5	OFF-AXIS UNIFORMITY	35%



THE LAB REPORT

This is a well-meaning but somewhat arbitrary three-way design. For example, the eight-inch pulp woofer is reflex loaded at 61Hz via a rear-mounted port or, more correctly, a chamfered hole. In practice, near-field analysis shows that peak reinforcement occurs at a somewhat higher 88Hz with a third harmonic resonance breaking clear in the upper bass/lower midrange at 265Hz (-13dB) and THD settling out at 1.5 per cent. This produces a mildly coloured bass whose extension is about an octave short of what should be possible from a box of this volume.

Driver integration is also poor and aggravated off-axis, with Morel's soft-dome midrange unit almost uniformly 6dB lower in output than the bass and (Focal) treble drivers, to which it is partnered above 1kHz and below 5kHz respectively (the nominal crossover point is 3.5kHz). Plenty of lower midrange and treble then, but the 'presence region' looks sadly depleted, leaving the 'real-life' sensitivity at 87.6dB substantially lower than Origin Live's somewhat optimistic 91.5dB.

On a more positive note, this is easily the tamest load in the test, with an average 15 Ohms across the audioband and a *minimum* of 9.4 Ohms due to the woofer's voice-coil resistance at 180Hz — all warranting an amplifier-friendly 10 Ohm nominal rating. *PMi*

Ruark Crusader

It's been several years since *Hi-Fi Choice* has taken a close look at a Ruark loudspeaker, and this £1,600 Crusader is no spring chicken having already established itself as a favourite among connoisseurs of upmarket loudspeakers. The styling of this three-way immediately rang bells for me. It shows a strong family resemblance to the redoubtable two-way Talisman II (*HFC* 118, May 1993), with its scalloped edges and gilt screws conveying a particularly effective 'neo-heritage' impression.

An unusual constructional design effectively consists of two trays: one smaller, rear-facing, black-vinyl finished; one larger, fitted just inside a larger real-wood veneered section to the front. This probably confers good structural properties, but the visual consequences are most intriguing. The pretty woodwork attracts the eye, and the rear section is likely to be perceived as more of a shadow than a solid box.

There are other neat touches. The front panel leans slightly backwards, allowing the enclosure to be fairly low yet still capable of directing the sound upwards into the room. It's deeper at the base than the top, which will help spread the internal resonances in one plane. A solid steel plate is fixed to the underside of the heavily scalloped plinth,

providing secure mounting for chunky spikes.

This is a genuine three-way design, and remained unique among the three-driver systems assembled for this group test in that Ruark has had the decency to provide three separate terminal pairs — one for each drive unit and its associated arms of the parallel dividing network. The bass unit has a 115mm paper cone and the tweeter a 25mm dome. But the *pièce de résistance* is an unusually large soft-dome midrange driver, with a diaphragm of some 80mm diameter.

Once the tests (including blind listening tests) had begun, Ruark announced a port modification in which a resistive damping membrane was substituted for an optional foam bung. The 35Hz tuning remains the same, and the difference is marginal. The in-room response is a little strong through the bass region (especially around 100Hz), but it is very smooth and quite flat above 200Hz.

Sound quality

The Crusader came at or near the top of the class on both listening test days,

attracting consistent and almost universal praise for its even-handed and neutral balance, its natural tonal perspectives, a lovely sense of space and air, and a general freedom from boxiness.

The sound is warm, rich and just a little heavy. It has a rather laid-back yet open sound, with a particularly well-judged treble that is both informative and discrete. It can get a bit thumpy on some material, and there's some overall timesmear that brings a degree of detachment. There's a touch of pinched and nasal coloration in the midband too, but fine perspectives, coherence and focus make this speaker an excellent all-round performer.

Conclusion

An exceptionally even-handed balance is a big plus for this handsome and quite compact three-way design. Although sensitivity is modest and the sound not the liveliest or most transparent around, this smooth performer is going to be one of the easiest speakers to live with, and Recommendation is the obvious conclusion. *PM*



VERDICT

SOUND ★★★★★☆
VALUE ★★★★★☆
PRICE £1,599.00

- ▲ A beautifully even-handed balance in an equally attractive box.
- ▼ A bit laid back and timesmeared; modest sensitivity.
- ✉ Ruark Acoustics Ltd, 59 Tailor's Court, Temple Farm Ind Est, Southend-on-Sea, Essex SS2 5TH.
- ☎ (01702) 601410

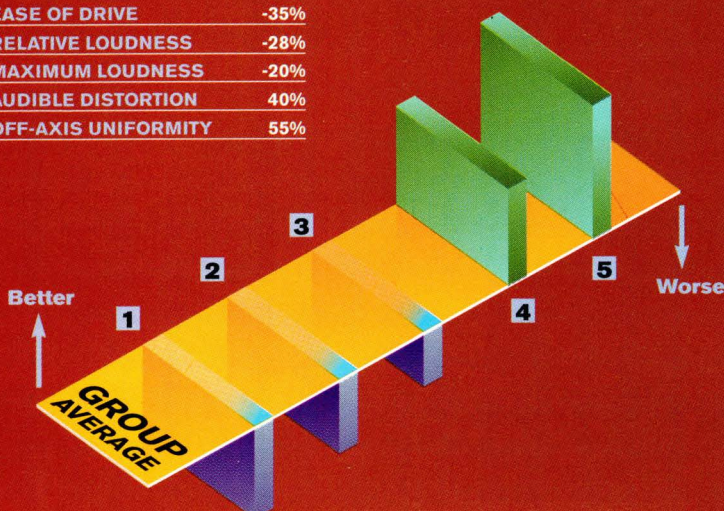
THE LAB REPORT

On the whole, Ruark's Crusader behaves like a classic three-way design and avoids the excessive response anomalies that have afflicted earlier models. Narrowband analysis highlights a sharp +4dB peak at 4.4kHz, possibly the result of a break-up mode in the midrange dome subsequent to the 3.5kHz crossover point. However the third-octave response, both on and up to 30 degrees off-axis, looks impressively flat and extended. Sensitivity is also higher than claimed at 87dB. It's this more general trend, and the fact that distortion through the midrange and treble is just 0.2-0.8 per cent (re: burst signals at 96dBA), that lends the Ruark its very neutral balance. Naturally, to some ears, this lack of colour may well be interpreted as a lack of excitement or musical richness.

The doped-pulp bass unit is aided by a moderate-Q port resonance at 34Hz, which provides maximum reinforcement at 43Hz and promotes a -6dB in-room bass extension of around 24Hz. Once again, the bass is as clean as its mid and treble. And yet the Crusader does have a slight sting in its tail where, after the second-order high-pass arm at 3.5kHz, the impedance falls below eight Ohms (4.3 Ohm minimum at 6.3kHz) and phase angles peak at 35-40 degrees. *PM*

HOW IT COMPARES

1	EASE OF DRIVE	-35%
2	RELATIVE LOUDNESS	-28%
3	MAXIMUM LOUDNESS	-20%
4	AUDIBLE DISTORTION	40%
5	OFF-AXIS UNIFORMITY	55%



Conclusions

Getting to grips with 15 upmarket loudspeakers in a month is a bit of a struggle, but going back to something cheaper and smaller immediately afterwards is far less pleasant! The simple fact is, these pricey models really deliver the goods. Even the oddballs have their charms, and often serve to highlight the less obvious shortcomings of more conventional, well-rounded designs. I got to like all of them in their different ways, but that's not to say I liked them equally, or that your favourites will be the same as mine.

I also remembered the maxim that there's no magic formula equating to loud-

speaker nirvana. For these reasons I've avoided singling out a Best Buy on this occasion, and I have been more generous than usual with the Recommended flags.

I guess most buyers will settle for one of the good all-rounders. But if I had to pick one pair for my long-term personal use, I'd be torn between two of the more extreme examples. The **Rehdeko** and the **Dynaudio** couldn't be much further apart in terms of the philosophy that underpins their designs; yet in each, the single-minded commitment that comes through is somehow more powerful than the emollient of compromise that lubricates listening elsewhere.

One positive finding from this group of speakers was how much better they match my listening room than their equivalents of a few years ago. Large speakers regularly used to suffer from a lack of real, deep bass extension and an excess of mid-bass boom. The majority of this latest crop avoid that trap, and three (**B&W**, **Dynaudio**, **Roksan**) turn out to be serious low-bass excavators.

I'm less happy that so many of the three-way systems came with just bi-wire terminals. The decision to split out either treble or bass seemed somewhat arbitrary. A more detailed discussion of this topic may be found in *Personal Messages* (page 21).

GROUP A (£900–£1,200)

JBL L40	£1,000.00
Keswick Audio Torino	£899.00
QLN Signature HDII	£1,199.00
Roksan OJ3X	from £1,195.00
Tannoy Definition D300	£999.90

Even in this lowest-price group there's plenty of contrast between different models. **Keswick Audio's Torino** might not be the smoothest or cleanest performer around, but it's a lively communicator with good bass reach, it isn't likely to give your amp a hard time, and it comes well finished with an interesting and purposeful shape.

Tannoy's Definition D300 stakes a strong claim to being one of the prettiest speakers

around, as well as one of the most discreet. Though a bit 'smaller' than some of the competition, its sound is very well ordered.

JBL's L40 is anything but visually discreet, especially when you get it up on a stand. Sad to say, it doesn't offer the grip and authority evinced by the bigger L90s reviewed back in *Choice 143*, nor is it the last word in delicacy or transparency, but like the L90 its



sound is punchy and dramatic.

I have a particular soft spot for the **Roksan OJ3X**, since it dares to be different and gets away with it so well. Though vocal reproduction could be sweeter and a big amp is desirable, its shape and bass output are both great.

The **QLN Signature HD**

II also needs plenty of power on tap. Its balance is a little heavy and shut in, but it has great dynamic range, a sweet treble and fine freedom from boxiness.

QLN Signature HD II

GROUP B (£1,201–£1,550)

Mission 754 F5	£1,300.00
Rehdeko RK 115a	£1,550.00
RMS Revelation Series 1	£1,299.00
Rogers Avanti C628	from £1,399.00

In our middle price band there are larger, heavier models — and some smaller, weirder ones too! **Mission's big 754 Freedom 5** is a lot of very good-looking speaker for the money. Though its coupled-cavity bass is not convincing, mounting the mid and treble drive units

well clear of the floor brings its own reward.

Rogers' Avanti C628 might not have good looks on its side, but its more conventional ported system delivers good, deep bass and a broad, flat midband takes the lead rôle. Its novel carbon-fibre-composite tweeter sounds sweet if restrained.

RMS's Revelation Series 1 really intrigued me by sounding quick and coherent despite having a dramatically sucked-out midband. As tested, it's very bright and amp-unfriendly,

though modifications are already mooted. I, for one, will be keeping a close watch on developments.

Rehdeko's RK115a simply kicks convention out of the window, discarding bandwidth and smoothness in favour of awesome sensitivity and single-driver coherence. You've probably never heard sound like this before, and it's worth seeking out just in case it gets you going.

Mission 754 F5



GROUP B (£1,551–£1,850)

B&W Matrix 804	£1,695.00
Dynaudio Contour 1.8 mk II	£1,842.00
KEF Reference Model 2	£1,599.00
Neat Petite II/Gravitas	from £1,840.00
Origin Live Conqueror	from £1,695.00
Ruark Crusader 2	£1,599.00

These six enclosures are much more homogeneous than the members of the cheaper groups — almost to the point of setting a stereotype for the price band. (**Neat's** package is excepted from this generalisation.) All of the high-flyers are floorstanders, all stand more than 90cm off the ground and weigh 20kg or

more, all have at least three drivers, and all have very classy cabinetwork (often for acoustic as well as aesthetic reasons) plus real-wood veneers.

For seriously deep bass, the **B&W** and **Dynaudio** lead the way, although the limited extension of the **Origin Live** might be beneficial in smaller rooms or those with difficult acoustics.

There's a marked difference in sensitivity between the **B&W**, **KEF** and **Origin Live**; and the **Dynaudio**, **Neat** and **Ruark**. As all these speakers are essentially clean-sounding, and offer

good power handling, there's an extra temptation to play them loud, making the power limitations of some amps more obvious.

There are all sorts of other contrasts. The **B&W** and **Origin Live** have a livelier and more upfront sound than the other four. However, some listeners will find the smoother and more laid-back balance of the **Dynaudio**, **Neat** and **Ruark** more appealing. With these upmarket models, a review can only take you so far. The rest is up to you and your personal preferences!



Neat Petite II/Gravitas

RECOMMENDATIONS



I have awarded no formal Best Buys on this occasion. These are harder to justify at the elevated price-levels of this test than in the budget sectors we explore at other times. However many interesting and high-quality designs are among the 15 we've examined. And here, in ascending price order, are the nine we Recommend.

The **Keswick Audio Torino (1)** is the least expensive in our test at £899.00, but in its own distinctive way it's a good looker, and gives away little to its more expensive rivals in engineering terms. Though the mid-band could be smoother and sweeter, sensitivity is comfortably above average and the bass goes satisfactorily deep.

Though bulky stand-mount speakers aren't at the apogee of current fashion, the £1,000.00 **JBL L40 (2)** is a very effective reworking of a classic theme.

Though a little coarse at times it has a lively, entertaining presentation that's commendably neutral.

The £999.90 **Tannoy Definition D300 (3)** is



without doubt the prettiest and most compact speaker in our test group — a beautifully balanced affair. However because its sound errs on the side of miniature and delicate, the D300 might be best suited to smaller rooms.

With a lower profile than even the Tannoy, the

£1,195.00

Roksan

OJ3X (4) is

nonetheless a chunky, deep, two-way design with a large main driver and mechanically-decoupled tweeter. Sensitivity is low and vocal reproduction can become stressed, but

the bass goes very deep.

A genuine class act.

Rogers' Avanti

C628 (5) might not be the best-looking floorstander around, but it does provide plenty of solid engineering for

£1,399.00.

It has a decent bass, even better midband and a charmingly discreet (if rather too restrained) carbon-fibre-composite tweeter.

The £1,550.00

Rehdeko



RK115a (6) is very much a personal Recommendation. Though it lacks bandwidth and produces a blatantly coloured sound, I find its dynamic and timing coherence a more than ample recompense.

You may love it, you may hate it — but in my considered opinion any serious audiophile should take time to experience the Rehdeko effect.

More compact than many of its rivals, with a cunningly-shaped and beautifully-crafted enclosure, the £1,599.00

Ruark Crusader

(7) wowed the listening panel with its

smooth, neutral, easy-going balance, though bass extension and sensitivity are both modest.

The £1,695.00 **B&W**

Matrix 804 (8) is

an impressive tour de force, combining seriously deep bass with decent sensitivity. Matrix stiffening helps keep the box under control. B&W's cast-frame/Kevlar-coned driver takes care of the mid-band while the tweeter sits on top. This gives the sound extra space and air.

The £1,842 **Dynaudio**

Contour 1.8 mkII (9)

supplies seriously deep bass from an unusually compact box, at the cost of slightly reduced sensitivity. It's a delightfully subtle and understated performer whose seductive virtues include delicate and transparent voice reproduction.



BEST OF THE REST

Tiny speakers have obvious appeal irrespective of price, and the **Totem Model One** (£995) is among the very best examples of the type. The **PMC AB1** (£998) uses rather similar drivers in a somewhat larger transmission-line enclosure, and is consequently more transparent, though neither has the muscle or drive of the **B&W Matrix 805 V** (£995) with its larger main driver. If you're looking for real slam and drama from a bookshelf speaker, the three-way **JBL L90** (£1,300) takes the honours — but it's as big and as heavy as most floorstanders!

Stand-out sub-£1,000 floorstanders

include the beautifully-balanced **Polk LS50** (£800), the metal-diaphragm transmission-line **TDL Studio 1m** (£899 — for deep, deep bass). However if you seek really class presentation and a fine, open sound quality, the **Rega XEL** (£1,040) and **Castle Howard S2** (£1,100) take a lot of beating. The **Audio Note AN-E/B** (£1,299) won't win any beauty contests, and needs a small stand, but its liveliness and coherence have made it a firm audiophile favourite. The **Linn Kaber** (£1,800) and **Naim SBL** (£1,878) are two old favourites with dry, up-front balances, ideal for close-to-wall mounting. They're all the more discreet as a consequence.



JBL L90

Five Stars

Does the best price always mean the best deal?

“I thought I had this buying hi-fi business sorted out. I bought all the hi-fi magazines and read them thoroughly, because I reckoned their experts knew exactly what they were talking about - at least a lot more than I did! It was reassuring to see the same product names cropping up regularly and I figured the writers’ experience and guidance would steer me straight to the system of my dreams. The trouble is I’ve ended up more confused than when I started.

There is only one way to buy a hi-fi system that will prove satisfying, reliable and deliver true value for money, and that’s through a specialist hi-fi dealer. Let’s face it, you wouldn’t think about buying a car if you couldn’t take it for a test drive. You wouldn’t buy a house solely on the strength of seeing the estate agent’s details and a photograph. Even if you’re spending far less, say buying a jacket or a pair of shoes, you want to try them on to make sure they fit you.

Buying a hi-fi system is no different. It doesn’t matter what the specifications say or what the “experts” think: if it doesn’t measure up to what you want from a system, then it’s not the right choice. Knowing that you’ve bought a room full of five-star favourites or best-buys is no consolation when you can’t bear to listen to them for more than five minutes. Even that ten per cent discount on the price won’t make them sound any better.

Plan B — I’m going for a deal

“So, I’ve decided to adopt plan B. I’m sure there can’t be any really dramatic differences between all this gear and it’s all bound to work together properly, so I’m going to check the price lists and the adverts and shop around for the best deal. I know getting the right hi-fi is important — hey, I’m as mad about music as anyone — but if I can get close to the mark and save a few quid, I’m sure I’ll end up with a good system and be happy. I know there are specialist shops out there that do demonstrations and reckon they’ve got all the solutions but, to be honest, I’m a bit scared of going to one. I’d really welcome some advice and guidance but I don’t know all the technical jargon and I’d feel daft sitting there trying to “hear the differences” if I couldn’t. Anyway, a friend told me that these shops only sell the really expensive gear and that they’re not interested if you don’t have loads of money to spend.”

And so another hi-fi buyer starts his journey down the road to dissatisfaction, endless upgrades and a permanent overdraft.

Buying or being sold to?

Mind you, most of us are easily suckered when it comes to buying hi-fi. Given the choice of venturing into the unknown territory of a specialist dealer’s shop and exerting some influence over what we buy, or taking what looks like the easy route — having adverts and magazine reviews push us along a path sweetened with discounts and special offers — we opt for the latter. We don’t buy a system, we allow ourselves to be sold one. We side-line our own ideas about quality and personal satisfaction and buy someone else’s opinion of what’s good for us and good value for our money.

Take control!

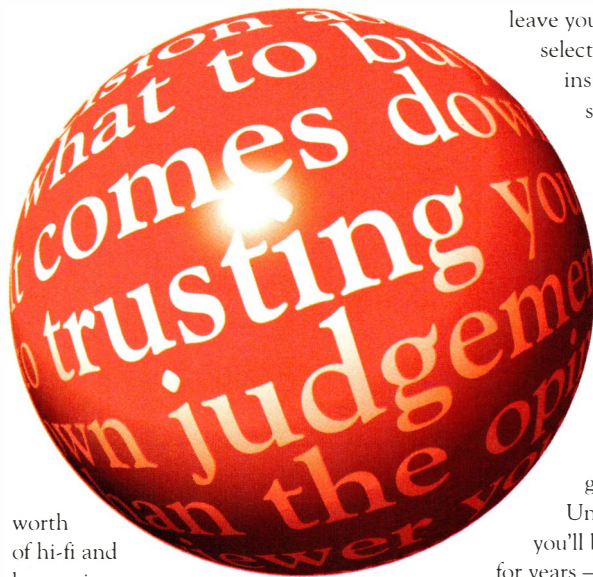
Now there’s a group of long-established, independent specialist dealers who are totally committed to putting the customer back in the driving seat. They’re encouraging the buyer to take control ... with a little help and guidance provided where required. They know how difficult it can be to establish the true quality and



One reviewer said a product I fancied was absolutely brilliant but another said it was nothing special at all. How can that be? Surely one CD player is pretty much the same as another? And how can a loudspeaker that’s one magazine’s top recommendation not get so much as a mention in any of the others? I don’t mind admitting it, I’m completely lost.”

For Value

Ask the UK's top twenty specialist hi-fi dealers.



worth of hi-fi and home cinema systems. They know that without experiencing the performance of the systems they offer, you can't possibly assess the value of them. That's why their idea of "selling" is to play the systems for you and allow you to be the judge.

Listening to your choice of music in a peaceful, well organised demonstration room, you may be surprised and, almost certainly, relieved to discover how easy it is to hear the differences between components and between systems. With the dealer's help and advice you will be able to make a clear and informed decision about what to buy. It comes down to trusting your own judgement rather than the opinion of a reviewer you've never met ... and who won't refund your money if you're not satisfied or be at the end of a phone to sort out any problems you might encounter.

The story doesn't end there. These shops won't abandon you once you've put your hand into your pocket. They won't

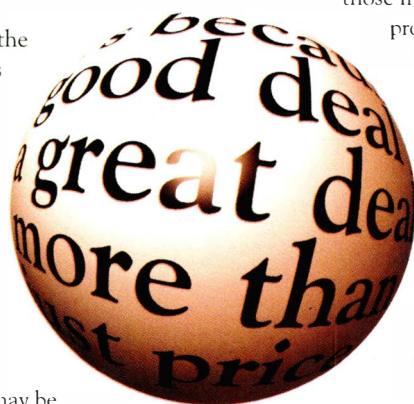
leave you to set up the system you've selected as best you can. They'll install it in your home, make sure it sounds great, and make sure that you're entirely happy with the way it works.

Why bother?

There is, of course, one question that hasn't been answered: why should you and these dealers go to all this trouble? Well, from your point of view maybe it's because a good deal is about a great deal more than just price. Unless you've got money to burn, you'll be living with your new system for years — years during which most of those five star products will probably stop shining quite so brightly.

As far as the dealers are concerned, maybe they believe that taking care of their customers properly is a nicer way of doing business than just handing over boxes.

Listed on the right of this page are the best hi-fi shops in the country. They all have lots of stars. You'll find them on the shop floor: they're the people waiting to guide customers towards hi-fi that will give them years of musical enjoyment and total satisfaction.



STAR QUALITIES

value for money
service
facilities
verdict



TOP 20 SPECIALIST HI-FI DEALERS IN THE UK

LONDON

N1

Grahams Hi-Fi
190a New North Road
0171 226 5500

SW11

Oranges & Lemons
61/63 Webbs Road
Battersea
0171 924 2040

W4

Martin-Kleiser Ltd
108 Chiswick High
Road
0181 400 5555

SOUTH

Ashford, Kent
Soundcraft Hi-Fi
40 High Street
01233 624441

Chelmsford

Rayleigh Hi-Fi
216 Moulsham Street
01245 265245

East Grinstead

Audio Designs
26 High Street
01342 314569

Kingston-upon-Thames

Infidelity
9 High Street
Hampton Wick
0181 943 3530

Rayleigh, Essex

Rayleigh Hi-Fi
44a High Street
01268 779762

Southend-on-Sea

Rayleigh Hi-Fi
132/4 London Road
01702 435255

Uxbridge

Uxbridge Audio
278 High Street
01895 465444

MIDLANDS

Banbury

Overture
3 Church Lane
01295 272158

Birmingham

Sound Academy
152a High Street
Bloxwich
01922 493499

Leicester

Cymbiosis
(Formerly known as
Listen Inn)
6 Hotel Street
0116 262 3754

Northampton

Listen Inn
32 Gold Street
01604 37871

Shrewsbury

Creative Audio
9 Dogpole
01743 241924

NORTH

Cheadle (Stockport)

Audio Counsel
14 Stockport Road
0161 428 7887

Oldham

Audio Counsel
12/14 Shaw Road
0161 633 2602

Sheffield

Moorgate Acoustics
184 Fitzwilliam St
0114 275 6048

SCOTLAND

Edinburgh

Russ Andrews Hi-Fi
34 Northumberland
Street
0131 557 1672

Glasgow

Stereo Stereo
260 St. Vincent Street
0141 248 4079

Dealer Guide

BIRMINGHAM



MUSIC MATTERS

THE AUDIO SPECIALISTS



Latest additions to our extensive range of products include Audio Research, Theta, Dynaudio, Sonus Faber and Krell. The Midlands' best HiFi store also offers the latest from B&W, Mission, DPA, Musical Fidelity, Ruark, TEAC, Meridian, CYRUS, Yamaha and KEF.

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Thursday 10.00-7.00

363 Hagley Road, Edgbaston
Birmingham B17 8DL
Tel: 0121 429 2811
FAX: 0121 434 3298

93-95 Hobs Moat Road, Solihull
B92 8JL (near the ice rink)
Tel: 0121 742 0254
FAX: 0121 742 3471

156-157 Lower High Street,
Stourbridge DY8
Tel: 01384 444184
FAX: 01384 444968

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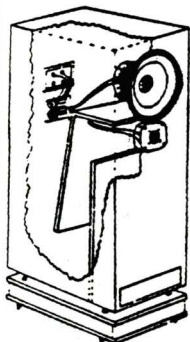
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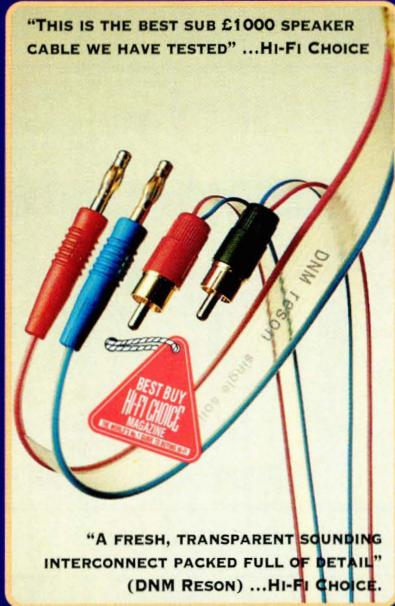
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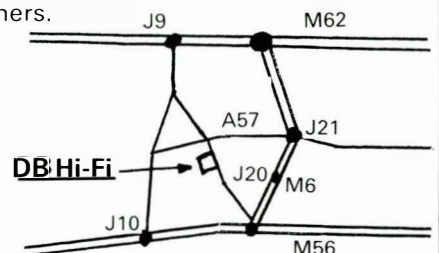
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To advertise on this page, write your advert in block capitals and send it to: *Hi-Fi Choice*, Reader Classifieds, 19 Bolsover St, London W1P 7HJ. Include a cheque for £5* made payable to Dennis Publishing Ltd. The advert will appear in one issue only and must be no more than 20 words (or five lines) long, including all spaces and your phone number. Reader Classifieds are for the use of private individuals only. All Reader Classified adverts will be printed on a first-come, first-served basis, subject to available space, and Dennis Publishing Ltd accepts no liability for the accuracy of the information contained therein, nor any consequence arising from it, nor for any typographical errors. We reserve the right to amend or refuse adverts at the Editor's discretion and cannot guarantee that an advert will appear in any specific issue.

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- Nakamichi 1000ZXL, serious offers. KEF 104/2 with cube £550. Excellent condition. London (0181) 942 6553.
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- power supply, all instructions, excellent condition. £675ono. Hi-fi black head transformer as new £40 ono. Rotel pre amp RL870 and power amp RB 870 as new, boxed, instructions. £275 ono. Also one pair of Dean Alto speakers inc stands. £225 ono. Notts (01623) 646543.
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- TDL RTL 3 under a year old (cost £400). Cyrus power, Cyrus III. Both amps purchased Feb '97, cost £1,100. £1,200 the lot. Bucks (01908) 619518 days/(01908) 666973 eves.
- Technics SU-A700 mk III amp, as new, guaranteed, remote control etc. £190 ovno. London (0181) 891 5563.
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- Technics SU-MA10 digital straight amp, on-board DAC, 100WPC £475 ono. Pioneer A400, late model £175 ono. Both boxed, manuals. Berwick (01890) 818361.
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- Sony TTS-8000, Sony TC766, Sony TAF730ES, JR149, Pioneer SA9800/9500, Pioneer RT707, AT637, JVC QL-Y5F, Nytech receiver. (01697) 478537.

Oh Say Can You See?

Americans have not trashed hi-fi for home cinema. As **Mark Spector** explains, it's just a matter of family values to the fore...

British folks think Americans are obsessed with home cinema. I'd suggest a broader view:

Americans are obsessed with cinema of all kinds, and the home cinema craze is just an extension of a larger obsession. Home cinema in America is as big as you've heard — maybe even bigger.

The retail hi-fi industry in America has undergone a giant metamorphosis in the last 10-15 years. In the '80s I remember selling hi-fi in a speciality store to clients looking for better quality audio equipment. Customers had the same concerns as today's British customers. "How good does it sound?" "How well will the components work together?" "How much does it cost?"

Today, in hi-fi shops across America, the questions are different. "How big a TV do we need?" "How loud will it play?" "Can we connect our video game set to it?" "Was Sean Connery a better James Bond than Roger Moore?"

The family and the hi-fi

Until home cinema became an explosive category, families hardly ever shopped for hi-fi systems together. Typically the man of the house would bear the responsibility of the purchase, and would decree that only he was allowed to operate the system. Today, a family of four walks into a hi-fi shop and tells the salesperson they'd like a demo of a home cinema system. The husband/father wants the system to sound good; the kids want it to be loud; and the wife/mother worries where all those boxes will fit in the room.

Perhaps as a result speaker manufacturers in particular have spent nearly as much money on cosmetic design as on research and development into sound attributes. Often, the purchase decision comes down to how good the speakers will look in the room, not the sound. This is most evident in rear surround speakers, where the traditional square wooden box has been supplanted by sculpted plastic and metal constructions, designed to be mounted on the wall.

Darwin's theory of hi-fi evolution

The growth of home cinema has complicated the process of demonstrating hi-fi, both for the customer and the shop. Where once the dealer would have hooked up a pair of speakers, an amplifier and a source, a typical demonstration now involves a pair of main speakers, a matching centre-channel speaker, rear surround speakers, a powered subwoofer, five channels of amplification, a Dolby processor, and a CD player. And that's not even considering video equipment.

The company that owned the retail shop I managed declared in the mid '80s that it was going to put a TV in every demo room. Many



alleged industry experts thought we were in dire need of immediate hospitalisation.

Now, most shops set up their demonstration rooms with a TV, and at least one home cinema system. It is not uncommon to find anywhere from six to 12 complete, dedicated, and active home cinema systems on display throughout a shop. Most quality shops even have elaborate switching systems, so that customers can instantly compare centre speakers, powered subwoofers, and rear speakers.

Today, most U.S. hi-fi shops have now embraced the change to the video-oriented systems of home cinema. Some high-end audio-only shops refused to believe that a TV should be connected to a hi-fi system. These shops have become very lonely places, have gone out of business, or have realised that home cinema is what the customer wants and, reluctantly, have evolved. Even the USA's most staunch audio-only hi-fi publication, *Stereophile*, now publishes a magazine entitled *The Stereophile Guide to Home Theatre*.

A common perception among American hi-fi companies is that if it is successful over here, it will be successful in Britain within a year or two. Should everyone in Britain rush into their local hi-fi shop and begin buying home cinema products before the millennium? Or should all British hi-fi shops make the transition to home cinema? In truth, the British market does not seem ready for such a radical change in philosophy. But British customers are becoming more curious about home cinema. Just like hi-fi, home cinema is a form of home entertainment, and it should be demonstrated with the same enthusiasm as comparably-priced audio equipment. In America, the shops that were among the first to understand home cinema, how to configure a system, and how to demonstrate it, were and continue to be the most successful at selling it.

The truth is out there...

Americans are not about to toss their two-channel audio systems into the harbour. Specific market differences may prevent home cinema from being as big a hit in the UK as it has been in the US. Britain's lack of Hollywood film culture, diminutive British rooms, and the difficulty of affixing surround speakers to stone or brick walls, are just a few factors influencing Britain's relatively slow adoption of home cinema. The market will dictate what's sold, but for an increasing number of customers a home cinema system can bring the same excitement to an episode of *The X Files* as a new set of speakers can bring to Mahler's *Symphony Number 5*.

Mark Spector has 13 years experience in consumer electronics, including manufacturer sales and management, in the United States, Canada, and Europe.



THE DIRECTORY

Our Three Step Guide to Buying Hi-Fi

The legendary *Hi-Fi Choice* Directory is now simpler to use than ever before, but contains all the information you need to select and buy the perfect hi-fi system.

STEP 1 Discover which products fall within your budget by using our Price Guide (starts on page 94). This listing is updated monthly and includes all hi-fi products currently available in the UK. It is organised by product type, then by price band, and is sorted alphabetically. Products whose names are printed in **red** are those that we have reviewed. Which leads us to...

STEP 2 Read about the hi-fi equipment that we have reviewed in the Directory (starts on page 106). 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 (starts on page 123) to book a demonstration of the products you are interested in.

Best Buys and Recommendations

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

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

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

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

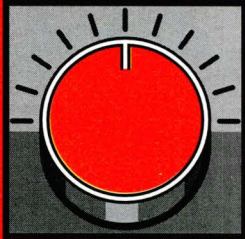
Using Best Buys and Recommendations to buy hi-fi.

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



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AMPLIFIERS
Integrated Amps

KEY

⑤ - number of line-level inputs.
'20W' - output power per channel
into nominal load of 8 Ohms.
Up to £250

Table listing various amplifier models (Aiwa, AMC, Arcam, Cambridge, Denon, etc.) with columns for features (line-level inputs, power) and prices.

£251 to £500

Table listing amplifier models in the £251 to £500 price range, including Alchemist, AMC, Arcam, etc.

Table listing amplifier models in the £501 to £700 price range, including Onkyo, Pioneer, Pro-Ject, etc.

£501 to £700

Table listing amplifier models in the £501 to £700 price range, including Alchemi, Audio Note, Audiogram, etc.

£701 to £1000

Table listing amplifier models in the £701 to £1000 price range, including Alchemist, Audio Note, AVI, etc.

£1001 to £2000

Table listing amplifier models in the £1001 to £2000 price range, including Art Audio, AudiInno, AudlInno, etc.

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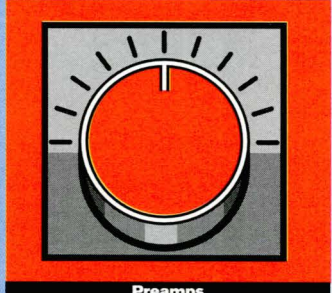
"This pre/power combo gets behind the recording and hi-fi... it simply makes music!"
Alan Sircom, HI-FI Choice, November 1994
For more information or your nearest stockist, ☎ (0181) 947 5047, or e-mail 73064.1710@compuserve.com



Table listing Marantz and other amplifier models with columns for features and prices.

Over £2000

Table listing high-end amplifier models like Adyton Opera, Audio Note Meishu Line, etc.



Preamps

KEY
⑤ - (etc) number of line-level inputs.
Ph - phono input fitted as standard
(may be an option on some other models).
Up to £500

Table listing preamplifier models (AMC CVT, Art Audio, AudiInno, etc.) with columns for features and prices.

Table listing various audio components like Marantz, Henley, LFD, etc. with columns for features and prices.

£501 to £2000

Table listing various audio components (Aldyn Chorus, Alchemist, etc.) with columns for features and prices.

Table of audio equipment including models like Conrad-Johnson PF-2, Copland CSA303, and various amplifiers with prices and ratings.

Table of audio equipment including models like Trinity 901, Trinity 906, and various amplifiers with prices and ratings.

Table of audio equipment including models like Arcam Alpha 9P, Arcam Delta 290P, and various amplifiers with prices and ratings.

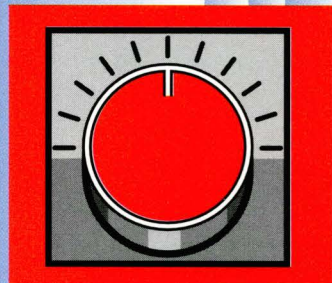
Table of audio equipment including models like Monrio HP1, Moth 60 Stereo, and various amplifiers with prices and ratings.

Table of audio equipment including models like adyton Cordis 1.6, Alchemist The Alchemist pwr, and various amplifiers with prices and ratings.

Advertisement for a power amplifier featuring a circular speaker grille image and text: 'KEY: 20W - output power per channel into nominal load of 8 Ohms. Up to £500'.

Exposure IV	80W	2,199
Exposure XVI	125W	4,000
Gamma Aeon 211/VT4C	20W	4,999
Gamma Space Ref	18W	5,999
Graaf 5050	50W	2,150
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
Krell KAV500/2	100W	3,485
Krell FPB200	200W	6,490
Krell FPB300	300W	9,500
Linn Klout	80W	2,400
Lumley M120	120W	3,200
Magnum A200SE	275W	2,995
Marantz Model 8	35W	3,500
Marantz Model 9	70W	4,000
Mark Levinson 331	100W	4,495
Mark Levinson 332	200W	6,495
Mark Levinson 333	300W	8,495
Matisse Ref Monoblocks	115W	7,800
McIntosh MC150	150W	3,499
McIntosh MC300	300W	3,999
McIntosh MC500	500W	7,999
Meracus Tentare	75W	2,245
Meracus Cantare	-W	8,995
Muse Model 160 Ser. II	160W	2,290
Muse Model 150	125W	2,690
Muse Model 175 Ser. II	175W	3,490
Muse Model 300 Ser. II	300W	3,990
Mus Fid F16	200W	2,500
Mus Fid F19	300W	4,000
Papworth M100	100W	2,645
Papworth M200	200W	3,825
Roksan ROK-M1.5	160W	2,250
Shearman Phase 1 Pwr Ref	100W	2,199
Sonic Frontiers Power 1	55W	2,495
Sonic Frontiers Power 2	110W	4,995
Sonic Frontiers Power 3	220W	9,995
Tesseract TAMP-60	60W	7,350
Trilogy 958	100W	3,395
TubeTec Genesis Sig.	100W	4,700
Unison Smart 845	24W	3,250

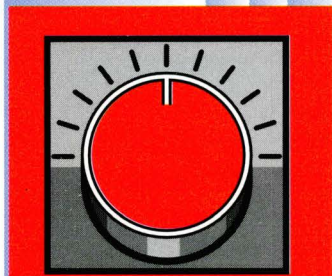
Sony TA-AV700	90W	350
Sony TA VE 800G	100W	400
Sony TA VA 8ES	120W	700
TEAC AV-H500	80W	380
Yamaha DSP-A492	65W	250
Yamaha DSP-A592	70W	330
Yamaha DSP-A970	60W	799
Yamaha DSP-A1092	100W	850
Yamaha DSP-A990	60W	900
Yamaha DSP-A2070	80W	1,100
Yamaha DSP-A3090	80W	1,500



Surround Sound Processor

KEY
 (E) - number of inputs.
 AC-3 - includes AC-3 decoding for compatibility with latest home cinema formats.

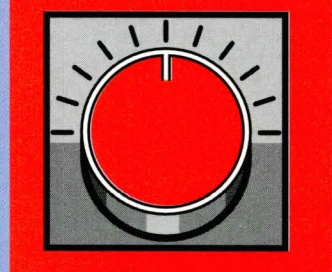
AMC Pro7	(E)	200
Arcam Xeta 2	(E)	650
Audio Research SDPI	(E)	3,293
Lexicon DC-1	(E)	4,650
Marantz AV-1030	(E)	330
Marantz AV1040	(E)	400
Marantz DP-870	(E) AC-3	600
Meridian 565 AC-3	(E) AC-3	2,700
NAD 117	(E)	470
Naim AV1	(E)	1,680
Onkyo SR 211PRO	(E)	340
Onkyo ED 901	(E) AC-3	700
Parasound 1000	(E) AC-3	995
Pioneer SP-D07	(E) AC-3	800
Sanyo HT F450	(E)	180
Sony SDP E300	(E)	230
Sony SDP-EP9ES	(E) AC-3	600
Technics SH-AV500	(E)	280
Yamaha DSP-E492	(E)	250
Yamaha DSP-E580	(E)	450
Yamaha DSP-E1000	(E)	700



Surround Sound Amplifier/Receivers

KEY
 '20W' - output power per front channel into nominal load of 8 Ohms.

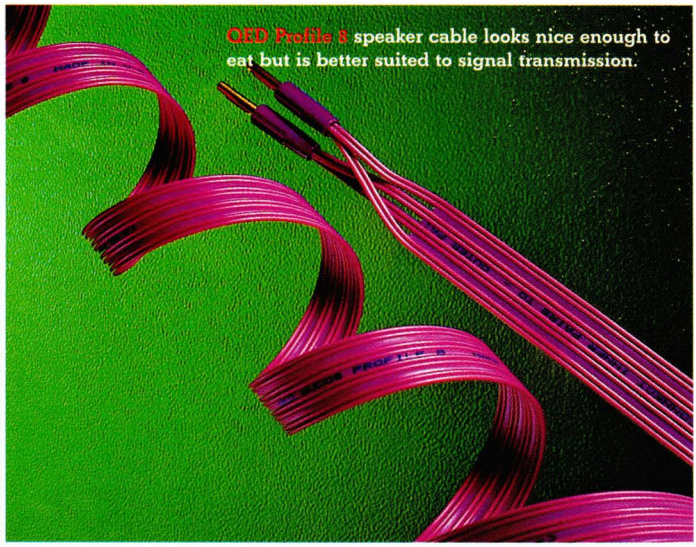
AMC 2445	45W	200
Arcam Xeta One	60W	1,000
Audio Research SDA1	150W	4,391
Bryston 5B-ST PRO	150W	1,610
Bryston 8B-ST PRO	150W	1,868
Bryston 8B-ST	150W	2,195
Chord SPM 2000	200W	4,890
Denon AVC-1800	70W	550
Denon AVC-2800	85W	800
Grundig V1000DPL	18W	360
H/K AV1100	30W	250
H/K AV1150	55W	350
H/K AV1200 II	65W	400
H/K AV1250	100W	1,250
JVC AX-V6BK	50W	230
JVC AX-V8BK	75W	350
Krell KAV500/3	100W	3,985
Krell KAV500/4	100W	4,485
Krell KAV500/5	100W	4,985
Magnum MF500	1,445	
Marantz MM-500	55W	400
Marantz PM-711AV	65W	450
McIntosh MC7104	100W	2,999
McIntosh MC7108	40W	2,999
McIntosh MC7106	100W	3,999
Mission AV-Master	650	
NAD 316	50W	450
NAD 916	30W	500
Onkyo ASV 620	120W	700
Parasound 806		1,495
Pioneer VSA 805S	80W	450
Rotel RB956AX	30W	350
Rotel RSP960AX	30W	400
Sansui AV-7100	75W	250



Surround Sound Receiver

KEY
 '20W' - output power per front channel into nominal load of 8 Ohms.

Denon AVR-600RD	50W	300
Denon AVR-900	60W	350
Goodmans Delta 801	30W	200
Grundig R14DPL	40W	280
Grundig R1000DPL	40W	400
H/K AVR10	30W	300
H/K AVR25	65W	600
H/K AVR70	75W	1,000
H/K AVR80	95W	1,500
JVC RX320V8K	30W	250
JVC RX-416V8K	50W	270
JVC RX-616RBK	60W	350
Kenwood KR-V5080	40W	280
Kenwood KR-V6080	70W	330
Kenwood KR-V7080	100W	380
Kenwood KR-V990D	110W	1,300
Marantz SR-66	50W	300
Marantz SR-770	80W	700
Marantz SR-96	110W	1,300
NAD 713	60W	400
NAD 917	50W	550
NAD 716	80W	600
Onkyo TXSV 434	55W	400



QED Profile 8 speaker cable looks nice enough to eat but is better suited to signal transmission.

Onkyo TXSV 424	50W	450
Onkyo TXSV 525R	60W	600
Onkyo TXSV 535R	80W	600
Onkyo TXSV 636	85W	800
Onkyo TXSV 727R	80W	800
Onkyo TXDS 838	100W	1,300
Onkyo TXSV 828THX	100W	1,300
Onkyo TXSV 919THX	110W	2,000
Onkyo TXSV 939THX	120W	3,000
Philips FR751	35W	250
Philips FR751	50W	300
Pioneer VSX-405RDS	50W	250
Pioneer VSX-505RDS	50W	300
Sansui RZ-5110AV	50W	190
Sherwood RV-4050R	35W	140
Sony STRD E405	50W	280
TEAC AG-V6200	90W	400
Technics SA-EX300	40W	250
Technics SA-EX500	60W	350
Technics SA-EX700	60W	450
Technics SA-TX50	120W	1,000
Yamaha RX-V392RDS	50W	250
Yamaha RX-V592RDS	70W	400

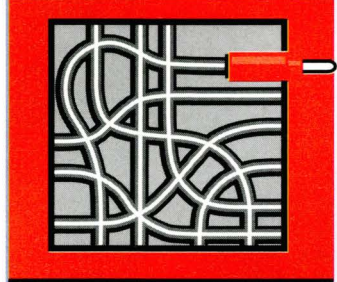
Cambis Arctic	(E)	20.00
Cambis Pacific	(E)	30.00
Cambis Studio Reference	(E)	40.00
Cardas Audio 300B-Microtwin	(E)	115.00
Cardas Audio Quadlink-Five	(E)	200.00
Cardas Audio Cardas Cross	(E)	360.00
Cardas Audio Hexlink-Five C	(E)	530.00
Cardas Audio Hexlink Golden-5 C	(E)	600.00
Cardas Audio Golden Cross	(E)	700.00
DPA Slink	(E)	41.00
DPA White Slink	(E)	75.00
DPA Black Slink	(E)	220.00
Expressive Tech IC-1	(E)	700.00
Goertz Interconnect	(E)	135.00
Henley HSP10	(E)	20.00
Henley HSP50	(E)	35.00
Henley HSP100	(E)	65.00
Henley HSP200	(E)	95.00
H'brook Inter/BS Blue STRK	(E)	49.95
Ixos 104	(E)	20.00
Ixos 103	(E)	45.00
Ixos 102	(E)	60.00
Ixos 101	(E)	100.00
Ixos 100.X03	(E)	150.00
Kimber PBJ	(E)	68.00
Kimber KC1	(E)	96.00
Kimber Silver Streak	(E)	180.00
Kimber KCAG	(E)	390.00
Kimber KCTG	(E)	720.00
Kronos Konnekt 3	(E)	49.00
Kronos Konnekt 2	(E)	99.00
Kronos Konnekt 1	(E)	199.00
LAT International IC-50	(E)	37.00
LAT International IC-80	(E)	60.00
LAT International IC-100-D	(E)	89.00
LAT International IC-200-D	(E)	151.00
Moth Leyline Black	(E)	100.00
Moth Leyline Grey	(E)	200.00
Nordost Magic	(E)	30.00
Nordost Black Knight	(E)	55.00
Nordost Blue Angel	(E)	90.00
Nordost Blue Heaven	(E)	135.00
Nordost Red Dawn	(E)	260.00
Ortofon 7N interconnect	(E)	250.00
QED P2 Gold	(E)	20.00
QED Incon P2 Screened	(E)	23.00
QED Incon P1 Screened	(E)	26.00
Siltech MC2-12	(E)	308.00
Siltech MC4-24S	(E)	400.00
Siltech FTM-3S	(E)	730.00
Silver Sound SS2	(E)	99.00
Silver Sound SS1	(E)	199.00
SME S2LB-4	(E)	44.00
SME S3LB-4	(E)	50.00
SME 4900A	(E)	73.00
SME 5900A	(E)	98.00
Sonic Link Bonus	(E)	15.00
Sonic Link Silver pink	(E)	35.00
Sonic Link Black	(E)	49.00
Sonic Link White	(E)	65.00
Sonic Link Brown	(E)	70.00
Sonic Link Violet	(E)	85.00
Sonic Link Blue Nickel	(E)	140.00
Sonic Link Vermillion	(E)	195.00
Sonic Link Red earth	(E)	300.00
Sonic Link Black earth	(E)	450.00
Sonic Link Blue earth	(E)	695.00
ChordCo Chrysalis	(E)	30.00
ChordCo Cobra	(E)	49.00
ChordCo Siren	(E)	65.00
ChordCo Chameleon	(E)	68.00
ChordCo Solid	(E)	99.00
Transparent Cable Musichord Int	(E)	48.00

CABLES Analogue Interconnects

KEY
 (S) - stranded construction.
 (C) - solid-core construction.
 Prices for interconnects are for a one-metre terminated pair.

Art Yam Church 5000	(S)	515.00
Audio Note AN-A	(S)	18.00
Audio Note AN-C	(S)	35.00
Audio Note AN-S	(S)	99.00
Audio Note AN-V	(S)	179.00
Audio Note AN-Vx	(S)	450.00
A'quest Jade	(S)	40.00
A'quest Turquoise 2	(S)	30.00
A'quest Topaz 2	(S)	60.00
A'quest Ruby 2	(S)	80.00
A'quest Quartz	(S)	120.00
A'quest Opal	(S)	189.00
A'quest Emerald	(S)	249.00
A'quest Lapis	(S)	399.00
A'quest Diamond	(S)	549.00
C Talk Improved 2/CD	(S)	26.00
C Talk Advanced 2	(S)	35.00
C Talk Improved 2/T	(S)	50.00
C Talk Studio 2	(S)	65.00
C Talk Professional 2	(S)	85.00
C Talk Broadcast 2	(S)	130.00
C Talk Reference 2	(S)	180.00
C Talk Signature Gold	(S)	300.00
Cambis Atlantic	(S)	10.00

Transparent Cable The Link	⊗	92.00
Transparent Cable Music Link	⊗	119.00
Trichord Pulswire 75	⊙	169.00

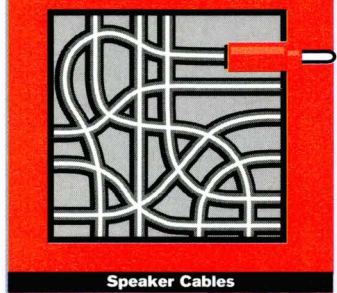


DIGITAL INTERCONNECT

KEY

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

Art Yam Church 5000	⊗	275.00
A'quest Digital/video 1	⊗	30.00
A'quest Digital/video 2	⊗	60.00
A'quest Optilink X	⊗	90.00
A'quest Digital PRO	⊗	100.00
A'quest Optilink Pro	⊗	149.00
A'quest Optilink Z	⊗	179.00
C Talk Digital 2	⊗	75.00
Cardas Audio Lightning	⊗	190.00
DPA Digilink	⊗	28.00
Ixos 105	⊗	25.00
Kimber Opti-link	⊗	40.00
Kimber Illuminati DV-30	⊗	55.00
Kimber Illuminati D-60	⊗	215.00
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	⊗	145.00
Nordost Moonglo-XLR	⊗	190.00
QED Digiflex	⊗	20.00
QED Optiflex	⊗	25.00
Roksan High Def 1.0M	⊗	85.00
Siltech HF-6	⊗	145.00
Sonic Link Blue/black	⊙	10.00
Sonic Link Green	⊙	60.00
Sonic Link Green Earth	⊙	150.00
ChordCo Codac	⊗	33.00
ChordCo Prodac	⊙	50.00
Transparent Cable PDL	⊗	199.00
Trichord Pulswire 75D	⊙	75.00
Trichord Pulswire 110D	⊙	145.00



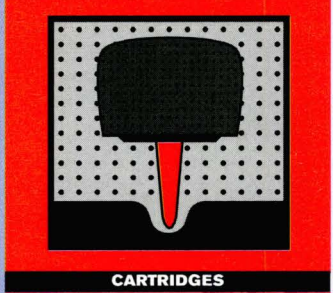
SPEAKER CABLES

KEY

Price per mono metre unterminated.

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
A'quest Type 2	⊗	3.50
A'quest F-16	⊙	3.60
A'quest Type 6	⊗	7.50
A'quest Indigo 2	⊗	12.00
A'quest Crystal 2	⊗	18.00
A'quest Forest	⊗	65.00
A'quest Argent	⊗	95.00
A'quest Clear 3	⊗	150.00
Bandbridge LC7409	⊗	4.00
Bandbridge LC4110	⊗	28.00
Bandbridge LC3410	⊗	40.00
Bandbridge LC3210	⊗	75.00
Bandbridge LC3219	⊗	75.00
Bandbridge LC3220	⊗	90.00
Bandbridge LC3310	⊗	95.00
Bandbridge LC3240	⊗	125.00
C Talk Flat One	⊗	2.00
C Talk Theatre 2	⊗	2.00

C Talk Talk 3.1	⊗	3.00
C Talk Overture 2.1	⊗	4.00
C Talk Talk 3.1 Biwire	⊗	5.00
C Talk Talk 4.1	⊗	5.00
C Talk Concert 2.1	⊗	7.00
C Talk Talk 4.1 Biwire	⊗	9.00
C 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	⊗	239.00
DPA Black Sixteen	⊗	100.00
Electro EC-K2	⊗	119.00
Goertz M1	⊙	10.00
Goertz M2	⊙	20.00
Ixos 607	⊗	2.00
Ixos 605	⊗	3.00
Ixos 606	⊗	8.00
Kimber 4PR	⊗	8.00
Kimber 4VS	⊗	12.00
Kimber 4TC	⊗	25.00
Kimber 8TC	⊗	40.00
Kimber 4AG	⊗	394.00
Kimber 8AG	⊗	656.00
LAT International SS 80	⊗	21.00
LAT International BIWIRE	⊗	27.00
LAT International SS 1000	⊗	42.50
Linn K20	⊗	4.00
Linn K400	⊗	10.00
Linn K600	⊗	15.00
Lumley Silver	⊗	35.00
Naim NACA 5	⊗	5.50
Nordost Octava	⊗	3.00
Nordost 4-Flat	⊙	10.00
Ortofon SPK100	⊗	3.00
Ortofon SPK200	⊗	5.00
Ortofon SPK300	⊗	8.00
Puresonic 7845	⊗	2.00
Puresonic 7891	⊗	3.00
QED Qudos Micro	⊗	1.25
QED Qudos Bi-Wire	⊗	4.50
QED Profile 4x4	⊗	9.00
QED Profile Silver 12	⊗	15.00
Rega REGA	⊗	2.00
Siltech LS2-45	⊗	109.00
Siltech FT-12 MkI	⊗	240.00
Siltech LS4-120	⊗	549.00
Silver Sound 12 Gauge	⊗	15.00
Silver Sound 10 Gauge	⊗	35.00
Silver Sound 8 Gauge	⊗	75.00
Sonic Link AST50	⊗	2.00
Sonic Link AST75	⊗	3.00
Sonic Link AST200x2	⊗	10.00
Sonic Link S300	⊗	18.00
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
ChordCo Myth	⊗	15.00
ChordCo Legend	⊗	15.00
Transparent Cable Musichord Spkr	⊗	11.00
Transparent Cable The Wave	⊗	23.00
Transparent Cable Music Wave Spkr	⊗	25.00



CARTRIDGES

KEY
MM - moving-magnet type.
MC - moving-coil type.
 Up to £100

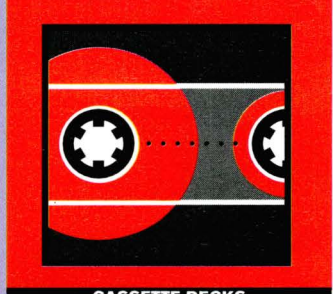
Audio Note I01	MM	99
AudTech AT-91	MM	13
AudTech AT-95E	MM	19
AudTech AT-110E	MM	24
Benz-Micro MC20EII	MC	70
Denon DL110	MC	70
Denon DL160	MC	90
Denon DL103	MC	100
Goldring Elan	MM	19
Goldring Elektra	MM	29
Goldring 1006	MM	59
Goldring 1012GX	MM	79
Goldring 1012 GX Cartridge	MM	79
Goldring 1022GX	MM	99

Grado ZTE+1	MM	27
Grado ZCE+1	MM	37
Grado Z3E+1	MM	48
Grado Prestige Black	MM	49
Grado Prestige Green	MM	49
Grado Prestige Blue	MM	59
Grado ZF1+	MM	69
Grado Prestige Red	MM	83
N'ham Tracer I	MM	99
Ortofon VMS2	MM	99
Ortofon OM 5E	MM	14
Ortofon OM 10	MM	20
Ortofon 510	MM	30
Ortofon OM DJ	MM	38
Ortofon 520	MM	50
Ortofon OM 20	MM	65
Ortofon MCI Turbo	MC	70
Ortofon Concorde DJ	MM	70
Ortofon OM 30	MM	70
Ortofon MC10 Super	MC	90
Ortofon 530	MM	100
Pickering TE-15	MM	20
Pickering VE-15	MM	25
Pickering T-E	MM	25
Pickering V15-DJ	MM	28
Pickering TL-E	MM	35
Pickering TL-2E	MM	45
Pickering XV15-625E	MM	50
Pickering XV15-150-DJ	MM	50
Pickering TL-2-S	MM	55
Pickering XV15-757S	MM	60
Pickering XV15-625DJ	MM	60
Pickering XV15-1800S	MM	70
Pickering TL3S	MM	80
Pickering XEV-3001E	MM	95
Pickering XLZ-3500	MM	100
Pickering TL-4-S	MM	100
Rega Bias	MM	39
Rega RB78	MM	39
Rega Super Bias	MM	59
Rega Elys	MM	85
Shure SC35C	MM	29
Shure ME95ED	MM	38
Shure M70XB	MM	38
Stanton 500AL II	MM	34
Stanton 500EL	MM	37
Stanton 680AL/X	MM	56
Stanton 680EL/X	MM	70
Sumiko Oyster	MM	30
Sumiko Black Pearl	MM	50
Sumiko Pearl	MM	50
Sumiko Blue Point	MC	70

Over £100

Audio Note I02	MM	139
Audio Note Soara	MC	795
Audio Note I01V	MC	1,095
Audio Note I02V	MC	1,695
Audio Note I01Ltd	MC	4,500
AudTech AT-OC9	MM	245
AudTech ART-1	MC	944
Benz-Micro The Glider	MC	650
Benz-Micro M090	MC	700
Benz-Micro L0 40	MC	700
Benz-Micro H200	MC	700
Benz-Micro Reference	MC	1,100
Benz-Micro Reference Ruby	MC	1,500
Benz-Micro Ruby Open Air	MC	1,600
Clearaudio Aurum-Alpha	MM	135
Clearaudio Aurum-Beta	MM	195
Clearaudio Aurum-Beta/S	MM	265
Clearaudio Gamma-S	MM	745
Clearaudio Signature	MC	1,595
Clearaudio Accurate	MC	2,950
Clearaudio Insider	MC	5,500
Denon DL304	MC	200
Dynavector 50X	MC	159
Dynavector 10X	MC	189
Dynavector 23RS	MC	375
Dynavector 17D2	MC	450
Dynavector XX-1L	MC	998
Dynavector XX-1	MC	998
Dynavector Te-Kaitora	MC	1,698
Goldring Eroica LX	MM	110
Goldring Eroica	MM	110
Goldring 1042	MM	120
Goldring Elite	MC	220
Goldring Excel VX	MC	495
Grado Prestige Silver	MM	119
Grado Prestige Gold	MM	149
Grado Signature Junior	MM	150
Grado Signature 8M2	MM	250
Grado Signature MLZ	MM	375
Grado Signature TL2	MM	650
Grado Signature XT2	MM	975
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 K9	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	499
Lyra Lydian	MC	649
Lyra Clavis Da Capo	MC	995
N'ham Tracer II	MM	175
N'ham Tracer III	MM	350
N'ham Tracer IV	MM	550
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 MC2000II	MC	750
Ortofon MC ROHmann	MC	1,000
Ortofon MC3000 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	150
Reson Aciore	MM	199
Reson Recca	MC	225
Reson Etie	MC	299
Reson Lexo	MC	899
Roksan Corus Black	MM	130
Roksan Shiraz	MC	970
Stanton 890AL/X	MM	118
Sumiko BPS	MC	250
Transfiguration Spirit	MC	1,000
Transfiguration Temper	MC	1,950
Vdh MM-1	MM	250
Vdh MM-2	MM	299
Vdh DDT-II	MC	699
Vdh MC-10	MC	799
Vdh MC-One	MC	999
Vdh MC-ONE Super	MC	1,150
Vdh MC-Two	MC	1,349
Vdh The Frog	MC	1,700
Vdh Grasshopper IIIISLA	MC	2,200
Vdh Grasshopper IIIGLN	MC	2,999
Vdh Grasshopper IIIIGLA	MC	2,999
Vdh Grasshopper IIICMN	MC	3,000
Vdh Grasshopper IIICNH	MC	3,400
Vdh Grasshopper IVGLA	MC	3,450
Wilson Benesch Matrix	MC	786
Wilson Benesch Hybrid	MC	1,068
Wilson Benesch Carbon	MC	1,586
Wilson Benesch Analog	MC	1,850



CASSETTE DECKS

KEY
 ↔ - Autoreverse - no need to remove and turn round the tape.
 3-H - 3 heads, i.e. separate record and replay heads.
 Up to £200

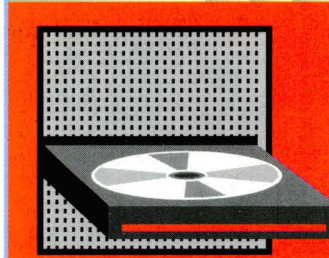
Aiwa AD-F450		120
Aiwa AD-WX727	↔	170
Denon DRM-550	↔	160
Denon DRW-680	↔	200
Denon DRS-540	↔	200
Goodmans Delta 801		130
Grundig CCF3		200
JVC TD-W218BK	↔	170
JVC TD-X372BK	↔	170
JVC TD-R472BK	↔	200
JVC TD-W318BK	↔	160
Kenwood KX-W4080		200
Kenwood KX-3080		160

Kenwood KX-W6080	200
Kenwood KX-5080S	200
Marantz SD-53	200
Marantz SD-555	200
Onkyo K 185	200
Pioneer CT-S250	150
Pioneer CT-W205R	160
Pioneer CT-W505R	180
Pioneer CT-S450S	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-TR373	200
Technics RS-BX501	200
Yamaha KX-390	150
Yamaha KX-W392	180
Yamaha KX-490	200

Over £200	
Aiwa AD-F850	230
Aiwa AD-S950	300
Denon DRM-650S	230
Denon DRM-740	270
Denon DRS-810	310
H/K TD420	250
H/K TD450	350
JVC TD-V562BK	220
JVC TD-W118BK	250
JVC TD-V662BK	370
Kenwood KX-7060S	230
NAD 613	270
NAD 614	230
NAD 616	300
Onkyo TA 6210	230
Onkyo TARW 211	270
Onkyo TARW 311	320
Onkyo TA 6310	330
Onkyo KR 609	350
Onkyo KW 606	370
Onkyo TARW 411	370
Onkyo K 611	460
Pioneer CT-S550S	250
Pioneer CT-W803RS	300
Pioneer CT-S830S	500
Pioneer CT-95	1,000
Sony TC-KE500S	230
Sony TC-WE805S	250
Sony TC-KE600S	300
Sony TC-KA6ES	550
TEAC W-850R	250
TEAC V-1030	250
TEAC W-6000R	450
TEAC V-6030S	450
TEAC V-8030S	650
Technics RS-TR474	220
Technics RS-A26	230
Technics RS-TR575	280
Technics RS-A27	300
Yamaha KX-580SE	250
Yamaha KX-W592	280
Yamaha KX-690	400

Cambs CD6	250
Denon DCD-625	200
Denon DCD-715	235
Denon DCD-825	240
Eclipse CD30	50
Eclipse CD50	60
Eclipse CD101	80
Grundig CDH	170
H/K HD710	200
JVC XL-V120BK	110
JVC XL-V184BK	120
JVC XL-V284BK	140
JVC XL-F116BK	180
JVC XL-F216BK	200
JVC XL-V574BK	250
Kenwood DP-3080	170
Kenwood DP-M5570	250
Kenwood DP-5060	250
Marantz CD-46	150
Marantz CD-57	230
Marantz CC-47	250
NAD 510	200
NAD 512	250
Philips CD711	120
Philips CD721	130
Philips CD751	150
Philips DCQ751	180
Pioneer PD-104	130
Pioneer PD-204	150
Pioneer PD-M603	200
Pioneer PD-S505	200
Pioneer PD-F605	230
Pioneer PD-F25	230
Rotel RCD-930AX	180
Sony CDP-M205	110
Sony CDP-XE210	120
Sony CDP-M305	130
Sony CDP-XE310	140
Sony CDP-CE105	150
Sony CDP-CE315	180
Sony CDP-XE510	180
Sony CDP-C325M	200
TEAC CD-P1800	130
TEAC CD-P3450SE	200
TEAC PD-H500	240
TEAC PD-D2200	250
Technics SL-PG380A	120
Technics SL-PG480A	140
Technics SL-PG580A	160
Technics SL-PD687	160
Technics SL-PD887	180
Technics SL-PS670A	200
Technics SL-PS770A	250
Yamaha CDX-390	130
Yamaha CDC-565	170
Yamaha CDX-490	170
Yamaha CDC-665	220
Yamaha CDX-590	230

£251 to £500	
Aiwa DX-C100M	500
Arcam Alpha 7	320
Audio Alchemy ACD II	490
AudiInno Alto	399
Aura CD100	400
Denon DCM-260	300
Denon DCD-1015	350
Grundig CDC14	300
H/K HD730	300
H/K FL8300	300
JVC XL-Z674BK	300
Kenwood DP-7090	400
Marantz CD-67	270
Marantz CD-63SE	350
Marantz CD67SE	350
Marantz CD-63H/KI	500
Micromega Minium	400
Mus FID E60	300
Mus FID E601	500
NAD 513	290
NAD 515	350
NAD 514	370
NAD 517	400
Onkyo DX 7210	260
Onkyo CT21	290
Onkyo DXC 320	380
Onkyo DX 7510	400
Onkyo CM 716	450
Pioneer PD-S705	300
Pioneer PD-F805	330
Pioneer PD-F905	400
Pioneer PD-S904	400
Pioneer PD-S505 Precision	460
Rotel RCD-955BX	300
Rotel RCD-970BX	375
Sony CDP-XE900E	300
Sony CDP-XA2ES	350
Sony CDP-CX200	380
Sony CDP-X3000ES	500
TEAC CD-5	350
Yamaha CDX-890	350



CD PLAYERS

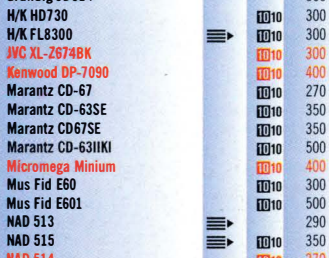
KEY

- ▶ multiplay, 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
AMC CD9	120
AMC CD8	150
AMC CD6	150
AMC CDM7	250
Cambs CD4	150
Cambs CD-4SE	200



Transport

KEY

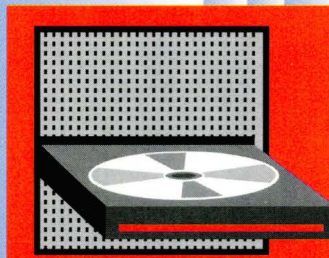
- electrical (coaxial) digital output.

Many players also include an optical (Toslink) output.

Arcam Delta 250	800
Audio Alchemy DDS III	700
Audio Alchemy DDS Pro	1,550
Audio Research CDTI	3,290
Audio Synthesis Transcend	1,395
Audiolab 8000CDM	1,400
Audiomeca Damnation	999
Audiomeca Damnation SE	1,100
Audiomeca Kreatura SE	1,400
Audiomeca Talisman SE	1,999

£501 to £1000	
Alchemist Nexus	579
Arcam Alpha 8	520
Audiolab 8000CD	1,000
Creek CD42	600
Denon DCD-3000	1,000
DPA Renaissance int CD	950
Fase Evoluzione Laserdrive 1.0	995
H'brook Signature II	989
Linn Mimik	875
Marantz CD-17	800
Meridian 563	795
Micromega Stage 4	600
Micromega Stage 5	750
Micromega Stage 6	950
Mission dAD3	598
Monrio Privilege	995
Myriad MC100	700
Naim CD3	1,000
Orelle CD-100E A	649
Orelle CD100E S A	849
Orelle CD 100E V	999
Quad 77B	700
Quad 77M	900
TEAC VRDS-9	700
TEAC VRDS-10SE	850
Technics SL-P2000	1,000
Thule CD100	849
Trichord Genesis	549
Trichord Digital Jukebox 25	599
Trichord Digital Jukebox 50	649
Trichord Digital J'box 100	699
Trichord Revelation	799

Over £1000	
Alchemist Forseti	1,950
Audio Alchemy ACD Pro	1,395
Audio Research CD1	3,290
Audio Research CD1	3,290
Audio Research CD2	4,100
Audiomeca Kreatura	1,400
Audiomeca Talisman	2,150
Audiomeca Talisman SE	2,300
Cary CD-300	2,250
Copland CD277	1,800
Copland CDA288	2,199
Krell KPS30i	5,490
Krell KPS-20i	9,990
Marantz CD-17Ki	1,300
Marantz CD-23	4,000
Mark Levinson 39	5,995
McIntosh MCD7009	3,299
Meracus Auriga	1,295
Meracus Flagrare	2,495
Meracus Amago	3,995
Meracus Imagio	4,495
Meridian 506	1,100
Meridian 606	1,350
Meridian 508	1,685
Micromega Solo	2,750
Mus FID FCD	1,500
Naim CD2	2,000
Naim CD5	3,940
Res'n CD50	2,995
Roksan ATT-DP3P	1,595
Sonic Frontiers SFCD-1	3,495
TEAC VRDS-25	1,300



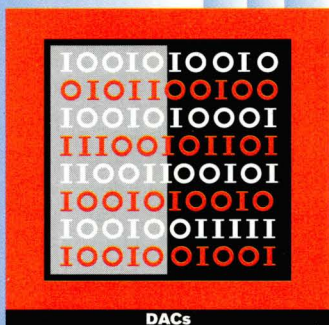
DIGITAL RECORDERS

KEY

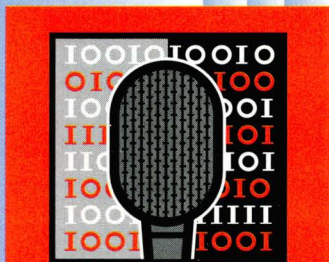
- MD - minidisc
- DAT - digital audio tape
- DCC - digital compact cassette
- Portable

Meridian CDR	4,500
Onkyo MD 122	700
Philips DCC730	250
Philips DCC170	250
Pioneer D-05	900
Pioneer PDR-05	1,300
Pioneer D-C88	2,000
Sharp MD-R1E	330
Sharp MD-MS100H	350
Sony MZ-E40	180
Sony MZ-E30	280
Sony MDS-S38	300
Sony MZ-R30	300
Sony MDS-JE500	300

Audiomeca Mephisto	2,350
Cambs Discmagic One	300
Conrad-Johnson DR-1	1,795
DPA Enlightenment Drv	725
Jadis J03	4,850
Jadis J05	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
Meridian 500	1,245
Meridian 602	1,750
Micromega Drive 3	750
Micromega Data	2,250
Monrio Bitmatch	875
Muse Model 5	1,800
Orelle CD 100E T1	549
Orelle CD 100E T2	749
Pink Triangle Cardinal	875
PS Audio Lambda TR	2,250
PS Audio Lambda AT&T	2,778
Res'n T30	6,500
Roksan ATT-DP3	1,295
Sonic Frontiers SFT-1	2,295
TEAC VRDS-TI	550
TEAC VRDS-7	599
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
Wadia 8	3,195
Wadia 20	4,370
XTC CDT-1LE	1,250



DACs	
Arcam Black Box 50	480
Arcam Black Box 500	750
Linn Numerik	1,500
Pink Triangle Ordinal	837
Pink Triangle DaCapo	1,400
PS Audio UltraLink 2 HDCD	2,590
PS Audio Ref Link	4,550
TEAC D-T1	500
Trichord Pulsar Ser One	1,395

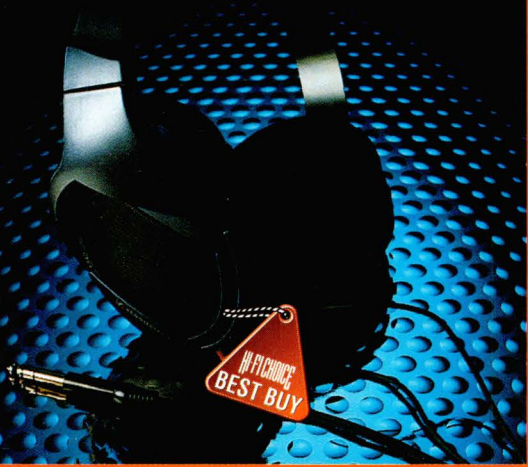


KEY

- MD - minidisc
- DAT - digital audio tape
- DCC - digital compact cassette
- Portable

Meridian CDR	4,500
Onkyo MD 122	700
Philips DCC730	250
Philips DCC170	250
Pioneer D-05	900
Pioneer PDR-05	1,300
Pioneer D-C88	2,000
Sharp MD-R1E	330
Sharp MD-MS100H	350
Sony MZ-E40	180
Sony MZ-E30	280
Sony MDS-S38	300
Sony MZ-R30	300
Sony MDS-JE500	300

SENNHEISER



THE ESSENTIAL ACCESSORY – SENNHEISER'S HD565

"Sound quality is exceptionally good... easily the best all-round model tested".

Alvin Gold, Hi-Fi Choice, September 1996.

Call 01494 551551 for more information or your nearest stockist.

Sony MDS-MX1	MD	500
Sony MDS-S1	MD	550
Sony MDS-503	MD	550
Sony DTC-ZE700	DAT	699
Sony MDA-JA3ES	MD	700
TEAC MD-H500	MD	650
TEAC MD-10	MD	950



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
AudTech ATH-P1	D	10
AudTech ATH-P3	D	15
AudTech ATH-P5	D	20
Beyer DT111 Beta	D	20
Beyer DT111 Gamma	D	25
Beyer DT211	D	34
JVC HA-CD88	D	18
JVC HA-D525	D	20
JVC HA-F65	D	20
JVC HA-D626	D	25
Kenwood KH-1000	D	25
Kenwood KH-2020	D	40
Maxell HP-1000	D	20
Maxell HP-2000	D	25
Maxell HP-3000	D	30
Pioneer SE-A40	D	20
Pioneer SE-A20V	D	23
Pioneer SE-M250	D	25
Pioneer SE-M350	D	30

Sennheiser HD56	D	18
Sennheiser HD435 Vegas	D	30
Sennheiser HD435 Manhattan	D	30
Sennheiser HD60TV	D	40
Sony MDR-W20G	D	18
Sony MDR-E837	D	18
Sony MDR-009TV	D	20
Sony MDR-A34L	D	20
Sony MDR-E848	D	20
Sony MDR-CD170	D	20
Sony MDR-ED238	D	25
Sony MDR-P1TV	D	25
Sony MDR-CD270	D	30
Sony MDR-E868	D	35
Sony MDR-IF120	D	35
Sony MDR-CD370	D	40
Technics RP-HT280	D	30
Technics RP-HT300	D	40
Vivanco SR250	D	19
Vivanco SR150	D	20
Vivanco SR200	D	25
Vivanco SR300	D	30

Over £41

AKG K301	D	80
AKG K222IR	D	100
AKG K401	D	120
AKG K501	D	150
AKG K333IR	D	150
AKG K444IR	D	180
AKG K290S	D	250
AKG K1000	D	700
AudTech ATH910PRO	D	90
Beyer DT311	D	57
Beyer DT411	D	69
Beyer DT331	D	82
Beyer DT431	D	98
Beyer IRH890	D	117
Beyer DT511	D	117
Beyer DT531	D	135
Beyer DT770 Pro	D	152
Beyer DT100	D	152
Beyer DT801	D	172
Beyer DT990 Pro	D	187
Beyer DT811	D	200
Beyer IR5890	D	222
Beyer DT901	D	222
Beyer DT911	D	235
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
Ergo 1	D	120
Ergo Model 2	D	140
GradoSR40	D	45
GradoSR80	D	100
GradoSR225	D	200
Jacklin Float Model 1	D	79
Jacklin Float Model 2	D	99

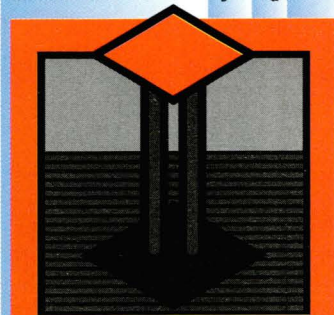
Jacklin Float ELS	E	399
JVC HA-D727	D	43
JVC HA-D910	D	65
JVC HA-D1000	D	250
JVC HA-F25	D	699
Kenwood KH-5000	D	70
Sennheiser HD445	D	45
Sennheiser HD455	D	55
Sennheiser HD465	D	65
Sennheiser IS360/AUK	D	70
Sennheiser HD475	D	80
Sennheiser HD25 SP	D	90
Sennheiser HD535	D	105
Sennheiser IS450	D	120
Sennheiser HD545 Ref	D	125
Sennheiser HD250II	D	150
Sennheiser HD565 Ovat'n	D	150
Sennheiser HD265 Linear	D	150
Sennheiser HD25-13	D	160
Sennheiser HD25	D	160
Sennheiser HDC 451-1	D	166
Sennheiser HD 580 Precision	D	200
Sennheiser HD600	D	250
Sennheiser IS850	D	859
Sennheiser HEGO/HEV70	E	998
Sennheiser Orpheus	E	9,652
Sony MDR-IF50K	D	50
Sony MDR-IF120K	D	50
Sony MDR-CD470	D	50
Sony MDR-E888	D	55
Sony MDR-CD570	D	70
Sony MDR-IF320RK-MK2	D	80
Sony MDR-CD770	D	100
Sony MDR-NC5	D	100
Sony MDR-D77	D	130
Sony MDR-NC20	D	150
Sony MDR-NC10	D	150
Sony MDR-CD1700	D	200
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
Stax Omega	E	1,695
Stax SR-Omega Ref	E	1,700
Technics RP-HT400	D	50
Technics RP-HT600	D	60
Technics RP-HT700	D	70
Vivanco IR5700	D	50
Vivanco IR5000	D	50
Vivanco SR850	D	50
Vivanco SR650	D	50
Vivanco SR750	D	60
Vivanco IR6000	D	70
Vivanco SR909	D	70
Vivanco IR6500	D	90
Vivanco SR10001FL	D	110
Vivanco IR7100	D	120
Vivanco IR7600	D	140
Vivanco SR200IFL	D	140

E	☺	399
D	☺	43
D	☺	65
D	☺	250
D	☺	699
D	☺	70
D	☺	45
D	☺	55
D	☺	65
D	☺	70
D	☺	80
D	☺	90
D	☺	105
D	☺	120
D	☺	125
D	☺	150
D	☺	150
D	☺	160
D	☺	160
D	☺	166
D	☺	200
D	☺	250
D	☺	859
E	☺	998
E	☺	9,652
D	☺	50
D	☺	50
D	☺	50
D	☺	55
D	☺	70
D	☺	80
D	☺	100
D	☺	100
D	☺	130
D	☺	150
D	☺	150
E	☺	280
E	☺	370
E	☺	449
E	☺	450
E	☺	1,695
E	☺	1,700
D	☺	50
D	☺	60
D	☺	70
D	☺	50
D	☺	50
D	☺	50
D	☺	60
D	☺	70
D	☺	70
D	☺	90
D	☺	110
D	☺	120
D	☺	140
D	☺	140

Chord CEL 01	387
Credo STD 001	284
Deadrock 903	60
Deadrock 902	60
Deadrock 901	60
Harbeth HL-Stands	249
H'brook Stand-HY	45
H'brook Stand-SX	55
H'brook Stand-SG	59
H'brook Stand-S4	59
JPW HS1	120
JPW HS2	120
Kudos Audio Arrow	50
Kudos Audio S-50	100
Kudos Audio S-100	270
Pioneer CP-7	50
Pioneer CP-8	80
QLN Signature	75
QLN Signature	75
Revolver RS1	70
Royd Royd	99
SD Acoustics SD Alexander	335
Silverado Silverado 1 Stand	350
Sonus Faber Ironwood	475
Sonus Faber Stonewood	497
Sound Organisation Z037	55
Sound Organisation Z076	55
Sound Organisation Z026	55
Sound Organisation Z128	108
Soundstyle X6118	100
Soundstyle X6124	100
Soundstyle X020	105
Stands Speaker support	159
Stands Tuned Steel	220
Stands Tuned Carbon Fibre	315
UKD-Opera S2	345
UKD-Opera S1	345

Equipment Supports

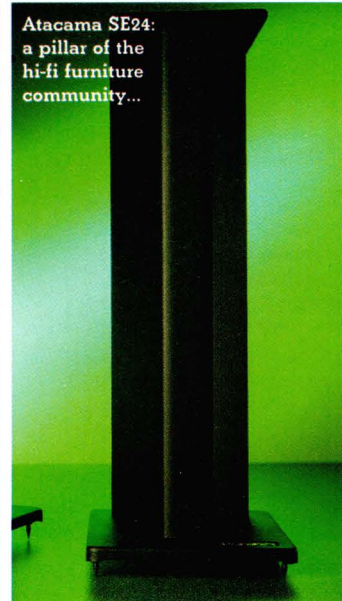
A'phile Base 01	79
A'phile S4T120	280
A'phile Furniture Base	480
A'phile S4T120P	560
Deadrock 701	60
Deadrock 802	90
Deadrock 703	130
Deadrock 704	190
Deadrock 705	230
DNM DOMOWS	125
DNM DOMOPS	125
Fi-Rax R4	321
Impulse Iso-plate	190
JPW MS2	45
JPW MS3	45
JPW MS1	80
JPW 3 Tier	80
JPW 5 Tier	100
Kudos Audio Corinthian	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



EQUIPMENT SUPPORTS

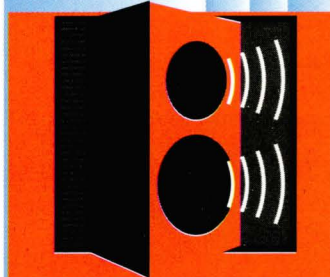
Speaker Stands

Arcicci Q-1	299
Arcicci Q-2	299
Atacama BD21	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	70
Atacama SE20	70
Atacama SX700	73
Atacama SL300	73
Atacama TP600	75
Atacama TP500	75
Atacama SE615	75
Atacama SE515	75
Atacama SE415	75
Atacama SL400	76
Atacama SE1000S	80



Atacama SE24:
a pillar of the
hi-fi furniture
community...

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
Optimum G2	55
Optimum G4P	130
Optimum G5P	150
Optimum OPT340	300
Optimum OPT440	350
Optimum OPT610	400
QLN A3	125
QLN Modulur	125
QLN A4	165
QLN A5	205
QLN A6	245
Q'spire Q4 mini shelf	60
Q'spire Q4 shelf	60
Q'spire Cabinet shelf	80
Q'spire AV shelf	120
Q'spire Q4 mini table	200
Q'spire Q4 table	200
Q'spire AV table	300
Q'spire Cabinet	400
Sound Organisation 2022	65
Sound Organisation 2021	78
Sound Organisation 2030	100
Sound Organisation 2060	120
Sound Organisation 2038	135
Sound Organisation 2560	160
Sound Organisation 2530	170
Soundstyle X300	180
Soundstyle X305	210
Soundstyle X053	210
Soundstyle X050	210
Soundstyle X6300	215
Soundstyle X100	220
Soundstyle X058	240
Soundstyle X310	250
Soundstyle X120	250
Soundstyle X105	250
Soundstyle X6053	255
Soundstyle X6100	265
Soundstyle X6310	275
Soundstyle X6058	290
Soundstyle X6105	300
Stands Sound Support	239
Stands Midi Tower	249
Stands 10mm Compact	299
Stands 10mm Sound Support	299
Stands High AV	349
Stands Ultimate Tower	649
Stands RMS Reference	799
System Tripod Z053	135
System Tripod Z050	135
System Tripod Z058	155
Target 85	175
Townshend Seismic Sink 1CD	99
Townshend Seismic Sink 1.3D	399
Townshend Seismic Sink 2.3D	449
Townshend S/Sink Stand 1SH	999
Townshend S/Sink Stand 2SH	1,199
Wilson Benesch Asside	720
Wilson Benesch Triptych	990



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

Bose XL1000	▣	130
Celestion Impact 10	▣	129
Denon SC-M2	▣	70
Gale Mini Monitors	▣	80
Genezza GX300	▣	80
Genezza GX330	▣	80
GLL Arena HF	▣	99
Goodmans Active 75	▣	65
Interaudio XL1000	▣	100
Jamo Studio-80	▣	70
Jamo D-100	↕	80
Jamo SAT-90	↕	90
Jamo Cornet 25	▣	100
Jamo Studio-110	▣	100
Jamo D-110	▣	100
Jamo SAT-170	▣	110
Jamo Cornet 35	▣	120
Jamo Artina	▣	120
Jamo D-115	▣	120
Jamo 28	▣	125
JBL TLX111	▣	120
JPW Mini Monitor	▣	60
JPW Gold Monitor	▣	80
JPW LW51	↕	80
JPW ML210	▣	80
JPW ML310	▣	90
JPW ML410	▣	100
JPW IW61	↕	100
JPW IW81	↕	130
JPW ML510	▣	130
JVC SX-SC1VBK	▣	60
JVC SP-V50	▣	80
JVC SP-X220TBK	↕	100
JVC SP-X550BK	↕	130
KEF Coda 7	▣	129
Mission 731i	▣	130
M-S VS-100	▣	100
M-S MS05i	▣	100
NAD 801	▣	100
Pioneer CS-3030	▣	120
Polk AB410	▣	100
Realistic Minimus 26	▣	56
Realistic Minimus Pro-77	▣	100
Revolver Beretta	▣	180
Solid HCM2	▣	130
Sony SS-86E	▣	100
Sony SS-126E	▣	130
Tangent Monitor 3	▣	60
Tangent Monitor 5	▣	80
Tangent Monitor 7	▣	100
TDL Nucleus 1	▣	60
TDL NFM 1	▣	120
TEAC LS-X8 Mk II	▣	80
Technics SB-CS55	▣	80
Technics SB-CS75	▣	100
Visionik 5202	▣	129
Wharfedale Valduus 100	▣	80
Wharfedale Diamond 7.1	▣	100

Wharfedale Diamond 6R	▣	110
Wharfedale Valduus 200	▣	110
Wharfedale Modus Micro	▣	110
£131 to £200		
Aco En AE100	▣	200
Allison Model 4A	▣	170
B&W DM302	▣	150
B&W CWM5	▣	170
B&W DM601	▣	199
Bose 101 M'ble Monitor	▣	190
Bose XL2000	▣	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 Impact 15	▣	199
Cerwin-Vega CT-165	↕	200
Denon SC-E313	▣	160
Gale 2iB	▣	140
Gale 4i	↕	140
Gale 3s	▣	150
Genezza GX650	▣	140
GLL Arena SW	▣	139
GLL Imagio IC100	▣	170
Grundig BX1	▣	160
H'brook Prima	▣	139
H'brook Solo	▣	199
Infinity SM65	▣	150
Infinity Reference 1i	▣	150
Infinity Reference 11i	▣	200
Interaudio XL2000	▣	140
Interaudio XL3000	▣	160
Interaudio XL4000	▣	200
Jamo Studio 140	▣	140
Jamo Studio 180	↕	180
Jamo 38	▣	180
Jamo D165	▣	200
Jamo Cornet 65	↕	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
Mission 732	▣	200
M-S MS10i	▣	140
M-S VS-200	▣	150
M-S VS-300	▣	200
M-S MS20i	▣	200
Pioneer CS-5030	▣	170
Polk M2	▣	180
Polk RT3	▣	200

Polk AB610	▣	200
QLN Projekt A3	▣	135
QLN Projekt A4	▣	180
QLN Qubic111	▣	200
RAInt'l Minette2	▣	199
Rega Kyte	▣	198
Revolver Colt	↕	139
Revolver The 230	▣	169
Revolver Purdey MkII	▣	199
Rogers LS1	↕	149
Royd The Herald	▣	198
Sequence 200	▣	199
Solid Monitor	↕	200
Sony SS-176E	↕	200
Tangent Monitor 9	↕	150
Tangent Monitor 11	↕	180
Tannoy Mercury M2	▣	140
Tannoy Profile 631	▣	149
Tannoy Profile 631SE	▣	169
Tannoy Profile Plus 632	▣	199
TDL RTL 1	▣	200
Technics SB-CS95	▣	150
Technics SB-M20	▣	200
Visionik 6003	▣	143
Visionik 5001	▣	170
Wharfedale Diamond 7.2	▣	140
Wharfedale Modus Mini	▣	140
Wharfedale Valduus 300	▣	150
Wharfedale Modus Music Two	▣	170
Wharfedale Modus Music Four	▣	200
Wharfedale Valduus 400	↕	200
Wharfedale Diamond 7.3	▣	200
ZYP A1	▣	199

£201 to £300

Audio Gem Opal	▣	230
B&W CWM6i	↕	280
B&W DM602	▣	300
Bose XL3000	▣	230
Bose 151 Environmental	▣	270
Bose 161 Freestyle	▣	275
Bose 201 Ser III	▣	290
Bose XL4000	▣	295
Boston 361	↕	219
Boston CR8	▣	239
Boston 381	↕	259
Boston CR9	▣	279
Boston Voyager	▣	299
Castle Isis	▣	229
Celestion Impact 20	▣	279
Celestion Impact 23	↕	300
Cerwin-Vega VS-8	▣	250
Cerwin-Vega CT-330	↕	300
Dali 102B	▣	260
Dali 150	▣	300
Faraday FS1	▣	245
Gale 5B	▣	220
GLL Imagio IC110	↕	300



You must listen to...Mission's 731i.

MISSION

"A combatant truly worthy of the budget speaker challenge".

Alan Sircom, Hi-Fi Choice, July/August 1996.
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H'brook HB1	269	H'brook Heylios	339
Infinity SM85	250	H'brook Trio	373
Jamo 68	230	H'brook Heylo	389
Jamo Art	270	H'brook Heystak	489
Jamo Deco Art	300	Infinity SM105	350
Jamo D265	300	Infinity SM115	400
Jamo Classic 4	300	Infinity SM125	500
Jamo 307A	300	Jamo Cornet 75	330
JBL LX2	250	Jamo 407A	350
JBL TLX151	300	Jamo 98	360
JPW ML710	230	Jamo Classic 6	360
JPW ML810	260	Jamo BX-100A	370
JPW ML910	300	Jamo D365	400
JVC SX-SW10	300	Jamo Cornet 95	400
KEF Coda 9	299	Jamo Graphic	400
KEF Model 70S	299	Jamo Classic 8	430
Kenwood LS-300G	300	Jamo BX-150A	460
Keswick Aria II	299	Jamo Atmosphere	480
Lumley Promenade SP1	299	Jamo 128	500
M-A Monitor 1	250	Jamo 477A	500
M-A Monitor 1 G	250	Jamo Silhouette	500
M-A Monitor 2	300	JBL LX6	350
M-S MS301	275	JBL TLX161	400
M-S MS10i Classic	280	JBL PS8	500
M-S MS25i	300	JBL TLX171	500
Mus Tec Kestrel SE	299	JPW ML1090	400
NAD 802	280	JPW Ruby 1	400
Pioneer CS-7030	230	JPW SS553	500
Pioneer CS-9030	280	JPW Ruby 2	500
Pioneer S-LC1	300	KEF Q35	349
Polk AB505	220	KEF Q55	499
Polk M3 II	220	KEF RDM ONE	500
Polk RT5	250	Keswick Aria II	329
Polk RT7	300	Keswick Centrale	359
Polk M5	300	Linn Sekrit	395
QLN Projekt A5	225	Lumley LM4	375
QLN Projekt B3	240	Lumley Promenade SP2	399
QLN Qubic 122	270	Lumley LM5	499
QLN 122	270	Lumley Promenade SP3	499
QLN A6	270	Mission 733	330
QLN Projekt B3i	285	Mission 731f	348
RAInt'l Dimension Five	299	Mission 734	499
RAInt'l Minette Gold	299	M-A Monitor 3	400
RAInt'l RAGM	299	M-S MS40i	450
Rega EL8	298	Mus Tec Harrier	400
Revolver The 250	250	NAD 804	400
Rogers LS33	249	Neat Critique	385
Royd Minstrel	269	Origin Live OL-1AS	399
Royd Merlin	298	Origin Live Monarch	399
Sequence 300	249	Pentachord A	469
Solid HCM1	250	Pioneer S-LC2	450
Sony SS-176EB	250	Polk AB705	330
Spendor 2010	249	Polk RT8	400
Tannoy Profile Plus 633	299	Polk RT10	500
TDL RTL 2	280	Polk AB805	500
Visionik 7003	203	Prof Monitor Co TB1S	366
Visionik SUB5	259	Prof Monitor Co TB1SM	403
Wharfedale MFM1	250	Prof Monitor Co TB1	410
Wharfedale Modus Music 1X	280	Prof Monitor Co TB1M	447
Wharfedale Valdus 500	300	Prof Monitor Co XB1	499
Yamaha NS10M	300	QLN Projekt B4	320
ZYP A1T	219	QLN Projekt B3ii	329
ZYP A2S	275	QLN Projekt C3	330
ZYP A2ST	295	QLN Projekt B MULTI	360
		QLN Projekt D3	370



Rogers dB101: the speaker that thinks it's a McLaren F1!

£501 to £800			
Aco En AE1-II	795	Origin Live Victory	750
Allison Model 3A	525	Pentachord B	519
Audio Gem Emerald	540	Pentachord Pentode	729
Audio Note AN-K/D	620	Polk RT12	600
B&W CDM1	600	Polk RT16	799
B&W P4	675	Polk LS50	800
Bose SE-5 Ser II System	760	Proac Tablette 50	599
Bose A'mass AMS11	800	Proac Studio 100	699
Boston VR30	600	QLN 313	600
Boston Micro 90 Sys	669	QLN 929	700
Castle Severn	539	QLN Classic One	800
Castle Avon	699	Quad Q7710L	600
Celestion Impact 35	529	RAInt'l Dimension Five 3	579
Celestion Impact 40	629	RAInt'l Magnum LS1	589
Celestion A1	700	RAInt'l Dimension Five 4	699
Carwin-Vega VS-12	550	Rogers C6/20	533
Carwin-Vega VS-15	700	Rogers LS3/5A	699
Clements 600si	595	Rogers Studio 5	699
Dali 107	600	Rogers C6/25	763
Dali 350	600	Roksan ROKone 1	595
Dali 450	700	Roksan Ojan 3S	795
Dali 109	800	Roksan Ojan 3 Black	795
Dawn Audio Chorus FS	698	Royd The Sorcerer	595
Def Tech BP6B	750	Royd Abbot	665
Epos ES14	675	Ruark Templar II	599
Faraday FS10	795	Ruark Sceptre	599
GLL Imagio IC130	530	Ruark Talisman II	749
Harbeth BBC LS3/5A	699	Ruark Prologue One	799
Harbeth HL-P3ES	799	Silverado Raider	695
H'brook Quartet	575	Sonus Faber Concertino	599
Infinity SM155	550	Spendor 2030	599
Jamo BX-200A	550	Spendor LS3/5A	630
Jamo Classic 10	700	Spendor SP3/1	795
Jamo 507A	800	Tannoy Profile Plus 637	549
JBL LX7	550	Tannoy Profile Plus 638	649
JBL TLX181	600	Tannoy Definition D100	689
JBL L20	700	TDL T-Line 2	550
JBL PS12	750	TDL T-Line 3	700
J Watts JH200	510	Totem Rokk	695
J Watts JHFLG	560	Triangle Comete TZe	525
JPW Ruby 3	800	Triangle Lunn	550
KEF LS3/5a	649	Triangle Zephyr	799
KEF RDM Two	699	UKD-Opera Opera Seconda	595
KEF Q65	799	UKD-Opera Operetta II	770
Keswick Volante	629	Wharfedale MFM7	650
Linn Tukan Passive	550		
Linn Keilidh Passive	750	£801 to £1500	
Lumley LM6	650	Aco En AE2-II	1,095
Lumley Promenade SP4	650	Alon Alon Petite	999
Manticore Minaret	580	Alon Alon I	1,500
Meridian A500	750	Ambience Mod. 4.0	1,185
M&K S-85	700	ATC SCM10	1,000
Mission 752f	578	ATC SCM20	1,500
Mission 735f	650	Audio Note AN-J/D	930
Mission 753f	798	Audio Note AN-K/SPx	1,060
M-A Studio 25E	600	Audio Note AN-J/SPx	1,415
M-A Studio 2	600	Audio Physic Step	1,299
M-A 700 PMC	600	Audiovector 2X	850
M-A 702PMC	700	Audiowave 3K	1,500
M-A 703PMC	800	AVI Positron	999
M-S MS50i	550	B&O Beolab 4500	1,300
Naim INTR0	660	B&W P5	875
Neat Mystique	575	B&W DM604	1,000
Neat Petite II	745	B&W P6	1,095
Orelle Orator II	699	B&W Matrix 805 V	1,095
Origin Live Resolution	732	Bandor Treta	846
		Bandor Mora	1,260
		Bandor Bandora	1,340



KEF 30B sub, 60S surrounds and 80C dialogue speaker: this home cinema package won two awards last year!

Bose A'mass AM7	£	900
Boston VR40	£	1,000
Castle Harlech	£	849
Castle Howard S2	£	1,199
Celestion A2	£	1,199
Cerwin-Vega AL-1000	£	1,100
Cerwin-Vega 1515	£	1,300
Clements Reference 1	£	995
Dali 850	£	1,100
Def Tech BP8B	£	1,000
Def Tech BP10B	£	1,500
Electro EC-Qube	£	1,195
Epos ES22	£	1,185
Gamma Epoch Five	£	1,499
Harbeth HL-K6	£	1,049
Harbeth HL-Compact 7	£	1,499
Harbeth BBC LS5/12A	£	1,499
H'brook Sextet	£	1,159
Impulse Kora	£	1,250
Jamo 707i	£	900
Jamo Concert 8	£	1,300
JBL L40	£	1,000
JBL PS15	£	1,000
JBL L80	£	1,250
JBL L90	£	1,500
J Watts JH400	£	820
J Watts JH400M	£	970
JPW Ruby 4	£	1,000
KEF Q75	£	999
KEF Model One	£	1,199
Keswick Torino	£	899
Keswick Figaro Evolution	£	899
Keswick Milano	£	1,099
Keswick Amber	£	1,399
Linn Tukan Aktiv	£	1,050
Linn Keilith Aktiv	£	1,250
L Voice Auditorium	£	1,300
Lumley LM3	£	895
Lumley LM3.5	£	1,050
Magnepi SMG-C SE	£	990
Magnepi MG-0.6 SE	£	1,370
Manticore Matisse	£	1,390
Meridian Argent 1	£	995
Mission 754f	£	1,298
M-A Studio 12	£	1,000
M-A 705PMC	£	1,400
M-S Perf 820	£	1,495
Naim Credo	£	1,060
Origin Live Sovereign	£	975
Pink Triangle Ventral	£	990
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
QLN Signature	£	1,000
QLN Prestige	£	1,500
QLN Sig Splitfield	£	1,500
Rega XEL	£	1,040
Rogers Studio 7	£	899
Rogers C6/28	£	1,303
Roksan Ojan 3X Black	£	1,195
Royd The Albion	£	1,270
Ruark Broadsword II	£	899
Ruark Paladin	£	1,099
SD Acoustics SD5	£	1,395
Shahinian Super Elf	£	875
Shahinian Compass	£	1,395
Sonus Faber Minuetto	£	898
Sonus Faber Concerto	£	1,098
Spendor 2040	£	899
Spendor SP2/3E	£	1,050
Spendor SP1/2E	£	1,390
Tannoy Definition D300	£	999
TDL Studio 1M	£	899
Technics SB-M1000	£	1,500
Totem Model One	£	1,195
Triangle Antal	£	1,099
UKD-Opera Callas II	£	950
UKD-Opera Opera Terza	£	999
UKD-Opera Callas Gold	£	1,050
UKD-Opera Divina II	£	1,500
Vandersteen 2Ce	£	1,395
Visonik LB1	£	935

£1501 to £3000

Aco En AE1 Sig	£	1,695
Aco En AE2 Sig	£	2,695
Alon Alon II	£	2,300
Ambience Mod 3.2	£	1,780
ATC SCM20 Tower	£	1,999
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
Audiovector 5	£	2,500
Avalon Monitor	£	2,995
B&O Beolab 8000	£	1,550
B&O Beolab 6000	£	2,100
B&O Beolab Penta 3	£	2,650
B&W Matrix 804	£	1,695
B&W Matrix 803s2	£	2,495

B&W Matrix 802s3	£	2,995
Bose 901 V1	£	1,650
Boston Lynfield 300L	£	2,000
Bravura Virtuoso	£	2,995
Cary SP-301	£	2,295
Celestion A3	£	1,799
Celestion Kingston	£	2,500
Chord LS5/12A	£	1,593
Chord CEL 201	£	2,130
Chord CEL 301	£	2,840
Clements Reference 7	£	1,995
Creo SPB 003	£	1,820
Creo SPB 009	£	2,453
Dali Grand Coupe	£	2,500
Dawn Audio Symphony	£	1,995
Def Tech BP20	£	2,000
Def Tech BP2002	£	2,400
ECA Servo A.2	£	2,450
Epos ES25	£	1,655
Gamma Epoch Ref Five	£	2,999
Hales Concept Two	£	2,250
Harbeth HL-S8	£	1,999
Helius Syrius II	£	2,395
Helius Syrius I	£	2,850
Hornung Aristophane	£	2,600
Impulse Lali	£	1,850
Jamo Concert 11	£	2,000
JBL L1100	£	1,750
J Watts JH1 +1 Aspect	£	1,730
J Watts JH1 +1 Aspect K	£	2,310
J Watts Aspect JH1 +1	£	2,745
KEF Model Two	£	1,599
KEF Model Three	£	1,999
Linn Kaber Passive	£	2,000
Linn Kaber Aktiv	£	2,640
Lowther Fidelio	£	1,999
Lowther Academy	£	2,399
Lowther Bel Canto	£	2,699
Lumley LM2	£	2,795
Magnepi MG-10 SE	£	1,650
Magnepi MG-1.5 SE	£	1,780
Magnepi MG-2.7 SE	£	2,650
M-L Aerius I	£	2,299
M-A Studio 20 SE	£	2,200
M-S Perf 860	£	1,895
M-S Perf 880	£	2,795
Naim SBL Active	£	1,830
Naim SBL Passive	£	1,970
Neolith NEO 1	£	2,999
Origin Live Conqueror	£	1,650
Paragon Acoustic Jubilee	£	1,995
Pentachord P'column	£	1,649

Polk LS90	£	1,700
Posselt Albatros	£	2,200
Proac Response 2S	£	2,000
Proac Studio 250	£	2,249
Proac Response 2.5	£	2,700
Prof Monitor Co IB1S	£	2,099
QLN Reference	£	2,000
QLN Ref HDII	£	2,500
RAlnt'l Magnum System 1	£	1,589
Rehdeko RK115	£	1,550
Rehdeko RK125	£	2,750
Rogers LS5/9	£	1,531
Rogers Studio 9	£	1,549
Ruark Crusader II	£	1,599
Ruark Equinox	£	1,849
Ruark Accolade	£	2,699
SD Acoustics SD1E	£	2,995
Shahinian Arc	£	1,875
Shahinian Obelisk	£	2,675
Silverado Silverado 1	£	1,995
Sonus Faber Minima Amator	£	1,566
Sound-Lab Quantum	£	2,150
Spendor SP7/1	£	1,990
Spendor SP100	£	2,099
Tannoy Definition D500	£	1,999
Tannoy Stirling TW	£	2,200
Tannoy Definition D700	£	2,500
TDL Studio Monitor-m	£	2,449
Thiel CS-5	£	1,699
Thiel CS-1.5	£	2,499
Totem Mann-2	£	2,795
Triangle Zays	£	1,750
Triangle Altinis	£	2,250
Triangle Extan	£	2,950
UKD-Opera Caruso II	£	2,350

Over £3000

Aco En AE5	£	7,995
Alon Alon IV	£	3,500
Alon Alon V Mk2	£	5,000
Alon Adriana	£	9,000
Ambience Mod 5.0	£	9,550
ATC SCM50	£	3,499
ATC SCM100	£	4,149
ATC SCM50A	£	4,999
ATC SCM100A	£	5,699
Audio Note AN-JSE Silver	£	7,900
Audio Note AN-ESE Silver	£	9,600
Audio Physic Virgo 2	£	3,199
Audio Physic Avanti 2	£	6,399
Audio Physic Caldera	£	9,999
Audiovector 6	£	4,600
Avalon Avator	£	4,495
Avalon Eclipse	£	6,495
B&W Matrix 801s3	£	3,995
B&W Silver Signature	£	5,500
Bandor Bandoline	£	3,290
Bandor Bandora/Mora	£	3,290
Bandor Lynfield 500L	£	4,449
Bravura Virtuoso Silver	£	3,195
Bravura Virtuoso Gold	£	3,395
Bravura Accelerando	£	6,600
Creo SPB 012	£	3,147
Creo SDL 001	£	5,677
Dali Grand	£	4,000
Def Tech BP2000	£	3,600
Fase Evoluzione Fase/Aria	£	3,100
Hales Concept Five	£	4,350
Hales Concept Three	£	6,350
Hornung Atagion	£	3,555
Impulse Ta'us	£	3,100
Infinity Sigma	£	5,995
Infinity Epsilon	£	9,995
Jamo Oriel	£	7,000
JBL S2600	£	3,500
JBL S3100	£	4,000
J Watts JH2K	£	3,230
J Watts Classic JH2KM	£	4,250
J Watts Classic JH5K	£	4,875
J Watts Classic JH5KM	£	5,860
J Watts Classic JH10K	£	9,340
KEF Model Four	£	3,299
Keswick Zero 2	£	6,000
Linn Keilith Aktiv	£	6,000
Lowther Delphic	£	3,999
Lumley LM 2 Signature	£	4,500
Lumley LM1	£	8,500
Magnepi MG-3.5SE	£	3,800
M-L SL3	£	3,499
M-L CLS Iiz	£	4,555
M-L Re-Quest	£	5,875
M-L Monolith S	£	7,440
M-L Monolith IHP	£	8,550
Meridian DSP6000	£	9,400
M&K BP2000	£	3,600
M-A Studio 50	£	4,000
M-A Studio 60	£	6,000
Naim DBL Active	£	7,414
Neolith NEO 2	£	3,499
Neolith NEO 3	£	4,999
Paragon Acoustic Regent	£	3,490
Proac Response 3.5	£	4,250

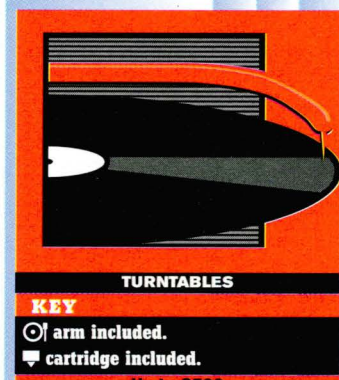


Valves and vinyl fly the flag for the retro Brigade in this system from Audio Note

Manticore Musician	⊙	425
Manticore Magician	⊙	750
Manticore Magician 12	⊙	850
Moth Arm	⊙	109
Moth MKIII Stainless	⊙	146
Moth Moth 900	⊙	598
Naim ARO	⊙	1,040
N'ham Space	⊙	350
N'ham Mentor	⊙	750
N'ham Alien	⊙	1,200
Rega RB250	⊙	109
Rega RB300	⊙	174
Rega RB900	⊙	598
Roksan Tabriz	⊙	320
Roksan Tabriz Zi	⊙	420
Roksan Artemiz	⊙	895
SME 3009 Ser II Imp	⊙	294
SME 3009 S2 Ser II Imp	⊙	321
SME Series II 3009-R	⊙	489
SME Series II 3010-R	⊙	501
SME Series II 3012-R	⊙	538
SME 309	⊙	656
SME 310	⊙	671
SME 312	⊙	763
SME Series IV	⊙	935
SME Series V	⊙	1,391
Townshend Excalibur	⊙	1,499
Wheaton Music Tri-Planar 4i	⊙	3,000
Wheaton Music Tri-Planar 5i	⊙	3,250
Wilson Benesch ACT1 Std	⊙	950
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.		
AMC T7	P30	130
Arcam Alpha 7	P24	230
Arcam Alpha 8	P24	280
Arcam Delta 280	P20	399
Audiolab 8000T	P39	800
Aura TU80	P30	350
AVI S2000MT Ref	P60	699
Day-Seq FM Ref		5,937
Day-Seq S B'dcast Mon		14,640
Denon TU-260L	P20	120
Denon TU-215RD	P40	RDS 150
Denon TU-425RD	P40	RDS 200
Grundig T12	P59	170
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
MagDyna FT11		550
MagDyna FT-101A		825
MagDyna Etude		1,250
MagDyna 108		4,500
Marantz ST-57	P59	RDS 150
Marantz ST-65	P59	RDS 200
McIntosh MR7084E	P50	1,999
Meridian 504	P30	695
Meridian 604	P30	1,350
Michi RHT-10	P16	895
Micromega Minium FM Mk2	P39	329
Micromega Tuner	P39	750
Mission Cyrus FM7	P29	400
Mus Fid E50	P20	300
Mus Fid E500	P20	499
NAD 412	P24	190
NAD 414RDS	P30	250
NAD 710	P24	270
NAD 712	P24	330
Naim NAT03		595
Naim NAT02		1,080
Naim NAT01		1,730
Onix TU39		800
Onkyo T 4210RDS	P30	RDS 180
Onkyo T 409	P30	RDS 230
Onkyo T 411RDS	P30	RDS 260
Pioneer F-204RDS	P30	RDS 140
Pioneer F-304RDS	P40	RDS 190
Pioneer F-504RDS	P40	RDS 250
Quad 77FM	P25	700
Rega Radio	P24	229
Rotel RT-990BX	P16	500
Sony ST-SE200	P30	100
Sony ST-SE300	P30	120
Sony ST-SE500	P30	RDS 140
Sony ST-SE700	P30	RDS 180
Sony ST-SA3ES	P30	RDS 250
TEAC T-R400	P20	120

TEAC T-H500	P30	RDS 170
TEAC TB-X10	P20	RDS 400
Technics ST-GT350L	P30	RDS 150
Technics ST-GT550L	P39	RDS 200
Technics ST-GT650L	P39	RDS 250
Thorens TRT-2000	P59	RDS 499
Yamaha TX-480L	P40	100
Yamaha TX-492RDS	P40	RDS 180
Yamaha TX-590RDS	P40	RDS 130



Up to £500				
Audio Note AN-TT 1				349
Dual CS435-1	⊙	⊞		150
Dual CS455	⊙	⊞		190
Dual 505-4 UK	⊙	⊞	⊞	250
Dual CS Golden II	⊙	⊞		500
Eclipse TT430	⊙	⊞		70
Genexa Lab-710	⊙	⊞		60
Genexa Lab-810	⊙	⊞		70
Grundig TT1	⊙	⊞		180
Kenwood KD-492F	⊙	⊞		100
Michell Syncro	⊙	⊞		405
Michell Mycro	⊙	⊞		435
Moth Turntable	⊙	⊞		199
Moth Alamo	⊙	⊞		199
Moth Kanoot Mkl Arm	⊙	⊞		279
Moth Kanoot MklII Arm	⊙	⊞		329
NAD 533	⊙	⊞		220
Pioneer PL-J2500-C	⊙	⊞		80
Pioneer PL-990	⊙	⊞		130
Pro-Ject 0.5 /OM10	⊙	⊞		160
Pro-Ject 1/510	⊙	⊞		200
Pro-Ject Project 2/520	⊙	⊞	⊞	300
Pro-Ject Project 6/MC15	⊙	⊞		450
Rega Planar 78	⊙	⊞		214
Rega Planar 2	⊙	⊞	⊞	214
Rega Planar 3	⊙	⊞	⊞	274
Roksan Radius 3	⊙	⊞		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
Technics SL-BD20	⊙	⊞		160
Technics SL-BD22	⊙	⊞		180
Technics SL-1210MKII	⊙	⊞		500
Technics SL-1200MKII	⊙	⊞		500
Thorens TD-180 AT91	⊙	⊞		190
Thorens TD-280 IV/UK	⊙	⊞		210
Thorens TD-166 VI/UK/RB	⊙	⊞	⊞	400
Thorens TD-318 III TP50	⊙	⊞		500

Over £500				
Audio Note AN-TT 2				995
Audio Note AN-TT 3				1,850
Audiomeca Romance				1,895
Audiomeca J1	⊙			3,500
Basis 2001				2,750
Basis Ovation II				4,800
Basis Debut Gold Std III				7,200
Basis Debut Gold Vacuum				9,250
Clearaudio The Analogue	⊙			2,490
Clearaudio Reference	⊙			4,500
DNM Rota 1				3,500
DNM Rota 2				4,800
Impulse Moskito	⊙			695
Kuzma Stabi				1,950
Kuzma Stabi Reference				3,750
Linn LP12 Basik				1,100
Linn LP12 Lingo				1,750
Lumley Strotosphere ST1				6,250
Manticore Mantra 96				525
Manticore Mantra				790
Manticore Magister				3,990
Marantz TT-1000				6,000
Michell Gyrodek				825
Michell Orbe				1,950
N'ham Spacedeck				600
N'ham Illusion				600
N'ham HyperSpacedeck				1,200
N'ham Graphic				1,200
N'ham Mentor				2,200
N'ham Mentor Ref				4,800
Pink Triangle Export				948
Pink Triangle Anniversary				1,797
Rega Planar 9	⊙	⊞		1,598
Roksan Xerxes 10				1,295
Roksan TMS				2,750
SME Model 20/2				3,240
SME Model 20/2A	⊙	⊞		4,361
Thorens TD-146 VI TP50	⊙	⊞		550
Thorens TD-2001 TP90	⊙	⊞		700
Thorens TD-520 SME	⊙	⊞		1,050
Townshend MkIII Rock				1,499
Well T Record Player	⊙			1,850
Well T Classic	⊙			2,980
Well T Super	⊙			3,900
Well T Reference	⊙			5,300
Wilson Benesch WB Turntable	⊙			1,775

Remember
 that all entries
 printed in **RED**
 refer to hi-fi
 products
 that we have
 reviewed.
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106 for a full
 summary
 of test results!

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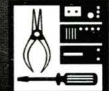
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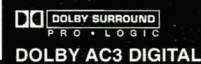
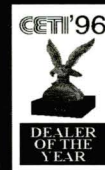
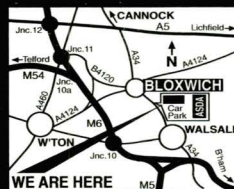


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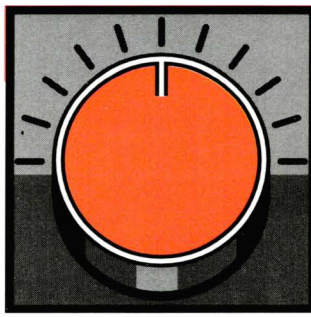


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ARCAM AUDIO LAB CHORD EXPOSURE NAIM KESWICK ALSO:- APOLLO A.T. AUDIO ALCHEMY AUDIO QUEST B&W BOSE BEYER CABLE TALK CHORD COMPANY CYRUS CELESTON DPA EPOS KEF REFERENCE FERWOOD MARANTZ MICHELL MORDAUNT SHORT MERIDIAN MICHOMEGA MISSION MOTH MUSICAL FIDELITY NAGAMICHI ORTOFON PROTECT QUAD ROKSAN ROGERS ROTEL SENNHEISER SONY SUMIKO SYSTEMEK TARGET TEL TUBE REGISBLOOY VAN DEN HUL YAMAHA TV & VCR FROM: SONY TOHIBA FRANSOIC AXAL PIONEER PROJECTION UNITS FROM: SANYO SELECO



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 become separated into 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. Power output is equally no indication of sound quality.

B Best buy**R** Recommended

KEY

LINE INPUTS: Amount of input sockets for non vinyl sources such as CD players, tuners and cassette decks.
MM PHONO INPUT: If an amp has a vinyl phono input for moving magnet (normal output) cartridges.

MC PHONO INPUT: If an amp has a vinyl phono input for moving coil (low output) cartridges.
REMOTE CONTROL: If 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.
BACK ISSUE: 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
AMC 3050a	170	Tremendous value for money, and a full, big if rather uninformative sound.	4	●	●	●	●	45			167
Arcam Alpha 7	250	Decent, if slightly system fussy amplifier that generally pulls all the right strings	5	●			●	40			167
Arcam Alpha 8	350	Enjoyably soft-centred amp won't frighten the animals. Upgradeable via preamp output, and R/C (not supplied)..	5	●			●	50		1853	162
Arcam Alpha 9	500	Clear, colourful and well disciplined, the Arcam is a strong all-rounder which can compete with conviction. Tested with 9P	5	●	●	●	●	75			165
Audio Innovations Alto	300	Probably because of a lack of deep bass, this stylish amp sounds open, natural and relaxed	6					35		1540	138
Audio Note Ongaku	56,000	A single ended, zero negative feedback triode, line-level amplifier and a half. Probably the best amplifier in the world	3					26			C91
Audio Note Oto SE	1,200	Transparent, dynamic, clear and subtle, but limited power	4					24			126
Audiolab 8000A	550	The 8000A remains a highly disciplined and mature sounding amp	5	●	●		●	60		1581	140
Audiolab 8000S	750	Informative in every sense, only a slight lack of bite detracts. Perhaps Audiolab's best yet!	6			●	●	60		1740	154
Aura VA100 II	350	Big, smooth yet slightly disjointed sound was equally familiar	5	●			●	70		1541	138
Cambridge Audio A3i	200	Maximum information design, with plenty of usable, and reasonably refined power. A snip.	4	●				60			167
Copland CSA-14	1,199	Great sound and looks, but watch out for high capacitance cables	4	●				60		1416	148
Creek 4240	335	Bearing no relation to earlier Creek designs, this radical rethink is more successful via MM than CD	4	●			●	40		1127	134
Creek 4240SE	420	At best, bland and plodding, at worst grainy, shouty and honky. Best on simple rock	5				●	35		1741	154
Denon PMA-350SE	200	Reinvented in the minimalist tradition, the new 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. You can do better.	3	●		●	●	45			167
Denon PMA-450SE	280	Based on the original '450 and offers a fast, furious and entertaining sound	5	●			●	60		1258	142
Denon PMA-725R	350	Warm, bold, up-front presentation but musically unexciting	5	●	●	●	●	97		1802	157
Densen Beat B-100	600	Low feedback amp with passive internal preamp gives a bold, pacy and thoroughly involving sound. Phono option listed.	5					60		1855	162
DeVa 125	249	Subjectively loud this throws an unlikely quantity of music at the audience, bouncy sense of rhythm	6					20		1464	149
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
Gamma Acoustics Gemini	699	Genuine single-ended triode design, but low power, mundane sound and poor build	3					12		1416	148
Grundig Fine Arts V-11	160	Rhythmically dull. Never gets out of first gear	5	●		●	●	55		1803	157
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
Harman/Kardon HK1400	400	Relaxed, confident sound is only troubled by the most dense of recordings.	5	●	●			40		1011	129
Harman/Kardon HK640	400	Breezy, nimble sounding amp lacks grip and fortitude - it can sound artificial and insubstantial	6				●	55		1542	138
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
Krell Digital KAV-300i	2,490	EISA Award winner with balanced inputs and AV friendly outlook, sound is confident and three dimensional (Statements)	5					150		1825	160
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 IA170	330	Gives a realistic sense of instruments playing within a very believable acoustic, preserves colour & dynamics well	6				●	96		1260	142
Magnum IA-200	495	Sweet, valve -flavoured solid state amplifier flatters where it doesn't cast light. Note: power output listed is peak	7					100		1860	162
Magnum Class A	690	Lashings of rich and compelling music, but the Class A trades lushness for accuracy.	4	●	●			60			116
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	
Micromega Minium Amp	350	Excellent musical performance but doesn't like high levels or low impedance speakers	6	●		●	●	40		1806	157
Mission Cyrus IIIi	500	Beautifully presented, but mid-dominated balance and other anomalies were not liked on test. Upgradeable using PSX unit PSU.	6	●		●		50		1854	162
Musical Fidelity E10	300	Smooth and high-endish sound that is marred by a lack of dynamics and a touch of grain	5	●			●	40		1746	154
Musical Fidelity A2	499	Lucid, transparent midband and a full upper bass are provided by this highly proficient A1 replacement	5	●				25		1862	162
Myryad MI 120	530	Despite an ultra-modern appearance, the old-fashioned cold, dry transistor sound	5			●	●	60		1747	154
NAD 310	100	Fleet and sure of foot, it seems likely to set all appendages tapping with itsblend of enthusiasm and artfulness	5					20		1468	149
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. Perhaps too distinctive for sme tastes	5					30		1748	154
Onix OA31	480	Eager to please, dynamic and fresh sounding, but it's grip is wafer thin	5	●	●		●	60		1587	140
Orelle SA-100	449	A musically rewarding amplifier that grows on you. Trace of coarseness in treble	5					50		1749	154
Pioneer A-300R	200	Its bright and breezy sound is a natural tonic to those of use worn down by the ongoing stress of life	5	●		●	●	50		1469	149
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 is not an obvious winner, but it will slowly win you over with its subtle charms	5	●		●	●	35		1863	162
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	650	Stylish remote driven amp, bright and lively. Tested in Sessions	4	●	●			50			139

INTEGRATED AMPLIFIERS

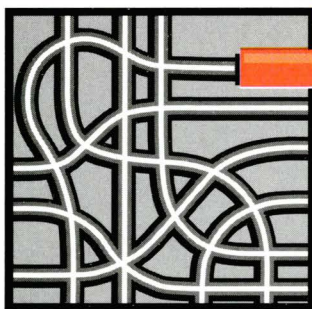
Product	Price(£)	Comments	MM PHONO INPUT	MC PHONO INPUT	HEADPHONE SOCKET	POWER OUTPUT(W)	FACTSBACK NUMBER		RECEIVER	ISSUE NUMBER
							4	6		
Rega Elex	398	Minimalist amplifier derived from Elicit is a little uninspiring, though at least it is not badly behaved.	4	●					50	1865 162
Rega RA970BX	250	Lively, fresh and perky with plenty of power, but not so clever with complex recordings	6			●			60	1546 138
Sherwood AX-7030R	400	Versatile, and with truck-loads of power on tap, this model is disappointingly coarse and uninvolving on audition.	5	●	●	●	●		95	1866 162
Sonic Frontiers SFC-1	1,795	Smooth, sophisticated Canadian valve amp with a decent direct input and more features than average	6						50	126
Sony TA-F246E	200	Relaxed quality that seduces with its guile and subtlety, MM input is a tad laconic but CD is very tidy and composed	3	●			●		40	1471 149
Sony TA-F448E	250	Confused and coloured sounding, it needs a large dose of delicacy adding to its presentation	5	●			●			1809 157
Talk Electronics Storm 1	500	Good soundstaging and strong detail are provided by this unassuming and not especially powerful model	6						50	1868 162
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 'is it Stork...?' test, and can sound messy and inarticulate	5	●			●		45	1870 162
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-490	250	Widgets aplenty, but unemotional sound evoked an uncertain response from panel	5	●	●	●	●		85	1473 149
Preamplifiers										
Alchemist Kraken Pre	519	Quirky Class A design with an equally warm and colourful sound	4							124
Acurus RL11	899	Well featured US preamp with plenty of grunt and depth when used with the A150 power amp (Sessions)	6			●				1624 151
AMC CVT2030A	400	Budget valve preamp, modest build and a tad 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	550	Distinctive, stark neutrality that will not appeal to all. Good value engineering.	5	●	●		●			97
Audiolab 8000Q	1,100	Tested with 8000M monoblocks	6				●	●		1301 145
Aura CA200	700	Flexible, well designed - can sound slightly aggressive, but it's fast, clean and dynamic, and makes compelling listening	10	●	●	●	●			165
Conrad-Johnson PV-10A	1,250	Beautiful imaging, superb detail, plenty of gain on the phono input; classy build too. Tested in Sessions	4		●					1560 139
Conrad-Johnson Premier 7	11,000	The 7 is designed without compromise, and is clearly one of the finest (valve) preamplifiers money can buy	5							091
Copland CTA-301MKII	1,399	Sweet sounding - but never gets bogged down in audio treacle	4	●						1630 151
Creek P42M	400	Tested with bridged A42 power amps, an articulate and open combo with tight tuneful bass (optional phono stage & remote)	6					●		155
Cyrus Pre	650	Tested with Cyrus Power. High tech design PUNCHY, light footed character with a sense of substance and natural warmth	5	●		●				155
Densen DM-20	1,200	Stylish Danish preamp with a pair of huge knobs and effortless resolution and a slightly dark balance (Statements)	6							164
DPA DSP200S	495	Dramatic but detailed and transparent sound belies modest power rating (tested with DPA-200S)	6							124
EAR 802MC	2,599	Tested with 509 Mk II - see comments in power amp section	4	●	●					63
ECA Vista	760	Wind up the volume and blow a breath of fresh music into your system (tested with Lectern)	5							1302 145
Exposure XVII	849	Superbly rhythmical; maybe a tad overpowering in the midband. Tested in Sessions with XVIII Super	5	●	●					142
Jadis JP-30MC	5,978	French tubes, JP-30MC has beautiful build, nostalgic styling and delightful midrange. (tested with JA30)	5	●						60
Krell KRC-2s	4,190	This is an exquisitely refined and transparent design (tested with KSA-50S in Statements)	6			●				141
LFD Mistral Linestage	499	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	5	●			●			1303 145
Meridian 562V	995	Transparent and capable preamp, also features 6 digital inputs	9	●		●	●			140
Meridian 502	1,295	Extremely sophisticated Analogue Controller with tremendous flexibility and with a fast and tidy presentation(Statements)	7			●				162
Michell Argo	730	Open, well focussed imagery with natural, refined textures	6							165
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 F2	500	Subtle, sweet sounding preamp with strong presence	5	●	●					165
NAD 114	270	Beer budget preamp, sounds focussed, detailed and consistent	6	●	●		●			165
Naim NAC92R	599	Upgradeable preamp uses proprietary socketry etc. See NAP90 power amp for comments	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 RC970BX MkII	175	Confident, consistent sound. reviewed (in Sessions) with RB970BX MkII power amps	5				●			144
Rotel RC980BX	375	Tames enthusiastically recorded material with a laid back and occasionally smeared sound (tested with RB980BX)	5	●	●		●			155
Sumo Athena IIB	767	Tested with Polaris III. Big, natural and tidy sounding with very natural reproduction of acoustic and electric instruments	6							1305 145
Talk Hurricane 2L	649	Design of integrity which get to the heart, if not the soul, of the music	6							165
Thorens TTP2000F	699	Glamorous shoebox format minimalist pre with fine detail and some granularity	3	●	●	●				165
Woodside SC26 Phono	2,233	Synergistic with STA35, with a cool, controlled sound, good focus and transparency (tested with STA35)	5	●	●					100
Power amplifiers										
Acurus A150	899	Tested with RL11 preamp. Powerful remote control US combo with a slightly forward inclination	1					150		1624 151
Alchemist Kraken/Pwr	399	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 which can compete with conviction	1							165
Art Audio Quintet	1,393	Switchable triode, ultralinear output stage. In triode mode, these are 15 of the sweetest Watts around. Surprisingly gutsy	1					15		109
Aura PA100	700	Can sound slightly aggressive, but it's fast, clean and dynamic, and makes compelling listening	1					100		165
Audio Innovations S800 Anniversary	1475	Reviewed with L1 — Explicitly detailed, conveys the message of the music as a whole remarkably well	1					25		1300 145
Audiolab 8000M	800	Strong, controlled sound; confident bass, but colourless. Tested with 8000Q	1					125		1301 145
Audio Research VT60	2,395	Ranks as 'must try' American cultural item (tested in Statements). Tube design	1					35		1179 136
Copland CTA-505	2,099	Grown up amplifier with a refined, yet never over-civilised air	1					67		1630 151
Creek A42	335	Tested with P42 pre, in bridged mode. Articulate and open combo with tight tuneful bass	1					100		155
Cyrus Power	450	Tested with Cyrus Pre. PUNCHY, light footed character with a sense of substance and natural warmth (bridgeable)	1					50		155
Densen DM-30	1,200	Fluid, valve-like power amp with effortless resolution and a slightly dark balance (Statements)	2					100		164
DPA 200S	750	Dramatic but crisp, open sound belies power rating (tested with DSP-200S)	1					60		124
EAR 509 Mk II	3,699	Combining sonic strengths of transistors and valves, this amp warrants attention (tested with 802)	1					100		63
ECA Lectern	880	Tested with Vista. Wind up the volume and blow a breath of fresh music into your system	1					50		1302 145
Exposure XVIII Super	849	Slight dullness and hardness, but great 'boogie factor'	1					70		142
Jadis JA-30	5,980	French tubes, JP-30MC has beautiful build, nostalgic styling and delightful midrange (tested with E5978 JP30)	1					30		60
Krell KSA-50s	3,690	Stretches the performance margins of difficult speakers - state of the art at the price	1					50		141
LFD Mistral Power	449	Infectious upper band vitality, but LF dynamics lacking, and lacks 'grip' and transparency	1					60		165

POWER AMPLIFIERS (CONTINUED)

Product	Price(£)	Comments	MM PHONO INPUT	MC PHONO INPUT	HEADPHONE CONTROL	POWER OUTPUT SOCKET	FACTSBACK NUMBER	ISSUE NUMBER
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
Meridian 557	1,400	Hefty British lump with balanced inputs and a transparent, nimble sound with no shortage of power (Statements)	1				200	162
Michell Alecto	1150	Open, well focussed imagery with natural, refined textures	1				50	165
Moth 30 Stereo/60	549	Tested with 30 Passive. Modular system gives cracking results	1				60	109
Moth 60 Watt Stereo	599	Miniature power amp lacks control and finesse, not comfortable with difficult speaker loads	1				60	165
Moth 30 Series Monobloks	879	Tested with Active Preamp. While demonstrating solid, even balance it proved adept at delivering vital musical qualities	1				100	155
Muse Model 160	2,290	Transparent muscle amp with minimal character and a natural performer in both scale and tone (tested in Statements)	1				160	166
Musical Fidelity FX2	800	Quality build and imposing presentation is married to strong power yield, tonal colour and finesse	1				100	165
Musical Fidelity F18	3,999	Belongs to the rarified group of refined, high resolution amplifiers	1				220	1508 133
Myryad MA120	450	Based in MI120 integrated – see for comments, but sounds significantly better when biamped with MI120	1				60	165
NAD 214	370	A little lightweight, but detailed, consistent sound quality, and excellent value for money	1				80	165
NAD Monitor 208	1100	Truly a beefy amplifier, but no mad cow!	1				250	124
Naim NAP90	450	Power amp from a Nait integrated with some improvements.	1				30	165
Quad 77 Power	600	Open, bold and colourful, with mild compression.	1				85	165
Rega Exon	2194	Monoblock, priced each, dedicated for Hal preamp. Bold, outgoing, in command kind of sound	1				125	165
Rotel RB-970BX MkII	225	Tested with RC970BX MkII in Sessions (see preamp section)	1				60	144
Rotel RB-980BX	475	Tames enthusiastically recorded material with a laid back and occasionally smeared sound (tested with RC980BX)	1				120	155
Sumo Polaris III	950	Tested with Athena IIB. Big, natural and tidy sounding with very natural reproduction of acoustic and electric instruments	1				164	1305 145
Talk Tornado 2	599	Good, but slightly retiring sound which lacks the authority to stand out in a crowd	1				65	165
Thorens TTA2000	599	Low power shoebox format, but gutsy and surprisingly subtle and articulate	1				30	165
Woodside STA35	1,323	Synergistic with SC26, with a cool, controlled sound, good focus and transparency. More poise than grunt (tested with SC26)	1				35	100

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Cables

Cables are not accessories, but an integral part of a system. Inevitably some cables are better than others. 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 ten per cent of the total system cost on cables.

- Analogue interconnects are the leads that connect source components to amplifiers and pre to power amps. The cables in this section are priced for a one-metre terminated pair.

- Digital interconnects connect CD transports to DACs, and are traditionally coaxial with a 75 Ohm impedance. They come in optical and electrical varieties, the former being made of plastic or glass. The prices shown are for a terminated linear metre.
- Speaker cables are used between the amplifier and speaker. Our prices are per unterminated metre. Termination (plugs and soldering) costs vary with brands.

B Best buy **R Recommended**

KEY	SOLID CORE:	FACTSBACK NUMBER:	BACK ISSUE:
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.	The issue of Hi-Fi Choice 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	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	FACTSBACK NUMBER	ISSUE NUMBER
Analogue Interconnects									
Audio Note AN-A	29.50	Not especially impressive, warm but well rounded balance that restricts 'air' but is not unclear	●			●	●		108
Audio Note AN-C	59.50	Neutral but lacking in subtle texture and unable to distinguish fine detail					●	●	1687 131
Audio Note AN-S	139	Up-beat and enthusiastic sound with satisfyingly deep and grumbly bass	●			●		●	1687 131
Audio Note AN-V	219	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
Bandridge AL421	5	Light and airy sound lacks authority, splashy treble			●	●	●		1688 131
Bandridge AL426G	10	Gold plated plug OFC version of AL421 with same ineffectual sound quality			●	●	●		1688 131
Bandridge SG AL4720	13	4N OF copper, full smooth balance but a little plodding and relentless, lacks panache			●	●	●		1688 131
Bandridge SG+ AL4820	25	4N OF copper, distinctly teutonic, thrusting detail forward but still plodding and relentless			●	●	●		1688 131
Bandridge ProfiGold PG301	65	A perfect cable for enlivening a system, but too cold for most systems			●	●	●		160
Cable Talk Studio 2	65	A first-class performer from tonal, dynamic and rhythmic standpoints	●			●	●		160
Cambridge Audio Studio Ref	40	Dynamic cable with strong soundstaging and only a slight lack of detail			●	●	●		160
Chord Chameleon	68	Anomalous treble with a dry but vaguely sibilant quality, sometimes sounds smooth, sometimes harsh!				●	●		108
Chord Solid	99	Thin but very stiff with excellent resolution of subtle timbral detail and fine dynamics			●	●	●		108
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	Highly expressive, very easy on the ear and attractively detailed though not entirely characterless at high frequencies					●	●	1691 131
DPA Black Slink	220	Initially dark and meaty but becoming lucid and transparent with running in. Quad geometry, Gore-tex dielectric	●				●	●	1691 131
Ixos 104	20	Open and detailed presentation, full bass and silky if overly smooth treble			●	●	●		1692 131
Ixos 103	40	Even handed and generous sound, bass has a well rounded, bouncy quality			●	●	●		1692 131
Ixos 102	60	A tad 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 brings an earthiness to vocals and rhythm guitar alike			●	●	●	●	1693 131
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

CABLES (CONTINUED)

Product	Price(£)	Comments	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	DIAG. CABLE TYPE	ISSUE NUMBER	
LFD Spirolink II	70	Price for 0.7m length. Strong and confident sound enhancing bass depth and subtlety, concentrates of nthe meat of the music	●			●	●		1694 131	
LFD Trilink	150	Price for 0.7m length. Warm and luxurious sound but a little too fruity in balance, treble is a little subdued, bass detached	●			●	●		1695 131	
Linn Phono to Phono	47	Encourages a delicate performance underpinned by a strong and authoritative bass			●	●	●		1695 131	
Monster Interlink 200	20	Colourful in an appealing rather than contrived sense, bass is slightly over-blown, large and ingratiating sound stage	●			●	●		1696 131	
Monster Interlink 300	30	Richer, smoother more civilised sound than 200 with improved articulation and reduced sibilance	●			●	●		1696 131	
Monster Interlink 400	40	Compromised by a grainy top end, treble and vocal range sound particularly sharp and untidy	●			●	●		1697 131	
Monster Interlink 500	50	Sounds rather good, providing a livelier and more interesting account of music than most sub £100 cables	●			●	●		108	
Monster Interlink 800	80	Not as bright or aggressive as the 400 but treble is strangely lumpy, muted and manipulated - odd cable	●			●	●		1697 131	
Monster Interlink Reference 2	100	Easy on the ear but rather contrived, slightly clanky treble fails to integrate with the smoother but splotchy midband				●	●		1697 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, vox are course rather than liquid	●			●	●	●	108	
Nordost Black Knight	55	Flat black cable that is distinctive, but slightly coloured — but not in a wholly negative manner	●			●	●		160	
Panasonic RP-CA910	50	Uncongested and even handed balance if slightly flat imagewise, retains impact but has a vaguely untransparent quality				●	●	●	108	
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. 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	
Tara Labs Prism 11	45	Very compatible cable that wins through with a naturally balanced and realistically dynamic sound. 6N purity copper	●			●	●	●	1699 131	
Tara Labs Prism 22	56	Delivers a fresh and detailed sound with clear and bright treble giving it a free, quick and dynamic character	●			●	●	●	1700 131	
Tara Labs Quantum CD	75	Lacking in obvious vices, neutral and transparent, there's also a good solid bass. Vox are not always as intimate as possible	●			●	●	●	108	
Tara Labs Prism 33	90	A pedestrian cable that sounds lively but muddled. Quite dynamic, quite rich, quite smooth but also quite indistinct				●	●	●	1700 131	
Transparent Audio Music Link	119	No aggressive nasties to tax the ears, neither does it sparkle with inspirational detail. Only suited to low output impedances				●	●	●	1701 131	
van den Hul The Storm	25	Price for 0.8m length. Rich and warm but bass is rolled off, however there's plenty of drive and high frequencies are clean				●	●	●	1701 131	
van den Hul Source HB	50	(Priced for 0.8m) Hybrid carbon-fibre/copper cable that is a paragon of naturalness. Airy and well controlled				●	●	●	160	
van den Hul The First	210	Using 12,000 carbon fibres, a gentle and subtle sounding cable that conveys oodles of information but lacks dynamic punch	●			●	●	●	1702 131	
van den Hul The Second	225	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 Video X	40	A decent level of detail, imparts a gentle lift from vocal to high treble that can sound a little splashy				●	●	●	E 1705 131	
Audioquest Video Z	60	The very best available, with an expressive sound, but generously priced	●			●	●	●	E 108	
Audioquest Optilink Z	120	Good level of midband detail but frequency extremes lack depth and extension							O 108	
Audioquest Digital Pro	100	A silver cable with all the drive of Video Z but lacking its clear cut transparency				●	●		E 108	
Bandridge AL4900G	40	Lacks deep rounded bass and treble is coloured with a spittiness, a little rough and ready				●	●	●	E 1705 131	
Chord Codac	32	A connection with a stranded inner core and a sound that lacks integration				●	●	●	E 108	
Chord Prodac	50	Price for 0.6m length. Lively detailed treble, drives music along confidently with no hint of fizz	●			●	●	●	E 1706 131	
DPA Opti-link	20	Very similar to Bandridge AL560; sound is lacklustre							O 108	
DPA Digi-link	28	Can seem slightly impassive but there's no avoiding its exceptionally detailed sound				●	●	●	E 108	
lbs 105	25	Extended but soft edged treble that's mercifully free of fatiguing colourations, plenty of weight, smooth vox	●			●	●	●	E 1707 131	
Kimber Kable Opti-link	70	Hardly cheap for what appears to be a bog-standard PMNA fibre, yet it sounds a little brighter and livelier than most							O 108	
LFD Digiink Copper	30	Slightly grainy highly compatible cable with coherent and forward dynamic quality	●			●	●	●	E 1708 131	
Monster Interlink LS100	45	Well constructed stepped-index fibre with polished ends and connectors. Lean, fuzzy, engaging performance							O 108	
Monster Datalink 100	45	Price for 0.5m. A colourful coaxial interconnect with an equally colourful and up-beat sound. Very compatible	●			●	●	●	E 108	
Moth Leyline Datalink	140	A thin, coaxial version of Leyline Black with a rather hard and unforgiving character. Too expensive	●			●	●	●	E 108	
QED Digiflex	20	A top performance, low-loss 75ohm coax with a very open, almost liquid quality	●			●	●	●	E 108	
Siltech HF-6	150	Sounds detailed, very clean and very extended, but bass is less well resolved - a treat for high end systems	●			●	●	●	E 1709 131	
SonicLink Green	60	Spacious, positive and engaging if a tad over crisp at times, very compelling however	●			●	●	●	E 1709 131	
van den Hul MC Videolink 75	48	An AV-cum-digital cable that nearly beats QED's Digiflex, but emphasises sibilants	●			●	●	●	E 108	
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	



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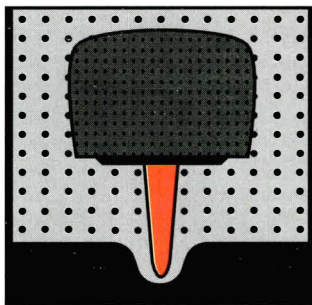
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CABLES (CONTINUED)

Product	Price(£)	Comments	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER		SILVER		ISSUE NUMBER
							FAKBACK NUMBER	DIG CABLE TYPE	FAKBACK NUMBER	DIG CABLE TYPE	
Audio Note AN-SP	125	A calm and civilised presentation, very quiet in the way it reveals subtle low level detail. Great poise and clarity	●				●	●	●		109
Audioquest F-14	1.95	Ideal for laying under carpets, F-14 encourages a slightly warm and vibrant sound					●	●	●		109
Audioquest Type 4	4.95	Four 18-gauge OFHC copper conductors wound in a Litz-type fashion increases capacitance but restrains the cable's 'bite'	●			●		●			109
Audioquest Cobalt 2	45	A rather polite and anemic sound that bubbles gently with detail and is largely uncoloured and cautiously spacious	●								133
Bandridge SF LC1070	42p	Basic figure 8 bellwire, lightweight balance and a softness that dilutes even the strongest bass	●			●		●			1713 133
Bandridge SF LC1259	1	Fresh and open, bubbly and naturally colourful soundstage that's neither forced or unduly edgy. Treble is slightly messy	●			●		●			1713 133
Bandridge Highflex LC2604	3.50	Substantial 6mm ² conductor produces weighty but ploddy music that lacks transparency	●			●		●			1714 133
Bandridge LC7409	3.85	Detailed and up-beat cable. A bit too steely for classical strings				●		●			1800 157
Cable Talk 4.1	4.25	Smooth and cultured sound that lacks fine detail and is a bit too restrained				●		●			1800 157
DNM LSC8500	5.95	High impedance can influence the treble response, but this was a winner on sound per pound, Bi-wire					●	●			1716 133
DPA Black Sixteen	90	Unflappable resolution of fine musical details, there's no dampening of dynamics simply oodles of taut information	●				●	●	●		1717 133
Gale XL315	2	A little lacking in detail but plenty of life and excellent value					●	●			1800 157
Gale XL160-2	2.50	Rhythmic and bouncy sounding bi-wire cable. Slightly manipulative sounding				●		●			1800 157
Heybrook Heywire	4	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 Double-wire	40	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	7.90	Mixed, inoffensive sound, adds guttural resonance to vocals and could be generally more coherent. Bi-wire					●	●			1722 133
Monster Cable XP	1.50	XP offers plenty of slightly soft bass and a slightly rounded treble, a relaxed cable whose indiscretions are not bothersome	●				●	●			1723 133
Naim NACA 5	5.11	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
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	2.50	Despite high tech design and excellent Air-Loc plugs, the music failed to gel					●	●			1800 157
QED Profile 8	5	Sophisticated flat cable that lacks decent bass and get up and go					●	●			1800 157
SonicLink AST50	1.95	It may look like bell-wire, but AST50 sounds detailed, ordered and balanced					●	●			1800 157
Tara Labs Rectangular SCM	7.25	Price for terminated 2m pair. Dynamics are exquisite, luxurious smooth sound, brimming with unforced detail						●	●		1725 133
Transparent Audio Musichord	11.42	Sweet, open and refined treble, a bit of breathy exuberance and can sound slightly lackadaisical					●	●	●		1728 133
Transparent Audio Wave	22.84	Very close to the sound of 'no cable', one of the very best. Slightly softens treble detail	●				●	●	●		1728 133
Tech+Link OFC79	1	Bargain basement cable that sounds cosy, but suffers from a wobbly bass					●	●			1800 157
van den Hul The Clearwater	6	Despite its evocative title, the Clearwater turns out to be a disappointingly murky sounding cable					●	●	●		109
van den Hul CS122	19	Smooth and articulate with superb focus and control, its sheer coherence makes it a winner (tested in Sessions)					●	●	●		153
van den Hul The Magnum	31	Touted as vdH's most prestigious twinlead cable, Magnum sounds soft and old fashioned					●	●	●		109
van den Hul The Wind	35	'The Wind' kicks up a storm with its lush midrange and bone-crunching bass!					●	●	●		109
van den Hul Revolution	64	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 but a hint of congestion at frequency extremes					●	●	●		1726 133



Cartridges

Cartridges fall into two groups: high output MM (moving magnet) models, capable of working directly into most phono inputs; and generally more expensive low and very low output MC (moving coil) models. MC cartridges usually have better mechanical integrity, tighter tolerances and give better performance. Many amplifiers are no longer equipped with the necessary phono input for a cartridge, and a separate phono stage is necessary. Phono input equipped valve designs need a

transformer to cope with MC cartridges.

Cartridge/amplifier interfacing can be very subtle, but even basic high output MM designs benefit in overall balance from optimised amplifier capacitance loading.

B
Best buy

R
Recommended

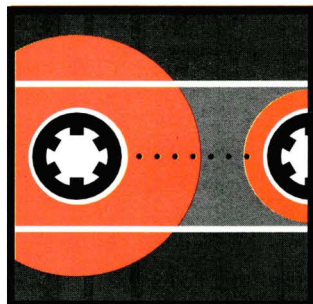
KEY	MM: Moving magnet cartridge with a normal output suitable for all vinyl disc amplifier inputs.	MC: Moving coil cartridge with a low output only suitable for high sensitivity vinyl disc amplifier inputs.	REPLACEABLE STYLUS: Most MM cartridges have a stylus that can be removed and replaced	OUTPUT (MV): Cartridge output in millivolts.	MASS (g): Cartridge mass can affect arm choice.	FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review.	BACK ISSUE: The issue of Hi-Fi Choice in which the original review appeared.
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CARTRIDGES

Product	Price(£)	Comment	REPLACEABLE STYLUS	OUTPUT (MV)	MASS (g)	FAKBACK NUMBER		ISSUE NUMBER	
						MM	MC		FAKBACK NUMBER
Arcam C77	30	A sensible moving magnet package with good bounce at a competitive price.	●			●	4.0	6	48
Arcam C77MG	40	Punchy, with plenty of energy to liven things up. The solid body is well worth the extra £10.	●			●	4.0	6	67
Arcam E77MG	60	Our sample had a disappointing stylus, but gave a coherent, rich and laid back sound.	●			●	4.0	6	48
Arcam P77MG	73	Preferred to its cheaper partner thanks to a better tip. Channel balance poor	●			●	4.0		48
Audio Note IIV	1,395	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
Audioquest 404L	599	Slight harshness detracted from the performance of this otherwise clear-sounding and detailed cartridge.				●	0.5	6	84
Audioquest 7000NSX	1,495	Stunning stereo imaging and detail spoiled by poor tracking and high sensitivity to arms.				●	0.4	6	91
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 top notch bargain too.				●			103
Dynavector Karat 17D2 mk2	449	Clean and controlled sound with taut, tuneful bass. Detailed and musically cogent.				●	0.15	5.3	158

CARTRIDGES (CONTINUED)

Product	Price(£)	Comment	REPLACEABLE STYLUS (MM)	OUTPUT (MV)	FACTBACK NUMBER	ISSUE NUMBER	
A Dynavector XX-1L	998	Very clear, very detailed; a response lift around 20kHz seems to do no harm.	●	●	0.25	12	84
A 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
A Goldring Elan	19	A lightweight and frisky-sounding MM apparently based on Nagaoka MM4 body	●	●	5.0	7	67
A Goldring 1012GX	65	Slightly harsh but plenty of life and detail. Some high frequency colouration apparent.	●	●	6.5	7	85
A Goldring 1022GX	99	As with 1012, a touch harsh; detail and transient purity improved	●	●	6.5	7	85
A 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
A Goldring 1042	120	Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively though.	●	●	6.5	6	91
A 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
A Grado Prestige Gold	150	Rich sounding with an unusually refined top-end for a moving magnet-type cartridge	●	●	4	6	158
A Linn K5	65	Not as crisply focussed as the other Linn magnetics, but the K5 is smoother.	●	●	4.5	6	67
A Linn K9	150	Linn improved this model by beefing up the Basik's bodywork and adding a super stylus.	●	●	4.5	5	Col
A London Decca Maroon	259	Now manufactured under the London brand name, this Decca cartridge is as iconoclastic as ever.	●	●	5.0	6	67
A London Decca S Gold	339	Immediate and detailed, but coloured, nonlinear with a questionable effect on records.	●	●	5.0	6	84
A Lyra Lydian	699	Superbly capable all-round musical performer that improves markedly when its body cover is removed	●	●	0.3	7	158
A Lyra Clavis Da Capo	1,069	A stable tracker, and one of the finest cartridges we've heard	●	●	0.1	7	143
A Ortofon 510/P	38	For the price, a good blend of virtues - weight, clarity and neutrality	●	●	3.0	5	85
A Ortofon 520/P	65	Sensitive to load capacitance, the 520/P has a lively, effervescent sound.	●	●	3.0	5	6
A Ortofon MC10 Super	100	'What a delightfully sweet-sounding cartridge this is....' we said.	●	●	0.3	7	48
A Ortofon MC3 Turbo	130	The 3 Turbo is bright, cheerful and bouncy, but unobtrusive - take it as it comes.	●	●	3.3	4	103
A Ortofon MC15 Super II	130	A good all-rounder, with outstanding resolution, if slightly bright and clos up.	●	●	0.35	7	103
A Ortofon MC25E	180	An excellent upgrade for a mid-price turntable	●	●	0.5	11	139
A Ortofon MC25FL	249	A bit too stark and honest, but faithful to what's on the LP	●	●	0.5	11	139
A Ortofon MC30 Supreme	525	Highly detailed and even-sounding cartridge that has a special affinity with female vocal recordings	●	●	0.5	10.7	158
A Ortofon MC3000II	1,100	A real eye-opener. Nothing to criticise anywhere, one of the very best.	●	●	0.12	10	84
A Ortofon MC5000	1,500	Limited tracking ability, bright and forward sound, but good stereo	●	●	0.12	10	91
A Rega Bias	39	Difficult to mount in some arms due to its shallow build, the Bias offers a gentle, refined sound.	●	●	5	4	67
A Rega Elys	85	Clearly superior to the Bias, the Elys is both more detailed, accurate and convincing.	●	●	5.0	5	67
A Roksan Corus Black	130	Recognisably related to the Corus Blue, but more civilised and smoother.	●	●	6.5	5	91
A van den Hul MM-1	250	If woody midrange could be tamed, imaging and security would pull it through	●	●	5.5	6	103
A van den Hul DDT-II	699	Outstanding stereo imaging and neutral balance are appealing but rhythmically the DDT-II is a bit lazy	●	●	0.35	7.6	158
A van den Hul MC-10	799	A neutral, balanced performer gives, fine depth and focus and a firm, extended bass	●	●	0.4	6	60
A van den Hul MC-One	999	This extended all the positive qualities of the '10, but added greater authority and scale - worth all the extra money.	●	●	0.4	6	60
A van den Hul MC-Two	1,349	MC-Two rewards with a highly detailed yet fluid and musically convincing portrayal.	●	●	0.4	6	72
A van den Hul G' hopper III GLA	2,999	Undoubtedly one of the finest cartridges available, it has tremendous bandwidth, energy and finesse.	●	●	0.4	6	122
A Wilson benesch Matrix	689	Extraordinarily well balanced cartridge: neutral and detailed yet lively and rhythmically assertive.	●	●	0.58	6	158



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. The sort of facilities that are useful include tape monitor switching and Dolby S.

Best buy

Recommended

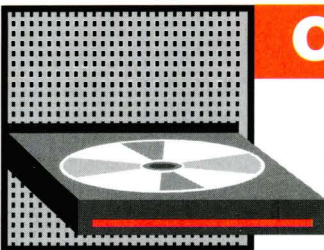
KEY			
DOLBY C: A rather extreme noise reduction system not usually associated with high sound quality.	3-HEAD: If you want to monitor a recording whilst you are making it a third head is essential.	AUTOREVERSE: Automatically plays both sides of the cassette.	FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page.
DOLBY S: A desirable derivative of the Dolby SR professional noise reduction system.	TWIN DECK: Contains two decks for dubbing and continuous play; in most instances only one deck will record.	AUTO CALIBRATION: The deck will automatically set up bias and EQ for any tape.	BACK ISSUE: The issue of Hi-Fi Choice in which the original review appeared.
DOLBY HX PRO: System designed by B&O to extend headroom for cassette recording.		ADJUSTABLE BIAS: Bias can be manually set to suit the tape being used.	

CASSETTE DECKS

Product	Price(£)	Comments	DOLBY C	DOLBY S	DOLBY HX PRO	3-HEAD	TWIN DECK	AUTO CALIBRATION	ADJUSTABLE BIAS	FACTSBACK NUMBER	ISSUE NUMBER
A Aiwa AD-F450	120	Basic but well designed budget deck, astonishing value; only the poor metering gives the game away.	●	●	●	●	●	●	●	1513	136
A Aiwa AD-WX727	170	High class twin for those who want bells, whistles - and music.	●	●	●	●	●	●	●	1377	146
A Denon DRM-550	160	There are some technical limitations, but this remains a fine sounding deck, and excellent value.	●	●	●	●	●	●	●	158	158
A Denon DRS-640	200	Drawer loading deck, with simple facilities and smooth, well adjusted sound.	●	●	●	●	●	●	●	1591	140
A Denon DRM-650S	230	An all-round improvement on predecessors, offers a wide ranging, disciplined sound, Dolby S is not the best feature.	●	●	●	●	●	●	●	164	164
A Denon DRM-740	270	Breathed-on DRM-710, with good external treatment offers good, if somewhat detached sonics.	●	●	●	●	●	●	●	1514	136
A Denon DRS-810	310	Drawer loading deck, carefully designed yet lacking in subtlety on audition.	●	●	●	●	●	●	●	127	127
A Grundig CCF3	200	Simple, sensible and well built twin, but lack of pitch stability compromises performance	●	●	●	●	●	●	●	1379	146
A Harman/Kardon TD420	280	Minor inconsistencies detract from a well conceived, minimum features design	●	●	●	●	●	●	●	1592	140
A Harman/Kardon TD450	350	Draw loader with poor tape navigation features; good midband but shallow bass	●	●	●	●	●	●	●	164	164
A JVC TD-R472	200	Excellent auto-reverse deck which doesn't suffer the usual disadvantages and is very sharply priced	●	●	●	●	●	●	●	158	158
A JVC TD-V562BK	220	Ultra-sophisticated transport at a silly price; sound quality is stable but slightly opaque.	●	●	●	●	●	●	●	123	123
A JVC TD-V662BK	270	Assured, clean and agile sounding recorder, if not quite the most refined in its class.	●	●	●	●	●	●	●	1380	146

◀ **CASSETTE DECKS (CONTINUED)**

Product	Price(£)	Comments	DOLBY B	DOLBY S	DOLBY C	DOLBY HX PRO	3-HEAD	TWIN HEAD	AUTO CALIBRATION	FACTSBACK NUMBER	ISSUE NUMBER
Kenwood KX-7060S	329	Although slightly dull sounding with prerecorded tapes, this is a well equipped and fine sounding deck.	●	●	●	●	●	●	●	1381	146
Luxman K-322	200	Gives best value results with lower bias tapes, helped by a successful Dolby C installation.	●	●	●	●	●	●	●	1382	146
Luxman K-373	400	Decent performance, but a little costly. Includes microphone inputs.	●	●	●	●	●	●	●		158
Marantz SD-63	300	Poor pitch stability is a major snag in an otherwise nondescript design.	●	●	●	●	●	●	●		158
NAD 613	230	Rough and ready, but enjoyable sound, though marred by mechanical motor noise.	●	●	●	●	●	●	●		158
NAD 614	270	Not cheap, but as integrity build-wise and sound-wise	●	●	●	●	●	●	●		164
NAD 616	300	Double deck whose music sounded shut in and prosaic, as though its energy content had been ironed flat	●	●	●	●	●	●	●	1648	152
Onkyo K-611	430	Cute drawer loading mini-size component with 3-heads and dual capstan transport.	●	●	●	●	●	●	●	1384	146
Pioneer CT-S500S	250	Great features, good with cheap low bias tapes, but slightly synthetic quality.	●	●	●	●	●	●	●		164
Pioneer CT-S830S	500	High class mechanism, if lacking in battleship externals, and superb sound.	●	●	●	●	●	●	●	1385	146
Sony TC-KE550S	230	Warm, enjoyable music making, but assisted tape setup routine gives inaccurate results.	●	●	●	●	●	●	●		164
Sony TC-KE600S	300	Mild setting-up problems notwithstanding, this UK-tweaked design has a smooth, open and un-cassette-like sound.	●	●	●	●	●	●	●		158
Technics RS-AZ6	230	For those who can't afford the RS-AZ7; exquisite clarity over the widest bandwidth thanks to AZ thin film head.	●	●	●	●	●	●	●		164
Technics RS-AZ7	300	Thin-film head gives a solid, almost CD-like bass and midrange. A clear advance in the state-of-the-art.	●	●	●	●	●	●	●		158
Yamaha KX-490	199	Electrifyingly transparent and capable deck, whos only flaw is a trace of audible wow and flutter.	●	●	●	●	●	●	●		158



CD Players brought to you in association with



All CD players offer a basic selection of facilities, and some can keep you entertained for hours as you programme in disc names and track orders. All but the excessively inexpensive feature remote control. Most CD players can be upgraded by adding an outboard DAC (see below). To do this the player needs a digital output of either electrical or optical persuasion; sonically the former is preferable. A CD player can be split into two basic components: the disc drive or

transport, and a device which turns the digital bitstream coming off the disc into an analogue audio signal. This is called a digital to analogue convertor, or DAC. Although most players are contained in a single box, expensive players are usually two-box affairs.



KEY

ELECTRICAL DIGITAL OUTPUT: For electrical connection to an outboard DAC.
AES/EBU ELEC DIG OUTPUT: Balanced digital output to be used with similarly equipped DACs.
OPTICAL DIGITAL OUTPUT: For optical connection to an outboard DAC.

AT&T OPT DIG OUTPUT: High speed optical output to be used with similarly equipped DACs.
BAL ANALOGUE OUTPUT: Balanced analogue output for amplifiers equipped with balanced inputs.
HEADPHONE SOCKET: For ear users.
VARIABLE OUTPUT: Remotely adjustable volume controlled output.

MULTI-DISC: Equipped with a carousel or multi-tray system for continuous play of multiple discs.
DAC TYPE: Digital to analogue convertor. BS - Philips Bitstream, MB - multibit, Hyb - hybrid of multibit and bitstream technologies, 1bit - single bit types such as MASH,

bitstream, PWM etc
FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page.
BACK ISSUE: 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	320	Very detailed for a budget player with a slick and free sense of dynamics, needs careful ancillary matching	●	●	●	●	●	●	●	Hyb	1872	163
Arcam Alpha 8	520	Refined, intricately detailed but a little cautious this should be broadly compatible with a variety of amps	●	●	●	●	●	●	●	BS	1873	163
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
Cambridge Audio CD4	150	Basic appearance and sluggish track access/track search belies its up and at 'em sound quality.	●	●	●	●	●	●	●	Hyb	1268	147
Cambridge Audio CD4SE	200	Among the best players we have encountered at the price, considerably more refined and convincing than CD4	●	●	●	●	●	●	●	BS	1877	163
Cambridge Audio CD6	300	A sharp, lively and articulate player, a real thoroughbred in fact, perhaps too sharp and lively for some systems	●	●	●	●	●	●	●	BS		159
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
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, middle 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 agreeably at that	●	●	●	●	●	●	●	MB	1881	163
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	250	Player of integrity, but can sound a tad hard and rough when extended, and is somewhat amplifier fussy	●	●	●	●	●	●	●	1bit		159
Harman/Kardon HD730	300	Competitive at price, with a coloured but dynamic and outgoing sound supported by a raft of user features	●	●	●	●	●	●	●	BS		166
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-2574	250	Strong resolving power and good midband and dynamics, but slightly raw and thin	●	●	●	●	●	●	●	1bit		159
JVC XL-2674BK	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-7090	400	A lively and compelling performer with an even handed and coherent disposition	●	●	●	●	●	●	●	MB	1885	163
Krell KPS 20i	9,900	Forthright, edge of the seat sound with outstanding bass performance (tested in Statements)	●	●	●	●	●	●	●	MB	1734	155
Linn Mimik	875	Useful multiroom features matched to strong bass, but poor imagery and transparency	●	●	●	●	●	●	●	Hyb	1762	155
Marantz CD-67	270	Dynamic, authoritative, and wide tonal response, but also shut-in and mid-forward balance	●	●	●	●	●	●	●	1 bit		159
Marantz CD-67SE	350	Refined, enjoyable player, though ultimately a little soft-centred	●	●	●	●	●	●	●	BS		166
Marantz CD-17	800	Fabulous packaging and an excellent all round performer: smooth, detailed and consistent	●	●	●	●	●	●	●	BS	1763	155
Meridian 508 (20-bit)	1,685	Combines a delicate mid and treble with rich, opulent bass and has impressive low level resolution	●	●	●	●	●	●	●	BS	1886	163
Micromega Minium	350	Dynamically weak and some roughness offsets the pleasing tonal balance, articulate mid and strong bass	●	●	●	●	●	●	●	1 bit		159
Mission 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 dAD7	900	Pleasant but not particularly exciting, but this remains a classy, sharply etched performer	●	●	●	●	●	●	●	MB		145
Monrio Privilege	995	Costly and well engineered, but ultimately rather heavy handed and dull, if refined player.	●	●	●	●	●	●	●	MB		166
Musical Fidelity E60	299	This entry level player lacks proper stereo localisation and clarity	●	●	●	●	●	●	●	-		166
Musical Fidelity FCD	1,500	A forward disposition makes this perfect for Fenders but less appropriate to Guarneris	●	●	●	●	●	●	●	BS		163
Myrrad MC100	700	A little extra get up and go wouldn't go amiss but its sheer maturity and composure ensure listenability	●	●	●	●	●	●	●	BS	1889	163
NAD 512	250	Simple, well focused presentation, and articulate with it, though hard nosed quality is not everyone's cup of tea	●	●	●	●	●	●	●	1 bit		159

Digital Recorders



Digital recorders come in a variety of different guises, but have yet to make much of an impact on the domestic market. At present there are four types to choose from: DAT (digital audio tape), MD (Mini Disc), and DCC (digital compact cassette) and CD-R (CD Recordable). DCC is backwards compatible inasmuch as the machines can play regular audio cassette. MD's claim to fame is its optical disc format, which offers instant track access and can't be worn out like a tape. DAT has been on the market for quite some time now, but has never

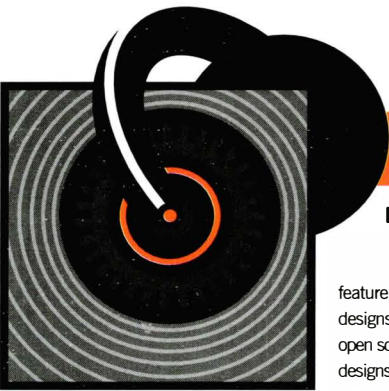
really 'made it' as a consumer medium due to the dearth of pre-recorded material. However it has begun to carve itself a niche in the top end of the market, replacing reel-to-reel as the audiophile's tape based medium. Home CD-R is coming into its own with Pioneer's PD-R05 machine attempting to set a trend.

B Best buy **R Recommended**

KEY	ADC TYPE:	ELECTRICAL IN/OUTPUTS:	BACK ISSUE:
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 run off batteries but 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.	BACK ISSUE: The issue of Hi-Fi Choice in which the original review appeared.

DIGITAL RECORDERS

Product	Price(£)	Comments	FORMAT	DAC TYPE	ADC TYPE	PORTABLE	ELECTRICAL IN/OUTPUTS	FACTSBACK NUMBER	ISSUE NUMBER
Philips DCC170	250	Good sound quality for a portable that records as well, beating competition from MD in its group	DCC	BS	BS	●	●	●	1237 141
Philips DCC951	280	Offering 18-bit record and replay this does an impressive job in many ways but PASC is still a limitation	DCC	BS	BS	●	●	●	139
Pioneer D-05	800	Second generation 96kHz DAT recorder can offer startling realism with the right software - ie first generation	DAT	BS	BS	●	●	●	1652 152
Pioneer D-07	1,150	96kHz double sampling mode gives this deck a sense of naturalness missing from most DAT recorders	DAT	BS	BS	●	●	●	1089 133
Pioneer PDR-05	1,300	CD recorder that uses domestic blanks only (limited to 62 minutes), write once but excellent sound quality	CD-R	BS	BS	●	●	●	1652 152
Pioneer D-C88	2,000	State of the art portable 96kHz DAT recorder, the size of a lap-top computer this Nagra country on the cheap	DAT	BS	BS	●	●	●	1431 150
Sharp MD-M11	450	Slick MD personal with recording capabilities and rapid track access but less stunning sound quality	MD	BS	BS	●	●	●	139
Sony MDA-IA3ES	800	Full width MD recorder that makes a decent job of recordings but is less impressive with pre-recorded material	MD	BS	BS	●	●	●	1216 152



Headphones

Brought to you in association with **SENNHEISER**

There are a variety of different 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.

There are three styles of headphone: circumaural models enclose the ear; supra-aural designs feature a flat pad which presses on the outer ear; and intra-aurals (in-ear) rest inside the ear itself, à la personal stereos. For best results a separate headphone amplifier is recommended.

B Best Buy **R Recommended**

KEY	CLOSED BACK:	amplifier output:	ordering a fax copy of the review. Use the contents page to find the Factsback information page.
TYPE: Operating principle: D - dynamic, E - electrostatic. SUPRA-AURAL: Style where a flat pad presses on the outer ear. CIRCUMAUURAL: Style which encloses the ear. OPEN BACK: Offers an open sound but lets in noise.	CLOSED BACK: Keeps out external noise. WEIGHT (G): Mass in grams IMPEDANCE (Ω): Load offered to the headphone amplifier. All else being equal, the lower the impedance: the louder the sound for a given	3.5MM JACK ADAPTOR: Can be used with mini-jack-equipped components such as personal stereos. FACTSBACK NUMBER: The Factsback reference for	BACK ISSUE: The issue of Hi-Fi Choice in which the original review appeared.

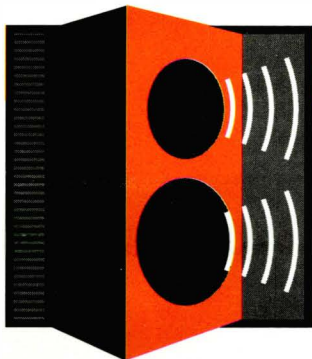
HEADPHONES

Product	Price(£)	Comments	CIRCUMAUURAL TYPE	SUPRA-AURAL	OPEN BACK	CLOSED BACK	WEIGHT(G)	3.5mm JACK ADAPTOR	FACTSBACK NUMBER	ISSUE NUMBER
AKG K240 Monitor	82	Something of a classic, these AKGs are very user-friendly in all respects; sonically on the warm side of normal.	D	●	●	●	240	600	●	63
AKG K1000	646	One of the best dynamics on the market, hooks directly into speaker outputs.	D	●	●	●	270	120	●	99
Audio Technica ATH910PRO	80	The closed back 910s are an improvement on the 909s, with a nice rhythmic quality rarely found with 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	49	Uncharacteristically tight, unrefined sound quality from this otherwise well engineered 'phone.	D	●	●	●	124	40	●	1098 133
Beyer DT331	82	Tonally bright and deficient in bass, but exceptionally comfortable, articulate, detailed and refined	D	●	●	●	210	40	●	1801 157
Beyer DT411	69	A reasonable but not very thrilling headphone that doesn't really offer enough at the price.	D	●	●	●	120	250	●	111
Beyer DT531	129	A good buy for serious, heavy-duty music making	D	●	●	●	245	250	●	144
Beyer DT911	219	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
Grado SR-80	110	Clear, open and dynamic with pedantically open mid-band. Crude physical design, rough frequency extremes.	D	●	●	●	60	8	●	1801 157
Grado SR225	200	Warm, dark tonal coloured and ultimately lacking in clarity, but it true to the spirit of the music if not the letter	D	●	●	●	200	32	●	1883 163
Jecklin Float Model 1	75	Whilst 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 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
Kenwood KH-1000	20	First step up from a true mini: a near miniature which is cheap, comfortable and inoffensive	D	●	●	●	30	32	●	121
Maxell HP-3000	30	Solid, smooth sounding supra-aural headphone, but congested and undynamic. Includes in-lead controls.	D	●	●	●	120	32	●	1099 133
Pioneer SE-400D	37	Acceptable, if unexciting all-rounder, this supra-aural phone has good long-term comfort levels.	D	●	●	●	185	35	●	1099 133
Precide Ergo Model 2	140	Still has much of the spaciousness and detachment of the Float from which it is derived, but has a coarse mid/top	D	●	●	●	380	100	●	1892 163
Ross RDH-300CD	17	In-lead controls are the highlights of this shoddy, sometimes aggressive sounding design.	D	●	●	●	155	8	●	133
Sennheiser HD455	55	Inoffensive, if nondescript sound, modular, but can become dislodged from head.	D	●	●	●	185	60	●	1801 157
Sennheiser HD565 Ovation	150	Wide bandwidth design which is refined, expressive and extremely comfortable.	D	●	●	●	255	150	●	1801 157

HEADPHONES (CONTINUED)

Product	Price (£)	Comments	CIRCUM-AURAL TYPE	OPEN BACK	CLOSED BACK	3.5mm JACK ADAPTOR	WEIGHT (g)	IMPEDANCE (Ω)	FACTSBACK NUMBER	ISSUE NUMBER
Sennheiser HE-60/HEV70/UK	998	Very nearly a superb electrostatic, with an aching 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
A 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
A Stax Lambda Nova Basic	449	Refined, articulate, yet with real presence – and a notable bargain by electrostatic standards	E	●	●		347	n/a	1902	163
A Stax Lambda Pro	449	Tested with SRD-7B PSU, this is an industry reference, and is frighteningly revealing.	E	●	●		325	-		55
A Stax Lambda Sig	549	With SRM-T1. Electrostatic – the Signature must be the most transparent headphone available.	E	●	●		325	-		72
Technics RP-HT700	70	Well-finished but physically crass and grubby sounding.	D	●	●		255	-	1801	157
A Vivanco SR606	40	Although slightly overblown at times, this model is easy on the ears and essentially enjoyable	D	●	●		225	32	1101	133
A Vivanco SR650	50	Unusually comfortable 'phone with excellent detail resolution but aggressive, thanks to tweeter resonance.	D	●	●		175	-	1801	157
A Vivanco SR750	60	Cossetting physical design, attractive sound an pricing, though suffers overhang and lacks ultimate dynamics.	D	●	●		188	-	1801	157
Vivanco IR7100	120	Infra-red phones that work well but suffer from the limitations of the medium ie compression and hiss(Sessions)	D	●	●		265	-		149

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Hi-Fi Loudspeakers

As the last item in the hi-fi chain, the loudspeaker is merely the slave of what has gone before; it is only as good as the signal it is fed. 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 come in passive and amplified active form, they are less sensitive to placement than regular speakers.



KEY

SIZE WxHxD (cm): Width by height by depth in centimetres.
FLOORSTANDER: As opposed to requiring a dedicated stand.
SENSITIVITY (dB/W): Efficiency: how much volume you get for a given input; the higher the louder.

IMPEDANCE (Ω): Measured in Ohms impedance it is a measure of how hard a loudspeaker is to drive: the lower the number the more powerful the amplifier needs to be.
BASS FROM (Hz): The lowest frequency that a speaker can

reproduce, based on in-room measurements.
FREE SPACE: Speakers should be placed away from walls.
CLOSE TO WALL: It is recommended that these speakers be placed close (between 3 and 12cm) to the rear wall.

FACTSBACK NUMBER: The reference for ordering a fax copy of the review. Use the contents page to find the Factsback page.
BACK ISSUE: The issue of Hi-Fi Choice in which the original review appeared.

HI-FI LOUDSPEAKERS

Product	Price (£)	Comments	SIZE WxHxD(CM)	FLOORSTANDER	SENSITIVITY (dB/W)	IMPEDANCE (Ω)	BASS FROM (Hz)	CLOSE TO WALL	FREE SPACE	FACTSBACK NUMBER	ISSUE NUMBER
A Acoustic Energy AE109	330	Lots of mass-loaded twin-driver speaker for the money, especially for loud, driving bass	18,90,25	●	88	4	25	●		1904	164
B Allison AL100	100	Loud and lively budget wall-mount is big and beefy, but lacks sparkle and refinement	24,33,19		90	4	30	●		94	
Allison AL105	170	Pretty enough in appearance; sonically the AL105 doesn't really make the grade at the price	24,37,21		90	4	45	●		78	
A Allison AL110	220	Compact bookshelf model is a little dry and mid-forward, but bass is extended and solid	24,40,23		90	4	28	●		102	
Allison AL120	420	Pretty well balanced if slightly mid-forward, but sound quality is disappointing at the price	28,61,29	●	90	4	30	●		98	
ATC SCM20	1,499	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
Audio Innovations Alto	329	Styling makes competition look old-fashioned, but sound is thin and cold	20,38,26		88	6	45	●		1653	152
A Audio Note AN-I/B	799	Light damping and local unevenness adds some colouration, but doesn't spoil the very speaker	38,58,25		93	8	25	●		110	
A Audio Note AN-E/B	1,299	Coherent dynamic and transparent, with extended bass and high sensitivity - but ugly!	36,84,28	●	94	8	20	●		106	
Audio Physic Tempo	1,999	Tall and unusually styled floorstander has stunning stereo but suspect bass tuning	22,107,47	●	88	8	28	●		1344	143
A Audiovector 3X	1,500	Superior time coherence, a wide dynamic range and exception bass/mid balance	19,32,98	●	89	8	20	●		1345	143
B 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	200	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	15
A B&W 305	350	Ridged paper cone gives lively sound, clever box, but a little uneven	22,87,31	●	89	4	40	●		1908	164
A B&W P4	675	Strikes a nice balance between all-out studio monitor sound and bass-filled crowd pleaser (tested in Sessions)	20,81,25,6	●	88	8	50	●		156	
A B&W CDM1	600	Gorgeous stand-mount delivers unusually good bass for its size	22,38,28		88	6	30	●		1818	160
A B&W Matrix 805 V	1095	Stylish, remarkable imaging, good balance and low colouration	33,33,21		87	8	30	●		98	
A B&W Matrix 804	1695	A great allrounder 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 B&W Nautilus	35,000	Radical design results in one of the finest loudspeakers available. Active x-over needs 4 power amps (Statements)	42,105,90	●	87	4	10	●		166	
A Bose 305	430	Fine dynamic liveliness and a good room match counter strange imaging and treble	23,45,28		-	8	40	●		78	
A Bose 401	500	Cheaply built but distinctively styled, the 401 suffers from heavy midband	30,30,76	●	-	4	28			110	
Cadence ES	3,500	Hybrid electrostatic/dynamic design from India that excels with classical material (Statements)	33,108,37	●	91	8	35	●		1798	157
A Castle Isis	230	Expressive with a full upper bass, tonally colourful with a big, dynamic sound (tested in Sessions)	17,35,19,5	●	87	8	60	●		1729	154
A Castle Severn	539	Light and bright, but sound is open and communicative. Looks good too	23,77,20		88	8	47	●		1655	152
A Castle Avon	700	Lovely box and lovely voices from carbon-fibre composite cone	22,91,28	●	85	8	22	●		1909	164
B Castle Harlech	849	Handsome big-sounding floorstander, great value and dynamic midrange	20,96,33	●	88	8	28	●		1820	160
A Castle Howard S2	1,200	Absolutely fills the gap between Chester and Winchester; has a rich, laid back balance	26,104,41	●	90	8	40	●		1078	132
B Celestion 3 MKII	139	Smooth and polished by budget speaker standards, if a bit laid back for some tastes	21,31,18		88	8	45	●		1036	130
A Celestion Impact 23	300	Big, cheap and loud. Sounds coloured and old fashioned, lacks subtlety	28,82,29		89	8	30	●		1656	152
A Celestion Impact 25	400	Both capable and enjoyable these rock boxes are real contenders in the bang-for-the-buck stakes	27,82,29	●	90	8	43	●		1758	155

HI-FI LOUDSPEAKERS (CONTINUED)

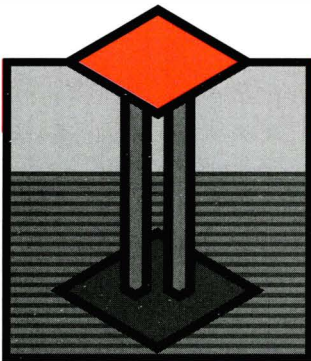
Product	Price(£)	Comments	SIZE WxHxD(CM)	SENSITIVITY(Db/W/M)	IMPEDANCE(Ω)	BASS FROM (Hz)	FACTSBACK NUMBER	ISSUE NUMBER
							CLOSE TO WALL	
							FREE SPACE	
Celestion SL6Si	429	This stereotype luxury compact can sound a bit dull and congested; favours CD	20,38,27	84	8	30	●	94
Celestion A1	700	Rich, warm and laid-back, but a true quality sound; lovely build	24,41,35	88	6	25	●	1910 164
Celestion 300	1,099	Splendid bass extension and fine panel-like openness, but dynamics and timing are suspect	21,97,33	84	8	20	●	118
Carwin-Vega VS10	350	Not all that refined but ballsy as heck, these rock boxes have no shortage of gung ho	33,70,29	95	6	27	●	1758 155
Dali 104B	370	Lively, rich sounding and communicative. Shame about bland styling and dull balance	22,86,27	93	4	38	●	1657 152
Dawn Audio Chorus FS	698	Compact floorstander with superb coherence but rather forward midband. Would suit smaller rooms best	26,88,21	89	8	30	●	114
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
Electrofluidics Sonolith 2.2xi	5,999	Polymer concrete cabinet with aluminium cones produces world class imaging and very serious bass (Statements)	38,95,42.5	86	4	n/a	●	139
Epos ES12	500	High quality luxury stand-mount has great midband and stereo imaging	20,38,25	85	8	45	●	1823 160
Epos ES14	675	Substantial stand mount delivers delightful midrange focus and delicacy with good bass control	23,49,29	87	8	25	●	98
Epos ES22	1,185	Elegant floorstander with 'safe' balance that can be enlivened with the right cable and energetic material (Sessions)	21,88,25	87	6	58	●	1629 151
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 Model 4	200	Low cost floorstander; sounds a bit edgy, with detached bass	19,79,22	87	8	28	●	1780 156
GLL Imagio IC130	530	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, and none the better for the recent update	19,30,18	82	10	80	●	66
Heybrook Prima	139	Fine pace and timing, but balance is forward and bass is tight	20,29,18	87	6	50	●	110
Heybrook Heylios	339	Great all round performance in a pretty package at a sharp price	24,36,27	87	6	25	●	164
Heybrook Solo	199	Untidy bass and treble, but handles complex rhythmic material well	23,36,23	89	6	28	●	90
Heybrook Trio	373	HBS1 drivers in real wood enclosure give a sweeter and more forgiving sound	24,47,25	89	8	45	●	118
Heybrook Heylo	389	Good vocal reproduction, but sounds thin and bass seems an afterthought	23,73,19	88	8	30	●	1658 152
Heybrook Heystack	499	Elegant, highly detailed and level-headed sound, but could use injection of life	22,98,28	89	8	38	●	141
Heybrook Quartet	575	Solidly large bookshelf model with good sensitivity and a lively, forward sound	24,41,22	90	8	48	●	122
Heybrook Sextet	1,159	Coherent and highly analytical, partly due to distinct upper-mid forwardness	27,90,20	88	8	25	●	102
Infinity Reference li	150	Although not to our tastes, this is a competent speaker, and decent material value	20,34,20	89	6	50	●	1403 148
Infinity Kappa 6.1i	995	Good extension, but bass is fat and slow, and dynamics are unconvincing	31,95,25	89	6	25	●	1080 132
Jamo BX100A	370	A cracking output for their size these rock boxes can be a tad bright but have decent bass	31,5,54,28	91	8	40	●	1758 155
Jamo Classic 8	430	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 Concert 8	1,300	Employing a die cast magnesium cone with a charming open and detailed midband (Statements)	24,5,38,31	90	4	38	●	1822 160
JBL Control One	115	Sub-miniature with forward midrange and real bass; price justified by build	24,156,14	87	4	100	●	90
JBL L20	700	Pricy, 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 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 tad crude	24,94,35	91	6	23	●	1348 143
JBL Ti 1000	1,600	Performance compromised by over enthusiastic midbass output from port	20,30,13	89	4	45	●	118
Jordan Watts JH400	820	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 Sonata	120	Fine sound if limited bass and dynamic range, wood veneered at a silly price	23,32,22	87	8	70	●	71
JPW P1 Vinyl	150	Competent loudspeaker for the price, with a safe sound that won't disappoint	26,44,25	89	8	65	●	102
JPW P1	170	Longstanding design is remarkable material value (real wood etc) and sounds pretty too	26,44,25	89	8	65	●	1611 141
JPW AP2	200	Real wood finish, and performance is cleaner but similar to P1 Vinyl overall	26,44,25	89	8	65	●	106
JPW AP3	230	Good stereo and well balanced overall; character is well suited to vinyl replay	26,52,29	88	8	55	●	46
JPW Ruby 1	400	Very pretty but pricy luxury metal-cone miniature has good, if slightly edgy balance	19,32,21	87	6	55	●	1572 139
KEF Coda 7	130	Lovely open voice reproduction, but bass could be tauter; build tougher	18,30,23	88	6	50	●	1783 156
KEF Coda 8	190	Outstandingly well balanced, bass is deep but a little vague	20,32,5,29	86	6	28	●	1784 156
KEF Coda 9	300	Uneven budget 3-way floorstander with poor bass definition	20,86,28	89	6	30	●	1785 156
KEF RDM One	500	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 has massive headroom and clean mid-to-treble, but limited deep bass for size	23,103,34	89	4	30	●	167
Keswick Audio Aria II	329	Confident and dynamic sound, if a little crude and shut in	21,42,24	89	8	20	●	1405 148
Keswick Audio Torino	900	Good value, lively contender with distinctive shape and styling, goes loud and deep but could be smoother	18,26, 93,28	90	4	20	●	167
Linn Keilidh Passive	750	Stunning timing and coherence, and awesome bass drive	20,83,28	87	4	22	●	1552 138
Linn Kaber Passive	2,000	Dry, bright balance emphasises dynamics and transients, but can sound unforgiving	20,90,28	87	4	25	●	118
Living Voice Airscout	14,750	You want dynamics, get a horn, get a very, very good horn. This, is a very, very good horn. Tested with RW24 horn sub	62,5,115,57	104	8	60	●	163
Living Voice Air Partner S	27,200	Outstanding transparency and dynamics from remarkably solid and fast mega horn	64,160,90	108	8	40	●	138
Lumley Reference LM4	375	Metal diaphragm and wood veneer; balance uneven upper and has suspect timing	18,36,22	86	6	44	●	126
Lumley Reference LM3	895	Despite indifferent bass alignment, LM3 is fast, coherent, solid and informative	27,87,28	90	8	30	●	106
Meridian DSP6000	9,400	Sophisticated digital design, with a wide ranging, refined and detailed sound. Has onboard amplification	28,133,43	-	-	35	●	1226 140
Mission 732	200	Attractive presentation but a rather dull and thick sounding speaker, and a tad pricy too	20,41,30	89	8	45	●	1613 141
Mission 733	330	Duller than before, though still an honest all-round package	20,5,87,30	87	8	45	●	1786 156
Mission 751	348	Gorgeous looking, very petite; boogies with a sting at the top	17,5,32,26	87	8	45	●	1788 156
Mission 734	499	Fine all rounder, and good value, but dynamically a bit lazy, and tweeter quality limited	21,84,33	90	8	43	●	1660 152
Mission 752	578	Brilliant style, engineering and sound	20,88,26	90	8	50	●	1553 138
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	1298	Tall but exceptionally elegant floorstander gives fine midband projection; goes loud but limited deep bass for size	22,111,31	88	4	40	●	167
Monitor Audio 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 MA703 PMC	800	Lovely but pricy floorstander has up-front, coherent 'shiny' sound	20,89,27	88	8	50	●	1826 160
Monitor Audio Studio 12	1,000	A real looker, but sound and content are a bit on the small side for the price	17,92,20	90	8	28	●	1349 143
Mordaunt-Short MS10i	140	Up front, bouncy and a whole lot of fun	18,5,30,5,20	86	8	50	●	1789 156
Mordaunt-Short MS30i	275	Slightly shut in and coloured quality is compensated by fine bass and impressive communication	25,43,28	90	8	28	●	1662 152
Mordaunt-Short Perf 860	1,895	Although a very neutral loudspeaker it can, with the right ancillaries, pack a serious punch (Statements)	26,86,35	90	6	35	●	1367 146
Musical Technology Kestrel SE 300	300	Brighter and drier-sounding than standard Kestrel (and not the better for it)	20,84,19	84	5	50	●	164

HI-FI LOUDSPEAKERS (CONTINUED)

Product	Price (£)	Comments	SIZE WxHxD(CM)	SENSITIVITY (DB/W/M)	IMPEDANCE (Ω)	BASS FROM (Hz)	FACTSBACK NUMBER CLOSE TO WALL FREE SPACE	ISSUE NUMBER	
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	575	Elegant compact floorstander has good allround sound and value	20,85,18	● 84	8	25	● 1827	160	
Neat Petite II	745	Compact design now utilising ribbon tweeter with a fine sense of timing and surprising musicality (tested in Sessions)	20,30,18	● 86	8	33	● 160		
Neat Petite II/Gravitas	2,000	Beautifully presented miniature/subwoofer combo with ribbon tweeter gives smooth, laid back sound	23,105,40(max)	● 85	6	25	● 167		
Origin Live OL-2A	470	Fine dynamics and a good looking, well engineered package, though presence bland and treble restrained	19,80,19	● 86	8	45	● 1664	152	
Origin Live Conqueror	1,600	Chunky floorstanding 3-way has lovely cabinetwork and lively sound, but limited deep bass	24,94,27	● 88	8	30	● 167		
Pink Triangle Ventricle	990	If you are after Quad Electrostatic type transparency but can't afford the price . . . (Sessions)	15,80,32	● 86	11		● 142		
PMC TB1	410	Superb transparency, subtle laid back sound, well worth seeking out	20,40,31	● 87	8	45	● 1830	160	
PMC LB1	935	Delightful smoothness and transparency, though bass and treble are both limited	18,53,25	● 89	4	33	● 110		
PMC AB1	1,496	Lovely panel-like transparency, slightly shut-in balance, needs a big room	26,79,43	● 89	6	22	● 114		
Polk LS50	800	No enthusiast tweaks here, but powerful and beautiful balance	27,83,29	● 89	8	25	● 1155	138	
Polk RT16	800	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	1,200	Attractive pyramidal stand-mount has heavy and laid back balance but remarkably unboxy sound; superb stereo	18-27,37,28-36	● 83	4	25	● 167		
QAD 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 115	1,550	Single-driver system has limited bandwidth and obvious coloration, but wondrous dynamic and temporal coherence	34,42,27	● 95	8	55	● 167		
Revolver Beretta	100	Great bass for the price, a bit crude further up	19,35,22	● 87	8	45	● 1790	156	
Revolver Colt	139	A good all-rounder, if a little bland, and excellent value for money	30,19,22	● 88	6	48	● 1407	148	
Revolver 260	350	A no nonsense presenter of rock with plenty of dynamics, not too refined (tested in Sessions)	21,5,91,6,30	● 89	6	40	● 1731	154	
RMS RevelationSeries 1	1400	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 AB1	549	Designed as partner for LS3/5a or similar miniatures	19,57,16	● 82	8		● 1354	143	
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 C6/28	1303	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 3X Black	795	Squat, stylish and black, great bass extension and somewhat uneven balance	28,76,46	● 88	8	20	● 1082	132	
Roksan Ojan 3X Black	1,195	Innovative low-line 2-way floorstander with decoupled tweeter; great bass and fine dynamic range	28,79,46	● 84	8	20	● 167		
Royd Minstrel	269	Not much wellie or loudness but fine coherence and timing, a bit bright	18,69,12	● 86	8	30	● 1167	135	
Royd Merlin	298	Invigorating and exciting design with plenty of upfront detail, but balance lacks warmth and a tad overpriced	20,31,18	● 86	8	33	● 1409	148	
Royd Doublet	450	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 fun to listen to. Aesthetics could use improving though	20,31,18	● 86	8	35	● 139		
Royd Abbot	665	Dynamic and fine transient qualities are hampered by a rather coloured mid-forward balance	20,81,30	● 90	8	43	● 118		
Ruark Templar	499	Striking baffle gives decent bass/mid but dull treble; could tame over-bright system	19,70,27	● 87	8	25	● 122		
Ruark Talisman II	749	Less ideologically committed than some, strength lies in fine all-round coherence	23,84,32	● 88	8	30	● 118		
Ruark Crusader	1,600	Elegant luxury 3-way with wonderfully evenhanded, 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 remove itself from the picture	25,88,34	● 88	6	45	● 1227	140	
SD Acoustics SD3R	449	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	1,395	Bass suspect but forward midband is delightfully smooth. Has ribbon tweeter	20,110,30	● 88	8	30	● 1081	132	
SD Acoustics SD1E	2,995	Two part design with four rear firing bass drivers that has vibrancy, transparency and energy (Statements)	25,120,40	● 90	6	25	● 159		
Sequence 400	330	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		
Sonus Faber Concerto	1,098	Beautiful Italian bookshelf design with superb midrange but limited loudness capabilities (Statements)	22,5,36,34	● 87	8	45	● 165		
Spendor 2020	399	Utilising an oval drive unit in a stylish cabinet this is a neutral design with AV inclinations (tested in Sessions)	18,34,26	● 87	8		● 1756	155	
Spendor 2030	599	Discreet slimline floorstander with delicately coherent, laid back sound	18,89,27	● 87	8	30	● 1836	160	
Spendor S20	760	Maintains Spendor's tradition for peerless mid-to-treble coherence and perspectives.	22,38,26	● 84	8	25	● 102		
System Audio 905	250	Fine coherence and remarkable dynamic freedom some something so small, though there's little real weight	15,27,21	● 89	8	60	● 1410	148	
Tannoy Profile 631	150	Balanced, open, unboxy and quite lively, but lacks muscle	19,34,15	● 87	6	60	● 1616	141	
Tannoy Profile 631SE	170	Very refined midband; maybe too laid back for some	13-19,34,16	● 86	7	45	● 1791	156	
Tannoy Profile 633	300	Impressive bass and balance from very compact floorstander. Upper midband could be cleaner	29,75,28	● 89	85	20	● 1665	152	
Tannoy Profile 635	450	Beefy low-line floorstander packs real bass punch and an up-front balance	17-29,85,27	● 90	6	22	● 1665	160	
Tannoy Profile 637	550	Good value package but a rather heavy, thick, big-bass sound	17-29,84,27	● 90	3	20	● 164		
Tannoy D300	1000	Gorgeous looking compact floorstander is a fine allround 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 Near Field Monitor	120	Despite low price, this is an unimpressive performer, poor low frequency resolution and analysis being main flaws	18,30,17	● 87	8	50	● 1043	130	
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 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	

HI-FI LOUDSPEAKERS & SUBWOOFERS

Product	Price (£)	Comments	SIZE WxHxD(CM)	FLOORSTANDER	SENSITIVITY (dB/W)	BASS FROM (Hz)	IMPEDANCE (Ω)	FACTSBACK CLOSE TO WALL FREE SPACE	ISSUE NUMBER
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 Valdus 400	199	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
▲ Wharfedale Valdus 500	299	Offering a large version of events 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
Wilson benesch ACT1	6,400	Stylish, technically advanced and sonically as clean as a whistle this is a truly high end loudspeaker (Statements)	23,108,37	●	89	6 40	●		1852
▲ 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
▲ Boston Acoustics SW10	450	A little thumpy but transparent with good timing and goes loud (active)	28,5,50,42	●		33			128
Celestion CS135	139	Compact hideaway passive sub lacks deep bass: for high sensitivity speakers	52,19,34	●	86	8 45	●		128
Infinity RS10	500	A very cute cube of an active sub but midbass is boomy with no real extension	34,34,34	●		38			128
Jamo SW600	530	Has some neat styling touches and remote control but deep bass is limited (active)	38,41,53	●		30			1736
KEF Model 30B	500	Commendably discreet with good sense of timing but limited extension (active)	38,5,37,43	●		45			1736
KEF AV1	2500	Works well, looks great, shakes the windows but costs a lot and is bulky	56,43,50	●		45			128
▲ Living Voice RW24	9,500	The only horn subwoofer on the UK market brings new meaning to low frequency energy, speed and resolution	146,84,59	●	104	8 40	●		163
▲ M&K VX-7B	450	Baby of a big range this active design delivers deep, plenteous bass albeit lacking in transparency	35,25,37	●		40			1736



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. It is not entirely clear what makes a great equipment support, but some are definitely more equal than others. There's a variety of approaches and materials used, including particle board, glass and all

manner of steel tube and section. 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.

Best buy

Recommended

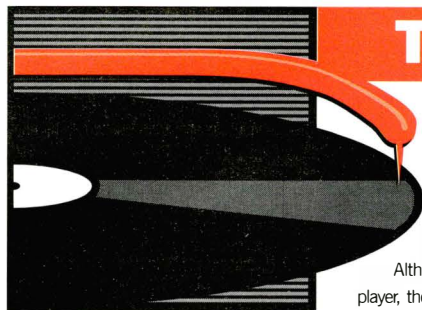
KEY	HEIGHT (CM):	TOP PLATE SIZE (CM):	FILLABLE:	WELDED:	NUMBER OF SHELVES:	rack or support.	SHELF TYPE:	FACTSBACK NUMBER:	copy of the review.	ISSUE NUMBER
	Height of stand or equipment shelf.	Dimensions of top plate on speaker stand or equipment support.	Some speaker stands can be filled with sand and/or	The better stands and supports are welded rather than bolted together.	The amount of tiers on an equipment		Material that shelves are made of on an equipment rack. Wood generally means MDF.	The Factsback reference for ordering a fax	Use the contents page to find the Factsback information page.	The issue of Hi-Fi Choice in which the original review appeared.

STANDS & SUPPORTS

Product	Price (£)	Comments	TOP PLATE SIZE (CM) HEIGHT (CM)	FILLABLE	WELDED	NUMBER OF SHELVES	FACTSBACK NUMBER	ISSUE NUMBER
Equipment Supports								
▲ 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 with upward facing spikes isolating 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
▲ 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
▲ Mana Acoustics Ref. Table	350	King of its type, angle iron, chipboard and glass combined to make a significant difference to sound quality			●	1	Glass	147
▲ Mana Acoustics 5 Tier Amp Stand	600	Infinitely upgradable. Persuasive and thrilling glass and angle iron design that adds speed and bandwidth to components upon it			●	5	Glass 1633	151
▲ Optimum Int 2000 OPT490	350	25kg stand with shelves sandwiched between variable height tubular uprights. Sounds smooth and relaxed with sturdy bass	50	60,40		4	Glass	166
▲ Quadraspire Q4	200	Easy to live with, and tonally neutral				4	MDF 1633	151
▲ Sound Organisation Z038	130	Too lively and lacking order - but cheap	50	84,40	●	5	Wood 1633	151
▲ Organisation Z560	150	A mix of welded and bolted members gives good structural integrity and while performance is not up with the best it's great value	90	46,36	●	5	Wood	166
▲ 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 it with classical material	82	48,27		4	Wood	166
Stands Unique Sound Tower	249	Adds colouration, and lacks weight. Optional Isolation Platform	81	72,42		5	Glass 1633	151
▲ Target B5	175	Free of colourations, 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
Alphason NCII	80	Tall, slim and elegant, though sound and value are unexceptional	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
Apollo A26	80	Fine engineering value, but sound unexceptional and top-plate small	66	15,13	●	●		159
▲ Atacama BD21	55	Good looking and good value but doesn't match the SE24's sound quality	56	15,17	●			159
▲ Atacama SE24	70	Stand out from the budget crowd because of the consistency and overall quality of the performance	61	19,5,17	●	●		1373
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
▲ Gale Reference 600	60	Smooth sounding with impressive bass well suited to less civilised speakers			●	●		1373
▲ Kudos S50	100	Better sound than the budget stands, particularly at the bottom end	60	15,21	●			159
▲ Kudos S100	270	The best all round stand around... Probably...	63	15,21	●			159
▲ Mana Soundframes	125	For use under floorstanders and equipment racks these make music effortless and natural, can be stacked for greater effect	5		●			1373
Partington New Merlin	60	Although light in weight, the stands performance seemed remarkably muscular but musical rendering lacked a little precision			●	●		1373
▲ Partington Discovery	80	The depth and substance of the presentation truly added to the convincing nature of the system's portrayal			●	●		1373
▲ Partington Trophy	100	Four column design with damped top and base plates, sound is tight and cogent with smoothly integrated detail			●	●		1373

STANDS & SUPPORTS (CONTINUED)

Product	Price(£)	Comments	TOP PLATE SIZE(CM) HEIGHT(CM)	FILLABLE	WELDED	NUMBER OF SHELVES	FAXBACK NUMBER	ISSUE NUMBER
Revolver RS1	70	A good blend of performance and appearance for the price	53	18,18	●			159
RMS/Stands Unique Vivus	550	Pricey carbon fibres give ultra-clean sound with exceptional voices	50	N/A				159
Soundstyle 124	100	Big, shiny and solid, with fine midband projection	65	17,16	●			159
Sound Style Z024	100	Three pillar triangular based design with high gloss finish. Enthusiastic sound suited to better systems	61		●	●		1373 146
Stands Unique HP	220	Real wood disguises high performance tuned technology	59	22,23				159
Sound Organisation Z124	80	Atacama style big pillar. A pleasantly balanced performer, tonally even with good timing and dynamics, but leaks sand!	61		●			1373 146
Sound Organisation Z129	110	Heavy four pillar design, extracts detail well and very little colouration together with an excellent sense of timing	74		●			1373 146
Target R1	280	Truly high mass four pillar design with superb weight and speed, giving music delicious attack and outstanding imagery	53	15,21	●	●		1373 146
Target TR60	68	Lively, dynamic midrange and detailed treble from a less than audiophile oriented twin column design	60	15,15	●			1373 14



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.

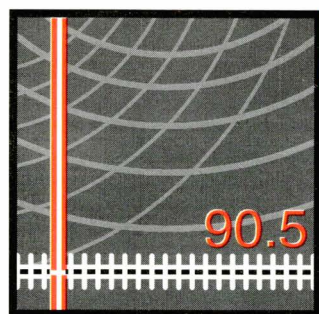
B Best buy **R** Recommended

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.	BACK ISSUE: The issue of Hi-Fi Choice in which the original review appeared.
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TONEARMS

Product	Price(£)	Comments	PARALLEL TRACKING	EFFECTIVE MASS	EFFECTIVE LENGTH(CM) UNI-PIVOT	ADJUSTABLE HEIGHT	FAXBACK 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	●			79
Linn Ekos	1,297	Superb, state of the art design which builds significantly on predecessor's strengths.	●	Medium	●		229	6
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	Targetted 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 colouration.	●	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 operates at a lower profile than TV, but in areas outside pop music the BBC service is the envy of the world. Live concerts rival all other sources from a hi-fi perspective.

Though tuners might seem something of a hi-fi afterthought, the task they discharge is far from simple, since it requires the skills of RF (reception) and audio (signal processing) engineering. The importance of the former will depend on reception conditions, 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 tune facilities and pre-set memories.

B Best buy **R** Recommended

KEY

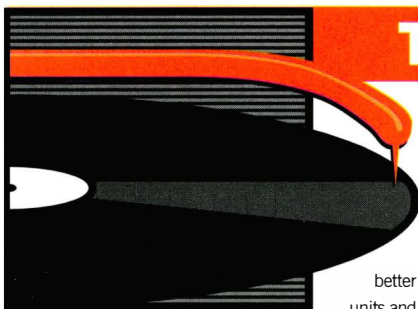
WAVEBANDS: Only the FM (VHF) bands give stereo hi-fi sound, though AM (MW & LW) are useful for receiving certain transmissions in the UK.	PRESETS: Number of station frequencies that can be stored.	RDS: (radio data system) was originally designed for in-car applications. Basically RDS tuners can identify and display the name of the radio station being received, but they offer a variety of other features as well.	REMOTE CONTROL: Couch-potato friendly.	SIGNAL STRENGTH METER: Indicates strength of signal from aerial, useful for aligning your 'twig' during installation	ROTARY TUNING KNOB: The ergonomically attractive approach to dial-surfing.	FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page.	BACK ISSUE: The issue of Hi-Fi Choice in which the original review appeared.
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Tuners

Product	Price(£)	Comments	WAVEBANDS	PRESETS	RDS	ROTARY TUNING KNOB	REMOTE CONTROL	SIGNAL STRENGTH METER	FAXBACK NUMBER	ISSUE NUMBER
AMC T7	130	Performance adequate but price is sharp, especially with remote control. Some hum	FM, M	30		●				166
Arcam Alpha 7	230	Indifferent RF performance but a touch of audiophile sound quality with clean strong signals	FM, M, L	24						166
Arcam Delta 280	399	Fine sound quality marred by mild synthesiser whine; RF performance only average. remote £60 extra	FM	20		●				120
Audiolab 8000T	750	Unusually combination of fine sound quality and RF performance (inc AM), and superb ergonomics	FM, M, L	39		●	●		1254	142
Denon TU-260L	120	Careful minimalist design promises a surprisingly open and vivacious sound.	FM, M, L	20						93
Denon TU-425RD	200	A fine allrounder with advanced RDS, good RF performance and decent sound. Remote extra.	FM, M	40		●				166
Harman/Kardon TU950	200	Bulky but effective, delivering fine RF performance and good sound for the price	FM, M, L	30		●				166
Linn Kremlin	2,600	Controversially good sound at a very high price. The reviewer's saving up but you should check it out for yourself.	FM	80		●	●		1254	142

Tuners (Continued)

Product	Price(£)	Comments	WAVEBANDS	PRESETS	SIGNAL STRENGTH METER	ROTARY TUNING KNOB	FAXBACK NUMBER	ISSUE NUMBER
Magnum Dynalab FT101	825	Although fairly expensive given its minimum set of facilities, its excellent sound provided ample compensation.	FM					72
Micromega Tuner	700	Has digital output but even without the Micromega DAC, this provides exceptional sound quality. Looks good too.	FM	39	●	●	1810	157
Mission Cyrus FM7	400	Open, generous soundstaging gives the music plenty of foundation, if a touch shut in at the top	FM	29	●	●	1254	142
Musical Fidelity E50	300	Sounds involving if coloured and with a subjectively larger than life presentation	FM	20			1810	157
Naim NAT01	1,645	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
Rotel RT-935AX	160	Good ergonomics and sound quality at a realistic price, but limited features and RF selectivity	FM,M	20				166
Sony ST-SA3ES	250	Clean, lean presentation but needs a quality aerial to its best	FM,M,L	30	●	●	1810	157
Technics ST-GT350L	150	Decent 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.	EXTERNAL PSU: Outboard power supply; generally it indicates high quality.	SUPPLIED WITH CARTRIDGE: Most turntables do not come supplied with a needle.	BACK ISSUE: The issue of Hi-Fi Choice in which the original review appeared.
AUTO: The record player does it all.	SUPPLIED WITH ARM: Many turntables require a separate arm to be fitted; if not, this tells you so.	FACTSBACK NUMBER: The Factsback reference for ordering a fax copy of the review. Use the contents page to find the Factsback information page.	
SEMI-AUTO: You share the work: you put it on, it takes it off.			
SPEEDS: In RPM to correspond with your platters.			
SUSPENDED SUBCHASSIS: Sprung suspension to minimise structural interference.			

TURNTABLES

Product	Price(£)	Comments	MANUAL	SEMI-AUTO	SPEEDS	SUSPENDED SUBCHASSIS	SUPPLIED WITH CARTRIDGE	FAXBACK NUMBER	ISSUE NUMBER
Alphason Sonata	835	Good sound in all areas - bass, clarity and neutrality all in top class (tested with HR100S MCS).	●		33		●		79
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
DNM Rota 2	4,800	Tonally slightly bleached, but extracts detail like few others. Works well on own table	●		33/45		●	●	1328 144
Dual CS503-2	170	Coarse and woolly sound - not inoffensive, but bettered by the CS-505-3.			33/45		●	●	91
Dual 505-4 UK	200	Consistent sounding and well isolated turntable. It is slightly lacking in oomph.			33/45		●	●	103
Kuzma Stabi/PS	1,200	(Tested with Stogi Reference) Solid oak plinth, sound is very clear, detailed and extended.	●		33/45		●	●	91
Linn LP12 Basic	1,050	Trails the full LP12 significantly, but pace, rhythm, timing etc still top rank	●		33		●	●	103
Linn LP12 Lingo	1,750	The classic reference is improved by the Lingo, but charming character remains.	●		33/45		●	●	91
Michell Gyrodek	765	Sweet and natural sounding player, well matched to Rega RB300 arm	●		33/45		●	●	55
Moth Kanoot	329	Rather coarse sounding deck that requires decent isolation and comes with a Rega RB300 arm	●		33/45		●	●	164
Notts Analogue Spacedeck/Arm 1,125	1,980	No frills, just a first rate, outstandingly natural sounding deck that will last forever.	●		33/45		●	●	159
Pink Triangle Anniversary	1,980	Possibly the most detailed, clear and neutral sounding deck around. Likeness to master tape is uncanny.	●		33/45		●	●	91
Pro-ject 2	299	Remarkably effective at the price with decent timing and a generally well defined sound	●		33/45		●	●	164
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
Rega Planar 2	214	A remarkable product at the price, surprisingly articulate and confident	●		33/45		●	●	48
Rega Planar 3	274	The '3 sounds musical in a balanced and coherent manner, needs decent isolation and suffers a little pitch instability	●		33/45		●	●	164
Rega Planar 9	1,598	Featuring the RB900 arm and a ceramic plinth this deck puts Rega into contention with the best decks available	●		33/45		●	●	151
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 simply things and add a slightly ragged edge to the proceedings	●		33/45		●	●	1328 144
Roksan Radius 3/Tabriz zi	890	Elegant looking turntable with a tidy, ordered sound. Bright and breezy if a shade lightweight.	●		33/45		●	●	159
SME Model 20A	4,631	Supplied with Series V arm. Engineered to last a lifetime, giving excellent stereo and detail retrieval.	●		33/45/78		●	●	118
Systemdek I/920/Moth	235	The motor is derivative of the Rega Planar 2 with a Moth arm. Uptempo, even bright at times but never lacks enthusiasm.	●		33/45		●	●	115
Systemdek 2X2	499	Neutral, flexible and dynamic deck that begs to be used with a good arm and cartridge.	●		33/45		●	●	159
Thorens TD166 VI/UK/RB	300	Refined and solid sound with well focussed imagery; suitable for use with good MM and budget MC cartridges.	●		33/45		●	●	103
Thorens TD2001	700	Balances convenience and sound well, but deck lacks detail and bass could be better controlled	●		33/45		●	●	159
Thorens TD3001/UK	770	Excellent middle ranking esoterica, with strong all-round abilities rather than excellence in particular areas.	●		33/45		●	●	103
Voyd 0.5	3,940	Cross between standard and Reference Voyds. Superb finish, colourful and dynamic.	●		33/45		●	●	1328 144
Voyd Reference	6,962	Voyd's flagship, equipped with three substantial motors, is a strong contender for world's best.	●		33/45		●	●	91
Well Tempered Record Player	1,800	Intriguing and challenging. Musically it is not ideal, but has a limpid quality and a lack of artificiality that sets standards.	●		33/45		●	●	1180 136
Wilson-benesch TT/Act 2 arm	3,249	Carbon fibre is extensively used in this neutral and well resolved turntable with its fabulous unipivot tonearm (Statements)	●		33/45		●	●	1775 156

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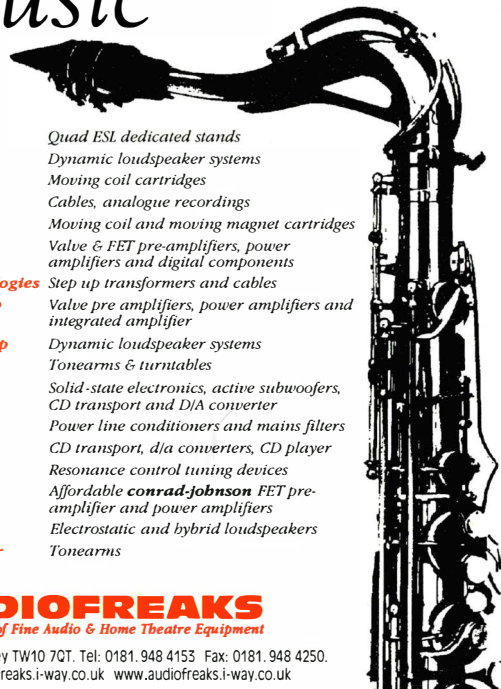
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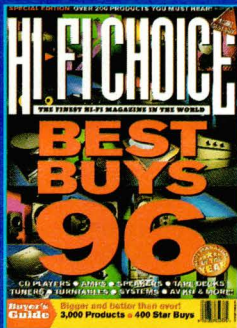
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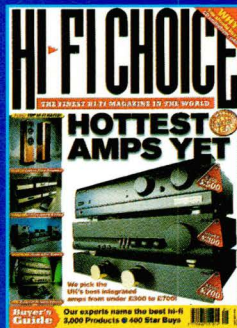
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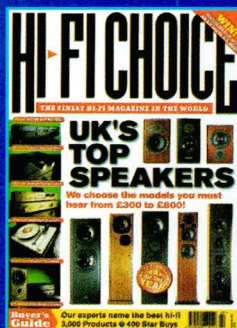
JAN 1997/ISSUE 162

- 14 Amplifiers, £200 to £700
- 5 Multi-CD players, £250 to £320
- 4 CD transport/DAC combos
- Meridian 502/557 pre/pwr amps



FEB 1997/ISSUE 163

- Free MiniDisc magazine
- 20 CD players, £140 to £3,300
- 5 Headphones, £140 to £1,000
- 5 Designer speaker packages



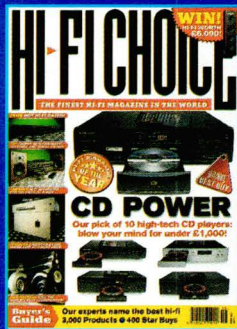
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- 15 Loudspeakers, £300 to £800
- 6 Cassette Decks, £230 to £350
- 3 Turntables, £274 to £329
- conrad-johnson DR-1•D/A-2b



APRIL 1997/ISSUE 165

- 14 Pre/Power amps up to £1,450
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MAY 1997/ISSUE 166

- 10 CD Players up to £1,000
- 6 Tuners, £130 to £250
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- B&W Nautilus loudspeakers

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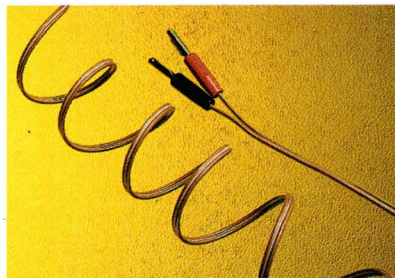
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NEXT MONTH'S ISSUE

JULY/AUGUST'S HI-FI CHOICE: DOUBLE THE FUN IN OUR BUMPER SUMMER SPECIAL!

CABLE WORLD

It's no good owning top-notch hi-fi if you haven't got good cables to hook up amp and speakers! In next month's quest test we'll assess budget wires and more exalted flex, all in the

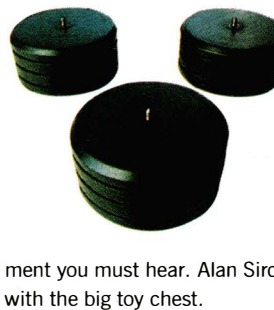


name of picking out the best cable for everyone's system. Brands include QED, Cable Talk, Chord Company, DNM, Gale, Nordost, Goertz, Silver Sounds, Audioquest, Kimber, SonicLink and XLO.

TWEAKIN' YOU KINDLY

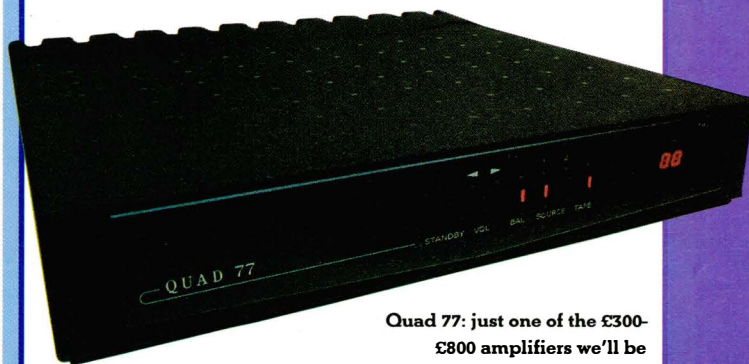
All kinds of gadgets and gizmos are available these days to help you get the best out of your hi-fi. Whether it's a hot-rod equipment support or esoteric tweaks like the Shun Mook Diamond Resonators pictured here, somewhere out there is

a system enhancement you must hear. Alan Sircom will be the man with the big toy chest.



AMPLIFIERS WITH ATTITUDE

In next month's big test we're spreading our amplifier net to embrace a crop of the latest powerhouses priced £300 to £800. Alvin Gold and Paul Miller will assess models from AMC, Arcam, Cyrus, harman/kardon, Marantz, Prime Design, Musical Fidelity, NAD, Pioneer, Quad, Roksan, Rose, Jolida and more.



Quad 77: just one of the £300-£800 amplifiers we'll be testing next month!

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Ultra

David Vivian experiences Sennheiser's £9,600 Orpheus headphones, and is transported back in time to his first hi-fi knee-trembler . . .

Vivian Scene

My first system: BSR McDonald MP60 semi-automatic turntable, Goldring G800 cartridge, Trio KA2000A amplifier, Koss Red Devil headphones. The year: 1973 or thereabouts. Can't remember how much it cost, but it was more than I could afford, hence the ear warmers in place of loudspeakers.

The man at Woods & Porter in Dartford said getting headphones meant I could stay within my budget and not compromise the quality of the front end — a Good Thing when it came to upgrading later. But since the deck and amp were the cheapest items sold by the shop, I suspect he was just being gentle with me. It was the Red Devils or nothing.

The last thing I wanted was to compromise quality. Not on my hi-fi debut. I'd been delivered to this point on the wings of profound disappointment: for my birthday, the parents had purchased something called a Pye Black Box. Black, because it had a black (actually smoked) acrylic lid; Box because it was a music centre. It was billed by Rumbelows as "hi-fi", but it wasn't even low-fi. It sounded so bad I thought it must be broken. It was hastily dispatched to the retailer for attention, and when it came back it sounded no better. So I pretended it was broken and asked for a refund.

An extra £20 or so secured the BSR/Trio/Koss combo. The man at W&P who concocted it led me upstairs, plugged it in and handed me the bright red plastic cans with their squidgy Neoprene ear pads. From the second the stylus dropped in the groove I knew I would never be a rich man. Hi-fi had entered my life — the clarity, the detail, the power, the bigness! It was all too much and made me go weak at the knees.

I rushed home with all the boxes and repaired to my bedroom for several months until I had worn out the G800's stylus. By this time I'd gone slightly deaf, an inevitable corollary of repeatedly playing Emerson,

Lake and Palmer's Karn Evil 9 ("Welcome back my friends...") at the threshold of pain — a speciality of this headphone.

I have no explanation for this behaviour now, it just happened. The strange thing was, back then I didn't mind using headphones for prolonged periods at what seemed like dangerous volumes. In fact, there was

Open-backed headphone designs addressed this, but they passed me by. I was into boxes, and the neighbours weren't complaining.

Cans ain't just for beans

Was it, then, a longing for the heady days of childhood that drew me into the Sennheiser room at this year's Sound & Vision Show in Bristol? Actually, it was Sennheiser's PR, Rob Follis. He wanted me to try the company's new Lucas processor, a slim box of tricks about the size of a B&O handset that turns your cans into a full Dolby Surround Pro-Logic A/V speaker array with convincing front-to-rear spatial effects. A truly inspired creation, I had to confess.

Then something caught my eye. Orpheus, Sennheiser's legendary £9,600 ear charmers with their own *objet d'art* valve preamp looked so enticing I simply had to have a go. I don't think I've ever been so exhilarated by a few minutes of recorded music. Here the in-your-head soundscape really didn't matter because the fidelity to the music was so utterly scintillating. They were intolerably good. My next



Just like old times, but better: the Sennheiser HD 565 Ovation headphones



probably more distortion than absolute sound pressure level. I actually liked the action happening between my lug holes. If I concentrated hard enough, I could will the image to drift out and in front of my head, thus making it easier to pretend it was real. I comforted myself with the thought that all was an illusion anyway.

Then again, perhaps because economic necessity forced me to use headphones for so long, when I finally saved enough to purchase a pair of speakers, I seldom returned to the Red Devils or anything else that required clamping to the cranium. I suppose, in part, this was down to the old paradox of speakers. Despite generally being of lower-fi, speakers sounded more natural and realistic. Bass had feel as well as frequency, stereo wasn't so left-and-right, and as a listener I didn't feel estranged from the outside world.

question: could anything else in the range get close for a fraction of the money?

No. And I listened to every single model. But I discovered one thing. The headphones under £70 sounded comparatively bright and screechy; those above at least captured something of the Orpheus's natural warmth and brilliance (itself a function of very low coloration). And that ain't bad.

The result? I'm hooked on headphones again. Over the last few weeks I have been bonding most successfully with a £130 pair of Sennheiser HD 565 Ovations. Just like the good old days? No — much better. I'm using them because I want to, not because I have to. Because they get me closer to the music.

They even make a £100 Sony Discman sound like a million bucks — a miracle the Red Devils never worked on the BSR...  Sennheiser  (01494) 551551

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