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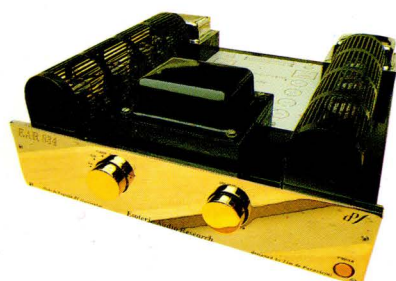
HI-FI CHOICE

THE FINEST HI-FI MAGAZINE IN THE WORLD

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MAGAZINE
THE WORLD'S No. 1 GUIDE TO BUYING HI-FI

TUBE POWER:

why valve amplifiers are still wowing our reviewers



JANUARY 1994 £2.95 US \$6.95

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SPEAKERS

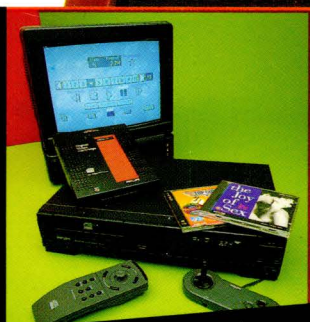
Stand mounts or floorstanders? We pick the best buys



MISSION ELECTRONICS

Turn your car into a club, concert hall, or even a disco!

EXCLUSIVE!
Movies on CD,
see page 56



16 page guide to buying blank audio cassettes

- 38 cassettes tested
- We name the top tapes



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**You may find the square transformers
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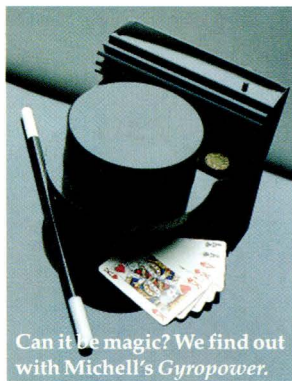
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Win Arcam hi-fi worth £3,000 in this month's great competition. First prize is a complete system including CD player, tuner, amp and speakers. Turn to page 44 for details.



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February's issue includes tests on cassette decks, DACs and budget turntables, as well as our definitive guide to home cinema — a 24 page supplement that's absolutely free!

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THE CHOICE DIRECTORY

A comprehensive listing of all the current products that Hi-Fi Choice has ever tested, with measurements and comments from the reviewers (not the manufacturer's brochure).

We need your help

One of the most important elements in any hi-fi system, the listening room, comes under close scrutiny from Paul Messenger in this month's speaker test (page 62) and again when Paul gets to grips with his in-wall speakers, page 176.



As Paul has often pointed out in the pages of *Choice*, the sound quality of any speaker is a complex interaction between the box itself, its support, its location, the characteristics of the system driving it and the acoustics of the room.

The interaction is rarely predictable, but after many years of testing speakers for *Choice*, Paul has assembled a huge amount of data that reveals in great detail how his own living room interacts with any hi-fi used there. This information enables Paul to produce perhaps the most consistent and meticulous speaker tests of any hi-fi magazine — yet he's still not satisfied!

In his quest for an even greater understanding of how room acoustics affect the sound of hi-fi equipment, Paul would like to hear from any readers, especially in Kent and Sussex, who are keen to have their listening rooms measured.

It's quite a painless procedure, and by way of compensation for any disruption caused, Paul will be only too pleased to go through his findings with you once the measurements have been taken, helping you to improve the sound of your system in the process.

If you are interested in having your room measured, please write to The Editor, *Hi-Fi Choice*, Dennis Publishing Ltd, 19 Bolsover Street, London W1P 7HJ. Be sure to include your address and a daytime telephone number where we can contact you, the dimensions of your room (height, width and depth) and a brief description of any peculiarities such as bay windows, a split level room and so on. Please mark your envelope, 'Measurements'.

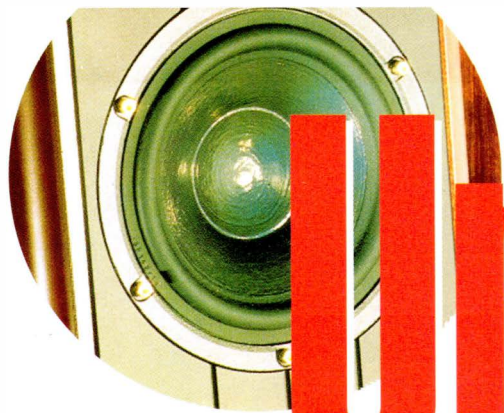
We would also like to hear from readers interested in joining Paul, and other *Choice* reviewers, on our blind listening panels. Such tests form an intrinsic part of the *Choice* review methodology, allowing us to gather a whole range of opinions on a product's abilities rather than those of a single reviewer. So, if you would like to be first on the block to get your ears round some of the tastiest kit on the market, drop me a line with details of your system and listening tastes to the address above. Mark your envelope, 'Listening Panel'.

Remember, *Hi-Fi Choice* is as much your magazine as ours, so write in and get involved.

Simon Davies



The battle between stand-mounts and floor-standers is not so clear-cut. See page 62.



Update

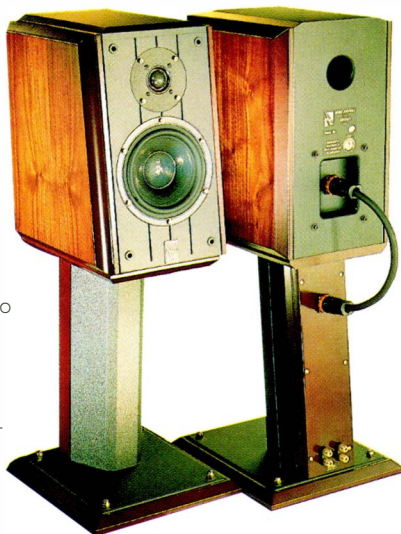
CHOICE NEWS FROM AROUND THE WORLD

Ruark aims high with Equinox

Essex-based speaker specialist Ruark, long renowned for the excellence of its veneers and cabinet work, is applying these skills to a new and very elegant compact loudspeaker.

The bookshelf size *Equinox* may cost £1,750, but it does come complete with dedicated mass loaded stands and features all the right design moves. This is in order to achieve an aesthetic and acoustic performance comparable with its high-end price-tag.

The handsomely veneered enclosure features attractive bevelling and base pelmet to disguise the spiked and security bolted link



between speaker and stand. An angled front panel directs the sound slightly upwards as well as outwards, allowing the *Equinox* to sit quite low on the ground.

The cabinet has thick MDF panels plus two internal bevelled figure-of-eight braces. The main mid/bass driver features a cast frame, doped paper cone, long-throw coil and powerful motor.

The *Equinox*' crossover components are all carefully selected for optimum quality irrespective of price, while the crossover itself is mounted externally, in a wooden box next to the (steel) pillar stand. ☎ (0268) 728890

Adagio's ambient introduction

JVC chose the Design Museum to launch its Adagio range of stack systems to the press at large. The range, which includes the EISA award winning Adagio-G7, was used to play tracks from two new Brian Eno retrospective boxed sets. One three disc set is purely instrumental and largely ambient. This was used to promote the Adagio's DSP capabilities.



'Sir' Brian (right) said a few words about the range. He felt that hi-fi systems should be more about manipulating music than reproducing it with maximum fidelity, which was what interested him about the Adagio systems and that the listener should be the final link in the artistic chain, using a hi-fi system like an artist uses a palette. This would suggest that the ultimate system is a multi-track mixing desk — perhaps there's something in graphic equalisers after all.

Harman's festival of miniaturisation

Harman Kardon is not a brand normally associated with the rough and tumble of mainstream consumer electronics. The arrival of two mini systems, under the *Festival* banner, therefore comes as something of a surprise.

However, the specifications show that both the *Festival 300* and *Festival 500* have at least semi-serious hi-fi pretensions, and will probably get much closer to the real thing than most mini size alternatives.

For starters there are the £999 and £1,199 price-tags. Then there's the single transport cassette deck, the 35W and 60W amplifiers, which claim peak current capabilities of 25 and 35 amps respectively, and the substantial all-up weights of 16.4kg and 17.6kg for the four separate units.

There's also the complete absence of any loudspeakers as a formal part of the package, and for that matter AV switching, processing and all that palaver.

Best of all, perhaps is that the remote control has only 13 buttons to worry about, using intelligent and intuitive multi-function operation. ☎ 081-207 5050

Joining the procession of HK products is the *Festival 500*, a mini system with serious hi-fi pretensions and a price-tag to match.



A free cartridge with every mini briefcase

You too can be the owner of a very cute miniature Gladstone bag, for a mere £2,000. Ortofon will also throw in its latest state-of-the-art MC7500 cartridge. The body milled from solid titanium, the armature is 8-nines purity copper, and the magnets Neodymium.

The latest in a long line of industry reference models, the MC7500 — so called in commemoration of Ortofon's 75th anniversary — is expected to set new standards for smoothness and transparency. The abiding question will be what to do with the little bag that's too big for a cellphone but too small for a laptop. ☎ (0753) 889949

M-S's home cinema hi-fi upgrade

Decoder One (£299) is Mordaunt-Short's mildly pretentious title for a handy electronic component designed to make it easy to add home cinema capabilities to an existing hi-fi system. Conceptually similar to Celestion's HTI processor unit, this Mordaunt-Short differs considerably in the details.

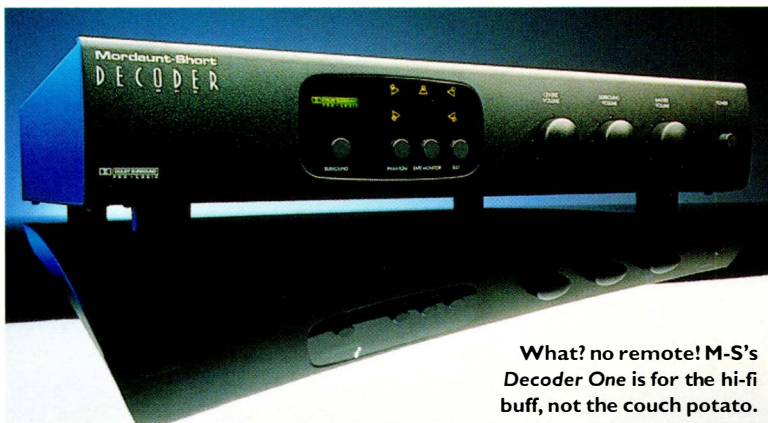
The neatly styled, British built unit carries out full Dolby Pro-Logic decoding of Dolby Surround-encoded material from any stereo AV source (such as a Hi-Fi Stereo VCR or Nicam TV). And it incorporates the extra, if modest, power amplification needed for driving the centre-front and rear channel speakers. These signals are also provided at line level for subsequent

upgrade with additional power amplification. A subwoofer feed is also incorporated.

The advantage of this approach, as distinct from a full blown multi-channel AV amp, is that you don't have to give up the audiophile sound quality of a stereo hi-fi amplifier.

The limitations are that only

two stereo inputs are provided, there's no attempt to incorporate video signal switching, and there's no remote control operation of any kind. However, none of these factors need necessarily be disadvantageous, depending on the way the AV system is configured. ☎ (0705) 407722



What? no remote! M-S's Decoder One is for the hi-fi buff, not the couch potato.

Tannoy goes dynamic and dual concentric

Tannoy's first dedicated home cinema loudspeaker is the **623**. Priced at £180 it features a substantial, magnetically shielded 6.5in cast frame dual concentric driver in a compact, multi-faceted sealed box.

The **623** is intended to be used in threes, one for centre-front 'dialogue' purposes in a Dolby Pro-Logic system, and the other two for the surround side/rear channels, anticipating that left and right front channels will be handled by a normal (though preferably dual concentric driven) stereo pair.

Controversially, perhaps, Tannoy has used full frequency and dynamic range speakers for the surround channel, whereas the Dolby specification limits the bandwidth. However, the company has only done so after

exhaustive testing, which has shown the advantages of achieving a good acoustic match between all the speakers in a home cinema system, and also

the existence of significant high and low frequency energy in the surround channel.

☎ (0236) 420199

High speed Cerwins

The defender of the bass, Cerwin-Vega, has introduced four new air moving devices in its VS or velocity sensitive range. Designed to make the most of today's digital recordings, the VS range, which starts at £250 for the 200mm (8in) woofer equipped VS-8 and goes through the £350 VS-10, £550 VS-12 and £700 VS-15 three-ways, is nothing if not party ready.

The quoted efficiency of the smallest is 94dB/6ohms, while the substantial VS-15 claims a whopping 102dB/4ohms and bass extension that reaches 28Hz. This, combined with self-resetting protection devices, should make for neighbour infuriatingly loud speakers. ☎ (0423) 359054



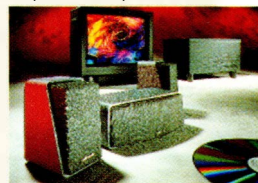
Cerwin-Vega's loud boys; the velocity sensitive range of speakers that's always ready to party on down.

In Brief

Copland's range of valve amplifiers have benefited from the recent strengthening of Sterling against the Swedish Kroner with worthwhile price reductions of between 10 and 20 per cent. ☎ 081-947 5047

Sterling is also strong against the German Mark, it seems, as there has been another price reduction. This time it's the **Thorens TD280/IV** turntable, down from £229 to £199. ☎ (0494) 890277

Leading US speaker specialist **Polk Audio** is introducing the £1,099 **RM5000**, a four-box speaker system using one subwoofer and three moulded plastic satellite units, which together form the front stage of a home cinema Dolby Surround system. Use your old speakers for the surround channels perhaps? ☎ (0727) 827311



Path has two new **Ixos** interconnects this month, the £80 per metre stereo **Silver Bullet** with silver-plated copper conductors, and a 75ohm £20 digital interconnect. ☎ (0494) 441736

Leading London retailer **Hi-Fi Experience** has set its sights on new horizons, and is expanding its empire by opening a new shop in (wait for it) Darlington. ☎ (0325) 481418

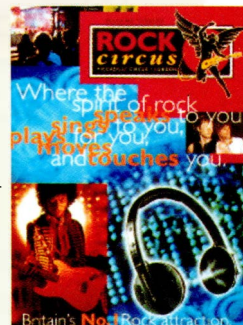
Shrewsbury dealer **Creative Audio** has just published *The Works 2*, an entertaining, if partisan, monogram, which usefully includes a list of vinyl record stockists. ☎ (0743) 241924 for a free copy.

Leading London retailer **Unilet** is restructuring, refinancing and revamping its New Malden operation. In future, it will be spoiling customers for choice in its bright new refurbished environment as Unilet Sound & Video. ☎ 081-942 9567

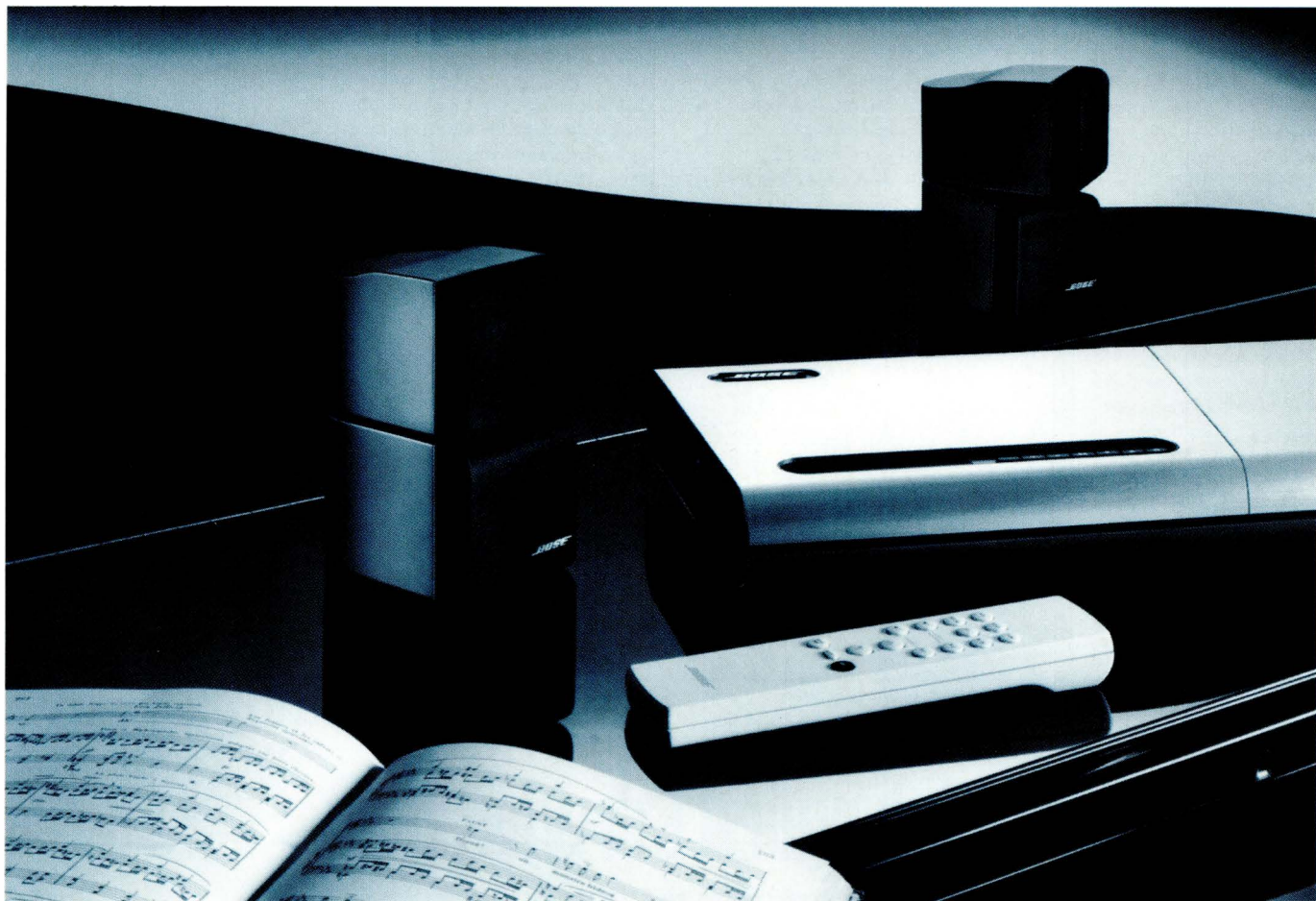
The Rock Circus at Piccadilly Circus has purchased 1,100 **Sennheiser HD1490** infra-red cordless headphones for its half million visitors a year. ☎ (0628) 850811

Emerson Lake and Palmer's classic pomp rock version of Mussorgsky's *Pictures at an Exhibition* has been re-recorded in **Dolby Surround** and is included in ELP's 25th Anniversary boxed set

Return of the Manticore. Some 400 CDs have now been made with Dolby Surround encoding, in addition to the 4,000 or so encoded movies on video.



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REL finds two more ways to make the earth move

One advantage of Hamman Audio taking on the distribution of the respected REL range of subwoofers recently has been to give Richard Lord more time for design and development.

The immediate consequence is two new models, one less expensive and one very much more expensive than the established *Stadium* and *Stentor* models. Both feature the REL Active Bass Controller electronic filter and built-in power amps.

The £499 *Strata* uses a 40 litre enclosure (420x520x310mm; width x height x depth) fitted with a single 250mm cast frame driver and 60W amplifier. It is designed to be fed by signals at line or speaker levels. Total weight is 17kg.

At the other end of the scale, the £2,995 *Studio* weighs in at 81.5kg, uses two 260mm Volt drivers driven by 300W of MOSFET power amplification, and measures 686x620x521mm, giving a 120 litre enclosure volume. ☎ 081-207 5050



Two new heavy duty beauties from REL drop from the drawing board into reality.

JVC's three-box speaker system

Consigning bass frequencies to a single, hideaway subwoofer box, while delegating midrange, treble and stereophony duties to tiny satellite units, the three-box loudspeaker has long been popular with American speaker manufacturers.

The concept has yet to take off in a big way here in the UK but JVC — known for practically everything but loudspeakers — has become the first major Japanese brand to decide the time is right for satellite/subwoofer systems, and is introducing the £299 *SX-SW9BK*.

The stylish subwoofer unit uses two 135mm drivers (one for each channel) in a coupled cavity, bandpass arrangement, while the artfully shaped 137x205x142mm satellite speakers each have 100mm midrange and 25mm tweeter drive units. ☎ 081-450 3282



It takes Aegis to get as heavy as this

Acoustic Energy's first 'affordable' all-metal diaphragm speaker, the £450 *Aegis Model 1*, made an auspicious Recommended debut in *Choice*, issue 118. Acoustic Energy is now expanding the *Aegis* range with the introduction of a £799 *Model 2*.

This fashionably slim though impressively substantial floor-stander is based closely on the drivers and engineering used in the *Model 1*. It comes complete with 7kg of lead shot mass loading in the base and a shaped and spiked steel plinth, both of which will help to give the *Model 2* stability comparable with a heavy-weight, purpose-built stand.

Complex internal partitioning and damping arrangements provide good cabinet stiffness and controlled, resistively damped bass reflex operation. ☎ 081-840 6305

Hitachi returns to minis

Hitachi may have long abandoned the world of hi-fi in favour of more mass market areas like TV, video and portable audio, but the rise and rise of the mini system has proved sufficient temptation to lure the company back into this area of mains powered audio.

It has two models, both very competitively priced at £350 for the *AX12* and £450 for the *AX15*. Both are two unit systems and crammed with features like full remote control, twin cassette decks, graphic equalisers, clock timers and, of course, old Uncle Tom

Cobbley. Power outputs are 20W and 35W respectively, the *15* also featuring a six-plus-one cartridge changer CD mechanism. ☎ 081-849 2000

The *AX15* marks Hitachi's re-entry into the lucrative mini market end of hi-fi.



In Brief

JBL has added eight and 10in in-car subwoofers to its existing 12, 15 and 18in GTi models. Crammed with technofeatures calculated to woo the impressionable, the new drivers are 'aspirationally' priced at £219 and £235 respectively. ☎ 081-207 5050

Prior to January 31st 1994, purchasers of the £10.99 *Travel Disc* portable CD storage case can choose a free CD of La Toya Jackson, soul music or fifties/sixties golden oldies. ☎ (0458) 210044

Richard Allan, now marketing direct to the public from its Cleckheaton base, is introducing two very competitive AV surround sound speaker systems. Both comprise six separate boxes, including front left, centre, and right, two surrounds and one subwoofer. The *AV-1* costs £199 and the *AV Gold* £299. ☎ (0274) 872442

In-car specialist Alpine is offering interest free credit on all products purchased before the end of the year. In addition, it's cutting the cost of advertising its products by offering discounts of around 15 per cent on assorted logoed marketing ephemera, from T-shirts to keyrings. ☎ (0908) 611556



Denon now offers an AVR-1000 AV receiver at £519 as an alternative to its 'budget' £480 *AVC-1530* amplifier. It incorporates FM and MW (AM) radio reception alongside all the usual audio and AV inputs and switching, Dolby Pro-Logic processing and multi-channel amplification. ☎ (0753) 888447

NCT's £140 *NB-DX* headphone system could be the ideal Christmas present for the long suffering partner of a serious hi-fi/heavy metal nut — or indeed anyone who has to put up with irritatingly loud background noise on a regular basis. NCT stands for Noise Cancellation Technologies Inc, the headset introducing 'anti-noise' signals which reduce perceived background noise levels by a very worthwhile 10dB (roughly 50 per cent). It does so at a much lower price than hitherto prohibitively expensive professional devices. ☎ (0792) 895435

Scottish cable specialist Kelvin Audio Cables is launching a new K2 interconnect cable, chosen after careful audition of many cheaper and more expensive alternatives. Stereo one metre pairs will cost £25 with standard gold-plated phonos, or £50 with Neutrik Profi plugs fitted. ☎ (03552) 26522

The Sound of Silence.



AX-A662BK

Crosstalk, noise interference, signal degradation. All dirty words as far as we're concerned. That's why the JVC AX-A662BK amplifier has no such vices.

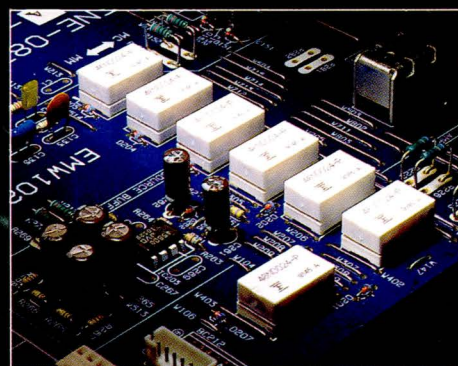
Featuring separate heat sinks and 'Advanced Super A' circuitry for left and right channels coupled with the dramatic reduction of internal wiring, this amplifier is virtually free of such problems.

Designed for the Digital Age.

The benefits? A very special amplifier that delivers a powerful punch, but manages to preserve a certain delicacy and subtlety at low signal levels.

As one Hi-Fi magazine put it - 'The JVC AX-A662BK produces a tidy, neutral, articulate sound with a refined and clean presentation, but is powerful without being unpleasantly assertive'.

Silence is Golden



Obviously... **JVC**

Update

The Budapest High End Show

While you were sacrificing Guy Fawkes effigies on November 5th, this dedicated audio hack was watching the Bartok trilogy at the Budapest opera house. Well, you didn't think I was going to spend my evenings at the show too?

I was visiting that fair city for the first high-end show that it's seen. Organised by Audio Note's hardest working distributor, Istvan Csontos of Merlin Audio, the show was held in the decidedly upmarket Atrium Hyatt. All of Hungary's high-end cognoscenti were there displaying and playing a wide range of expensive and occasionally not so expensive kit.

Brands represented included Audio Research, Lineam, Roksan, Meridian, whose new 562 was looking good, and van den Hul with creator AJ who was showing off his new cable illustrations with a neat little Macintosh photo CD player.

There was a lot more local talent on display than last year, when the more mundane Budapest Hi-Fi Show put the city on the audio map. The only brand I recognised from that show was Alisca Orange, which showed some meaty amplifiers of pre, power and integrated varieties, including the purposeful looking £1,500 ASP End-alpha power amp. Somewhat more upmarket is the French-style Etalon brand whose beautifully cased amplifiers start at £4,500 for the SL701/801 pre/power combination.

More down to earth was the £400 Mellom Medium integrated, not a very inspiring name but its phono stage looked the part.

The most inspired product I found was the £1,700 Austrian Music Tools turntable that's manufactured in Hungary and assembled in Vienna. It's a very lightweight, skeletal affair that incorporates new approaches to just about every aspect of turntable design. The arm is the most extreme element. It has



two bearings; a relatively conventional one and a rolling wheel that supports one end of the main arm tube. The platter, though it looks high mass, is extremely light and the main bearing extends right down one of the support legs.

Alongside its new £1,948 M2/P2

pre/power combination, Audio Note had the first prototype of the £1,949 Meisho integrated which uses 300B triode output tubes. The prettiest product of the show award has to go to the German Velvet amps, sexy little chrome building bricks containing the bare minimum of valves.

Above: the radical and inspired Music Tools turntable (note the 'L'-shaped arm). Left: a French Audiomat tube integrated amplifier and below it the Hungarian Mellom Medium design with an interesting phono stage.

In Brief

Counterpoint is plunging into the home cinema market with a system which is claimed to satisfy even the most refined audiophile sensibilities. The whole caboodle, with seven speakers plus remote control A and V switchers, controllers, processors and power amps, adds up to around £10,000. ☎ 061-777 8522

Who says size is not important? Prior to January 31, 1994, **Bose** dealers are offering up to £200 for old loudspeakers against purchases of the £759 Acoustimass AM5-II. The exact amount of trade-in value will depend on the size of the old speakers. In addition, Bose will also offer up to £300 trade-in for its Lifestyle system — this time, the amount of trade-in will depend on the weight of the old system.

With the £1,000 DN-2000F professional twin CD player established in many clubs and discos, **Denon** is introducing the more advanced £2,000 DD-2700F

(below). This features a six second stereo digital memory for sample grabbing, as well as other handy professional cueing functions. ☎ (0753) 888447



Max Lowe is the man behind some strikingly hi-tech styled and seriously heavy speaker stands (around 35kg) made from concrete and aluminium. These are available to order from around £350 a pair. ☎ (0494) 673665

Naim Audio's new CD release, *Concerts Under The Dome* (£11.50), features chamber music from Boccherini, Bartok, Brahms and Mendelssohn. Originally recorded live on a Nagra stereo tape recorder, the tapes were directly transferred to CD using Naim's CDS-based digital mastering machine in order to minimise the intrusion of the recording process and maximise the realism of a live performance. ☎ (0722) 332266

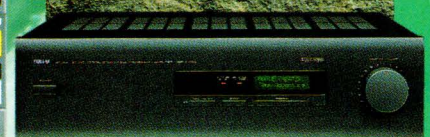
Clearaudio products from Germany — some great (if expensive) moving coil cartridges, several moving magnet models, and the quality Profi-MPC phono plug — are to be distributed by Heatherdale Audio Ltd, 11 Princes Cres, Hove, Sussex BN3 4GS. ☎ (0273) 206456

Clarion's latest car hi-fi includes a £350 CRX97R radio-cassette unit with CD changer control, plus what's claimed to be the smallest CD changer, the six-disc £425 CDC9600. ☎ (0793) 870400



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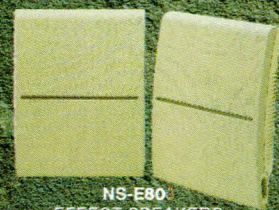
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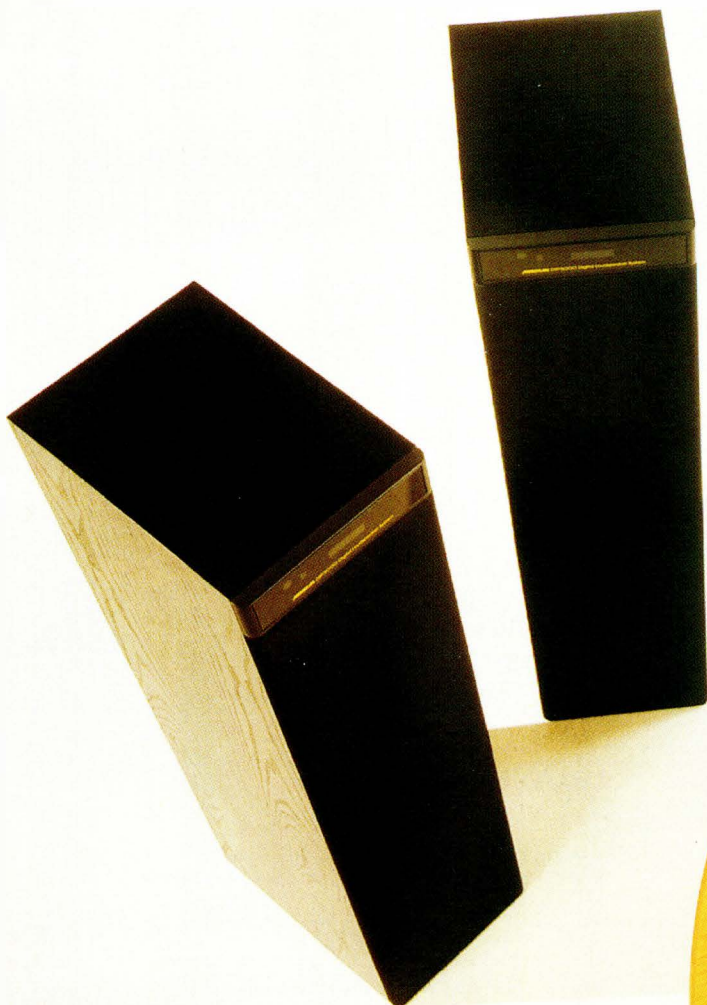
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Don't miss next month's bumper issue of

HI-FI CHOICE

Digital to analogue converters

A good digital converter can transform an ageing CD player into a high-tech masterpiece. We look at eight of the latest DACs, from £200 to £750, including two valve-based designs and exclusive first tests of new models from both Audio Alchemy and Meridian.

Cassette decks

Eight of the latest cassette recorders come under the careful scrutiny of the *Hi-Fi Choice* test panel. We show you what to look for, and find the best sounding and most versatile tape decks around. Make sure that you check out the *Hi-Fi Choice* Best Buys and Recommendeds before you buy one.

Spinning the platters that matter

Just to prove that vinyl is not yet dead, we look at three of the latest budget turntables to hit the streets, and compare them with the classic Rega *Planar 3* in an attempt to find the ultimate budget turntable. Is the Rega still top dog?

Sony anniversary competition

Postponed from last month, this is your opportunity to join Sony (UK) in its 50th anniversary celebrations, with a chance to win £3,000 worth of top Sony hi-fi in our simple to enter competition.

The ultimate CD player?

The stunning new CD player from Roksan, the £1,800 *Atessa*, has taken four years to develop. We find out if it has been worth the wait.

Free next month: The Absolute Beginner's Guide to Home Cinema

If you are a bit of a movie buff who wants a home theatre system but just cannot get to grips with the jargon, fear not. We are giving away, free, our *Beginner's Guide to*

Home Cinema next month. It's got all the facts you'll ever need to know presented in a clear, easily understood manner. It's crucial reading, so make sure you order your copy of *Hi-Fi Choice* now.



February's bumper issue is on
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CHOICE SESSIONS

TURNTABLES

Michell Gyropower QC

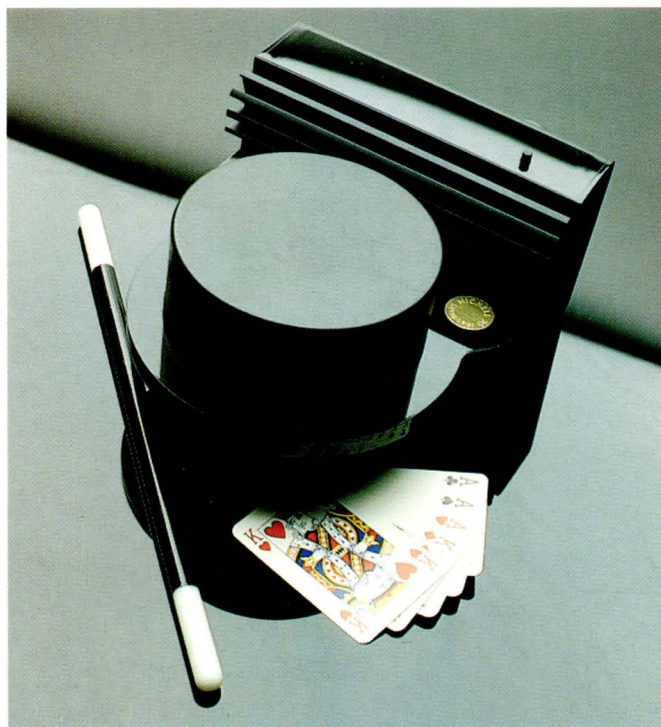
With separate quartz crystal oscillators and smoothed power supplies for both 33 and 45rpm, the Michell *Gyropower QC* does more than obviate the need to change speed manually by manipulating the drive belts on the motor pulley of the *Gyrodec*.

Switching from the standard *Gyropower* on my *Gyrodec/SME IV/ Morch da Capo* was as though the groove of the LP had been cut deeper and the stylus hand crafted to match.

Most noticeable was a rock-solid focus and spot-on timing. Not only that, but the music flowed better with sharper attacks and longer decay.

There was a clearer sense of perspective; pitch (demonstrably perfect), rhythm, timing and melody made up an integrated whole, perfectly proportioned.

More ambience, greater depth and deep bass lift the *QC*-equipped *Gyrodec* into the top league. Borrowing its styling from the *Alecto* amplifier, it's an interesting shape too.



A power supply cannot make a bad recording into a good one, but if the vinyl is good to start with, the *Gyropower QC* needs no other advocate than itself.

Eric Braithwaite

Michell Engineering,
2 Theobald St,
Borehamwood, Herts WD6 4SE.
☎ 081-953 0771

Great for gadget freaks but is the *WMD-DT1* cute enough to have a wider appeal?



DAT PLAYERS

Sony WMD-DT1

Unconvinced by DCC and MD? Then cheer up, because Sony has come up with one of the most aspirational gadgets in a long time; the world's smallest DAT Walkman. With dimen-

Michell's *Gyrodec* turntable can hypnotise with its spinning gold weights under the platter. Can the new *Gyropower QC* power supply perform more magic to boost the deck's performance?

sions of 116 x 29 x 70mm and a weight, including batteries, of 250gm, the *WMD-DT1* really is small enough to go in almost any pocket.

But this machine is playback only; so where is the software? Unfortunately, prerecorded DATs basically don't exist (except in Japan). So, it's limited to those who can make their own compilation tapes and already have a DAT recorder.

What you get in the *WMD-DT1* is an amazing piece of miniature engineering. It manages to cram into its tiny case the tape transport, complete with helical scanning heads, digital signal processing and output circuitry to reproduce full-format digital sound at all three DAT sampling rates (48, 44.1 and 32kHz, for continuous playback of up to four hours). All controls are pushbutton digital and are duplicated on the remote control

VERDICT

GYROPOWER QC

- ▲ Electronic speed change; sonically top-class.
- ▼ Some may not like the distinctive styling.
- ▶ **£349.00**

SOUND QUALITY



VALUE FOR MONEY



VERDICT

SONY WMD-DT1

- ▲ Incredibly small; good sound; great portability.
- ▼ You'll have to make your own digital audio tapes.
- ▶ **£279.00**

SOUND QUALITY



VALUE FOR MONEY



in the headphone lead. The headphones are 'in-ear' types.

Everything works smoothly. It seems reassuringly impossible to trap a tape in the unit or damage it in any way, even by removing the batteries during play. The player understands DAT sub-codes and can wind on to find start cues reasonably fast. It runs off two AA batteries, giving at least four hours from a pair of alkalines.

And the sound? If you've ever heard a good CD portable you'll know what to expect.

It's much better than almost all portable analogue cassette machines, but ultimately limited by the in-ear headphones.

Maximum volume could be higher, but generally the sound is satisfyingly clear and full. And it is almost jog-proof — severe knocks just make it mute for a second. But being a tape player, it can't lose the place.

So, of limited application, but for gadget freaks it's a must.

Richard Black

Sony UK Ltd, Sony House, South Street, Staines, Middlesex TW18 4PF. ☎ 081-784 1144

LOUDSPEAKERS

Impulse H6

Although other companies have adopted the horn enclosure recently, especially as the low-power triode amplifier becomes increasingly popular, Impulse has been instrumental in its return to popularity.

Horn speakers are necessarily expensive, as that clever wooden labyrinth construction is time consuming and costly to build. Even Impulse's cheaper speakers, like the H6 tested here, cost £1,350, and the prices rise dramatically from there.

Most people's perception of a horn loudspeaker summons up images of a huge PA-like enclosure dominating the living room, but the H6 is uncharacteristically slim and elegant for a full-wave horn, taking up no more space than a Linn *Kaber*.

At a claimed 89dB sensitivity, it's also possibly the least efficient horn around, but it still presents a far from taxing load for any power amplifier stage. I managed to get complaints from the neighbours even with the smallest of amplifiers.

With its SEAS bass driver and pushed-in Focal tweeter, the H6



Impulse's H6 loudspeakers. Horns of plenty or horns of dilemma?

can produce bass down to a claimed 40Hz. From the results achieved in my room, I have little reason to disbelieve this claim, especially when using both sets of gold Michell sockets to bi-wire or bi-amplify the speaker. It does benefit from careful positioning, and can be quite room dependent, but the H6 also works well in some surprisingly unfriendly settings.

The near magic midband coherence, detail and dynamic range of the H6, common to the best of the horn loudspeaker breed, are all present, with surprisingly deep, powerful and agile bass. The speaker can produce instrument sounds that are almost in the room.

The down side is that almost every sound that emanates from the H6 takes on the slightly cuppy hew of the Impulse sound. However, this factor is something that you can easily get used to.

Weighing the pros and cons

VERDICT IMPULSE H6

- ▲ Midband coherence; dynamic range; easy load for amps.
- ▼ Coloration may not be to everybody's taste.

► **£1,350.00**

SOUND QUALITY



VALUE FOR MONEY



of the speaker is not easy. Those who cut their teeth on speakers like the LS3/5a may dislike the H6's coloration, while those that have been seduced by the musical sound of good valve amplifiers could fall under the spell of the H6, as I have.

Alan Sircom

Impulse Loudspeakers, 5 High Parade, Streatham High Road, London SW16 1EX. ☎ 081-769 5726

AMPLIFIERS

Linn Majik I

At first sight, Linn's new £524 *Majik-I* is little more than a competent but simple 33 watt amplifier packed full of surface-mounted components. It has an optional — but not retro-fittable — phono stage for further

£69, a built-in headphone amplifier, and a dinky little remote control.

However, the little *Majik-I* is wonderfully versatile, more than enough to make the amp unlikely to become redundant, no matter how unwieldy the system. It has plenty of sensible features, but a minimum of gimmicks.

There are no tone controls or loudness buttons, for example, but it can easily be modified into a preamp or power amplifier, by means of links on the rear panel. It's also fitted with what's called a 'Sneaky' port at the rear. This allows the amp to form the major part of an active speaker system. Also, the forthcoming *Kudos* tuner or *Knekt* multi-room input cards can be simply plugged into the system at a later date.

Knekt is designed to talk to a multitude of products not necessarily bearing the Linn logo, such as computers, televisions and even domestic lighting. Any *Knekt*-ed products can be controlled from an easily installed 'enhanced' front panel on the *Majik-I*.

Unlike the *Intek* it replaces, the *Majik-I* fits into the smaller-than-standard Linn electronics

VERDICT

LINN MAJIK-I

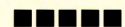
- ▲ Highly flexible upgrade path; tight, rhythmic sound.
- ▼ Runs out of steam at really high volumes.

► **£524.00 (phono £593.00)**

SOUND QUALITY



VALUE FOR MONEY



Linn's *Majik-I* sounds good and should stand the test of time.



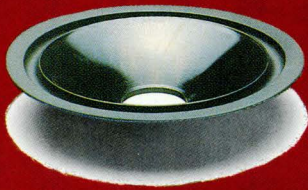
M A S T E R S O F M U S I C



The new Music Series loudspeakers from Mordaunt-Short

Mastery of Sound

This mastery of sound is the result of numerous technical innovations unique to Mordaunt-Short.



For instance, MCS technology – an injection moulded cone and surround which ensures a precise cross-section profile for exact bass unit performance.

All crossovers are first order configurations based on minimalistic principles because of the excellent performance of the individual drive units. Result? A simple load and fewer components between the amplifier and the final sound. Bi-wiring is possible too on all speakers except the MS10.

No Phase Cancellations

The conventional mid-bass unit dust cap has been replaced with a phase plug. The path length is calculated to eradicate phase cancellations and give excellent dispersion across the critical middle frequencies.

Low colouration baffles have been a design priority in all Music Series loudspeakers. On the MS10, MS20 and MS30 this has been achieved with mica-filled polypropylene tensioned with steel tie rods.



On the MS40 and MS50, a 30mm dual material composite baffle has produced an extremely rigid structure.

Exclusive

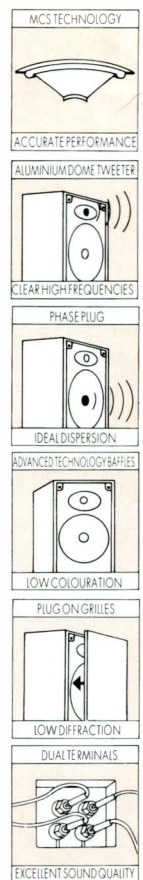
Controlled high frequency performance is achieved thanks to a 25mm aluminium dome tweeter designed and built by Mordaunt-Short.



The ultra thin metal diaphragm and compression moulded rubber surround are mounted on an elliptical low resonance chassis, utilising a high temperature voice coil with liquid cooling and damping.

Making Music

Music first. Music second. Music whichever way you listen to it. With the Music Series, Mordaunt-Short is making music more naturally than ever before. The masters of music are taking their title to heart.



We will be pleased to send you a Music Series brochure on request, together with the address of your nearest dealer.

Mordaunt-Short



box, but it comes with a new matt-black finish to the front fascia and a simplified control layout, beneath the green LED display on the left hand side.

In use, it demonstrated the characteristic dryness, up-tempo drive and taut bass common to all Linn electronics, although it was found to lack a little grunt when trying to party down with seriously loud bass lines.

The *Majik-I* is quite a landmark product, marking Linn's new direction with very sophisticated tracks. It acquits itself well sonically, being musically on a par with the best amplifiers at its price. But its principal strength is its versatility and future-proofing, making it possibly the most significant hi-fi product of 1993.

Alan Sircom

Linn Products Ltd,
Floors Road, Waterfoot, Eaglesham,
Glasgow G76 0EP.
☎ 041-644 5111.

PHOTO CD PLAYERS

Kodak PCD 865

Kodak Photo-CD is a system for storing standard photographs in digital form on a CD. Whenever you send your pics to Kodak for processing, you can also have each picture electronically scanned, converted into six different sized digital images and written to a CD-R.

Each CD-R can hold roughly 100 images, the theory being you should be able to keep all your photo albums in a single CD rack.

Kodak's £199 *PCD 865* is a standard audio CD player that also hooks up to your audio visual (AV) system, so that you can display your slides or pictures on the television in your living room. The player is replete with standard AV inputs and outputs, so squeezing the player into your current system should not prove too much of a hardship.

Operation is fairly straightforward. Control is via a simply laid out remote, giving you access to those features that make Photo-CD slightly more useful than the traditional photo-album-on-knees approach. With a Photo-

CD player you get a chance to manipulate the old family snaps on screen.

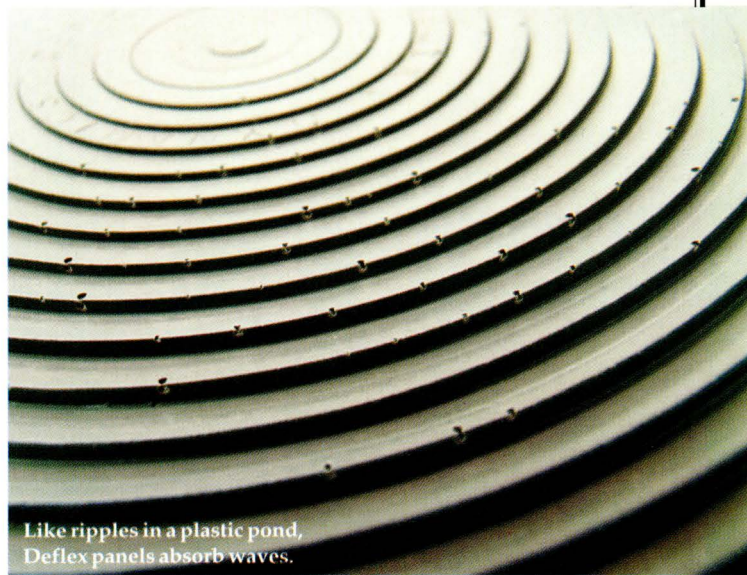
As well as straightforward picture selection (each shot is numbered — key the number on the control to go straight to it), you can scan backwards or forwards through your pictures in quick succession (you can set the speed manually) in a slide-show fashion. You can also alter the order in which they appear using the 'skip' and 'insert' controls on the remote.

Each photo can be viewed in three different ways: 'Norm' — actual size; 'Full,' — full screen; and 'Tele' — single magnification of a portion of the picture. And for those portrait shots, 'Rotate' allows you to set the orientation so that they display properly. Each alteration that you make to a screen image can be saved for next time using the 'Keep' function.

The package also includes a Photo-CD which runs as a mini multi-media presentation. A menu offers you a choice of languages (English, German, French et al) to choose from, and pressing the appropriate number on the remote handset starts a demo tour. After the tutorial tour, there are some images available for you to practice on.

Putting your photos on CD isn't going to improve their quality. On the whole, the quality of the viewing will depend on the TV, but there were a few moiré problems with fine detail on blacks and whites.

Unfortunately, the player itself fell short of expectations. The extra features are a little idiosyncratic. For example, the 'Tele' feature worked in an unintuitive way and it only has one



Like ripples in a plastic pond, Deflex panels absorb waves.

level of magnification.

The player also falls down on price; competitive CD-i players from Philips cost around £300. These will play audio, Photo-CD, CD-i (and eventually video). For the extra £100, they may be well worth considering.

Richard Dyce

Kodak Ltd, PO Box 66, Hemel Hempstead, Herts HP1 1JU
☎ (0442) 61122

ACCESSORIES

Deflex Acoustic Panels

Although it's more fashionable to talk about drive units and crossovers, the internal damping used inside a speaker has an equally critical effect on the final sound. In my view, many commercial speakers are overdamped with material that produces dull, sluggish midrange and bass.

Indeed, for over five years now, I've actually endorsed removing all damping material from loudspeakers. Why suffer a cure that's worse than the disease? Undamped speakers have a lively, articulate quality that produces a more positive response to changes of tonal colour and dynamics.

Internal damping — often thick foam plastic or synthetic wool — tries to eliminate standing waves within the cabinet, which might cause unwanted resonances. Unfortunately, because it's highly absorbent, this results in a loss of life and vibrancy. The music lacks brilliance and sparkle.

Alas, undamped speakers can be a problem too. There's a danger the sound will lack control and definition, tending to 'blare' during heavy, complex passages. Wouldn't it be great to have the best of both worlds.

Deflex Panels, made from an advanced — but un-named — polymer, attempt to control acoustic energy without absorbing it. The special surface pattern reduces standing waves to

VERDICT

KODAK PCD 865

▲ Extremely simple to use.

▼ Unfortunately, it doesn't handle CD-i software.

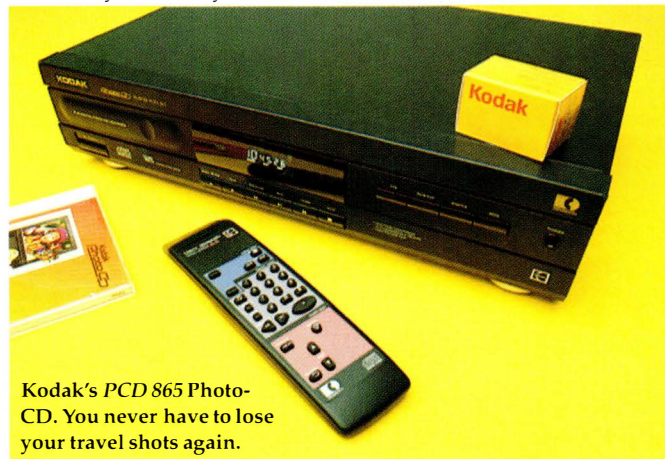
▶ **£199.00**

SOUND QUALITY

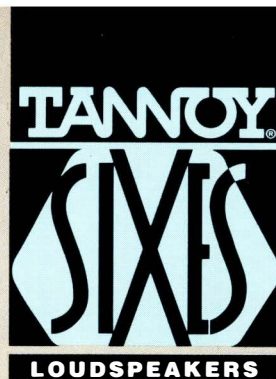
■ ■ ■ □ □

VALUE FOR MONEY

■ ■ ■ □ □



Kodak's *PCD 865* Photo-CD. You never have to lose your travel shots again.



Because we thought about it. Deeply. Our R&D people spend their lives immersed in speaker design – but never out of their depth.

Bathtime operatics may have inspired the SIXES concept, first seen in the original successful SIXES. You see, four-square walls generate standing waves which boost 'boom'. Fine for resonant renditions of 'Nessun Dorma', but fatal to accurate musical reproduction.

Similarly, since sharp edges cause sound diffractions, playing havoc with frequency response and believable stereo imaging, our six-sided cabinets adopt a more oblique approach.

The quest for colour-free sound is unceasing. The senior members of the new SIXES family feature our Dual Concentric sound sources, whilst all models incorporate contoured moulded basscones, low-weight and stiff for agile yet powerful bass response. And tweeters with gold-anodised domes, ensuring treble clarity and smoothness.

To read more about the new SIXES – write today or phone 0236 420199. But for the absolute truth, all you have to do is to listen.

There's
just one reason
why the new
SIXES loudspeakers
look and sound
as they do.



NAME
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POSTCODE
 Please send me further information on the new SIXES
 Please send me details of my nearest stockist

curl boxiness and resonance without killing the natural vitality of the sound.

I tried my samples in a set of Impulse *H-1* horn speakers, putting two panels behind the midrange driver. The *H-1* is completely undamped and works well that way, but adding Deflex Panels improved the focus and control very noticeably. The result was sharper imaging, wider dynamics, and a more natural sound.

The level of improvement naturally depends on the speakers treated, but expect tighter cleaner bass, crisper articulation, and an increase in liveliness without loss of control or focus.

Deflex Panels are available in kits to suit small or large speakers. Five panels (enough for one smallish enclosure) cost £49.95. So you'd typically be looking at £100 plus to treat a pair of speakers.

Of course, modifying speakers invalidates your guarantee. Only attempt such work if you're a good DIYer — especially as not all speakers are easy to gain access to! Definitely worth checking out though.

Jimmy Hughes

The Speaker Company, Unit 9, Waterside Mills, Waterside, Macclesfield, Cheshire SK11 7HG. ☎ (0625) 500507

VERDICT

DEFLEX PANELS

▲ Very worthwhile improvement in sound quality.

▼ You have to be good at DIY to tackle the job.

▶ **from £7.95 each**

SOUND QUALITY



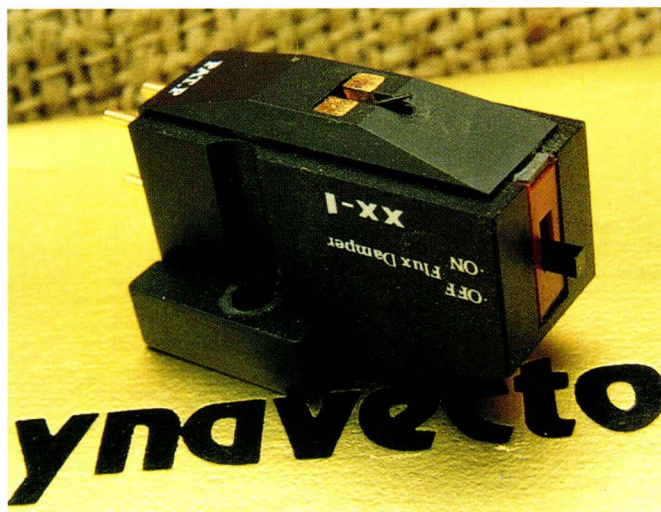
VALUE FOR MONEY



CARTRIDGES

Dynavector XX1 Improved

It must be around six years since Dynavector first launched its current flagship *XX1* cartridge in Britain. However, it has recently been improved, dramatically raising both the performance and the price from



Dynavector's improved flagship cartridge just keeps getting better.

£700 up to a couple of groats short of £1,000.

Two factors determine the success of a high-end cartridge in the United Kingdom, and an exceptional basic product is rather less than half the battle. What matters more is that the cartridge concerned makes a good match for the rest of the equipment being sold or in use.

The market for expensive moving-coil cartridges began in the mid-seventies, led by the Supex brand imported by Linn and widely used in Linn/Naim systems. Linn's own cartridges started out as Supex variations, and each successive model has become more Linn-focused.

With Linn and Naim now heading their separate ways, Naim users have been wearing out their *Troikas* and wondering what to use instead. Linn's *Arkiv* is exceptional, but is not necessarily such a euphonic match in a Naim-oriented con-

text. Several likely alternatives already include the *Lyra Clavis*, *Audio Note IO* and *Reference Transfiguration*. Now this significantly improved Dynavector design represents another exciting option.

I first tried one at Pear Audio's suggestion a year or two back. Its magical midband and restrained treble suited PA's *Shahinian* speakers very well indeed, and these virtues translated to my own system, but I never really came to terms with the bass.

However, PA principal John Burns has been working closely with Dynavector both in Britain and in Japan, and the latest samples have an altogether tighter and better defined bottom end, as well as significantly greater overall bandwidth coherence.

I miss the sheer grunt and slam that Linn cartridges still seem to do best, but suspect the

XX1's more easy going and romantic world view will often prove much more palatable to Naim-oriented vinyl junkies. The midrange remains superb, and the Dynavector is currently alternating with an *Audio Note IO* in a *Mana / ARO / Armageddon* equipped *Sondek*.

Sometimes my coffee comes from Kenya, sometimes from New Guinea, and I couldn't, hand on heart, say one is necessarily better than the other. The same is true of these cartridges, and I wouldn't want to be parted from either.

Paul Messenger

Dynavector Systems Ltd, 32 Reading Road, Woodley, Reading, Berks RG5 3DB. ☎ (0734) 699159

VERDICT

DYNAVECTOR XX1

▲ Lush, romantic sound; lovely midband.

▼ Pricey; might be a bit too rich for some systems.

▶ **£998.00**

SOUND QUALITY



VALUE FOR MONEY



TUNERS

Pioneer F-502RDS

As the necessary decoding is built into standard FM radio chipsets and displays, RDS (Radio Data System) costs barely pennies to include. And pennies, frankly, is what the option is worth as fitted to this Pioneer.



Pioneer's F-502RDS tuner. A hit — despite the Radio Data System facility.

Our promise.

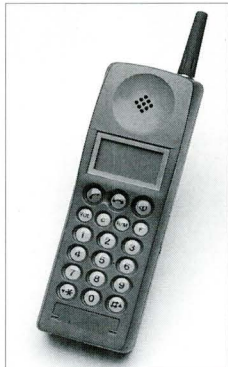
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And we're open all over Christmas and the New Year Weeks – call your local branch, listed in our main ad, for details.

PRICE BEAT VALID BETWEEN 20TH DECEMBER 1993 AND 31ST JANUARY 1994

Although its program scan facilities are useful in-car, its use at home is rather limited, unless you move house at half-hourly intervals.

However, this tuner is, to all intents and purposes, a standard FM/AM set which offers 40 presets. There is no Long Wave, but it has two antenna inputs with switchable attenuation for exceptionally strong signals, switchable IF bandwidth on FM, half-step fine tuning and manual tuning via tuning knob or direct frequency entry. Internally, it boasts a large number of ICs bearing Pioneer's name, and the RF front end is also Pioneer's own.

It was little short of astonished by its sound. Perhaps it could sound just a trifle on the thin side, but one soon forgot that, given its excellent resolving power and honest portrayal of stereo images. Everything was reproduced with a convincing sense of ease and space, and with remarkably little of the spit and distortion that often characterises even a very slightly imperfect radio signal. In fact, the F-502RDS was practically indistinguishable from my reference Revox A76, which means that it is probably the best digital tuner I've ever heard.

As an aside, it's interesting to note that measurements of distortion and channel separation were also the best I've seen. So, with sound like that (and even almost decent AM), who cares about RDS? Go for it!

Richard Black

Pioneer High Fidelity (GB) Ltd, Pioneer House, Hollybush Hill, Stoke Poges, Slough, Berks SL2 4PQ. ☎ (0753) 789500

VERDICT

PIONEER F-502RDS

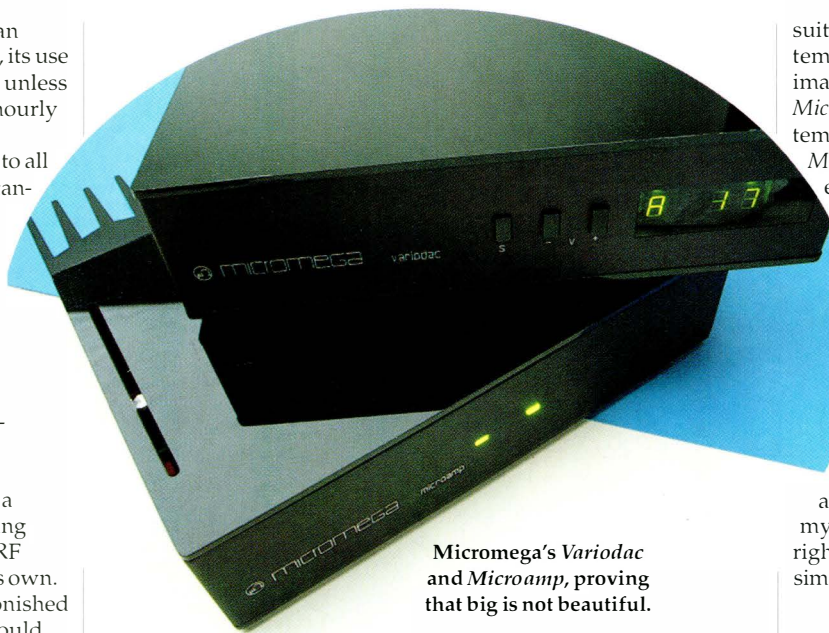
- ▲ Excellent, clean sound and plenty of features.
- ▼ You want a Day-Sequerra at this price?

▶ **£249.95**

SOUND QUALITY



VALUE FOR MONEY



Micromega's Variodac and Microamp, proving that big is not beautiful.

AMPLIFIERS

Micromega Variodac and Microamp

In the motor industry, very few people would call a car like the Trabant 'cute'. Micromega's diminutive Microline range has no such problems, as its black perspex top plates make it as cute as it is small.

At the moment, the range consists of four components: the £299 *Microdac*, which was tested back in issue 113; the matching £799 *Microdrive* transport; the £599 *Variodac* and the £699 *Microamp*. There are also plans for a remote-controlled *Micro-tuner*, a rack and possibly even a matching loudspeaker.

Although I had a *Microdrive* on hand, we concentrated on the *Variodac/Microamp* combination as a small, minimalist amplifier package.

It's far from fully-featured, with just three small push buttons on the front of the *Variodac* and nothing bar the switch-on lights on the front of the *Microamp*. Only two sources, one digital and one analogue, can be handled by the *Variodac* — the digital signal is processed through what is, in essence, a *Microdac* — which doesn't even have a tape circuit, but at least the digital source can be phase inverted.

The power amplifier is a

25W dual mono design. Its large heatsinks run very hot indeed and it would be wise to switch the *Microamp* off when not in use, although the on/off switch is comparatively difficult to access. As two *Microamps* fit side by side in a standard rack, it would be excellent for a low power home cinema amplifier package with hi-fi intentions.

The two have a warm, luxurious sound, although it is one that could be rather too soft for some tastes. As ever with Micromega, musicality takes precedence and the combination gives the listener an easy ride through his or her CD collection, especially when used with bass-light speakers.

A full-range speaker will show up the ill-controlled low end of the *Microamp*, but partner the duo with a pair of

suitable speakers and the system exudes fun. I find it hard to imagine the *Variodac* and *Microamp* being used in any system without the matching *Microdrive*, as they balance each other out well, both physically and sonically.

All in all, the *Variodac/Microamp* combination is a bit of an oddity. Its limited facilities preclude it from use as a main system and yet it is too expensive for most people to use as a second system. However, it is also extremely cute, aspirational (I need one for my desk), musical with the right speakers and, above all, is simply lots of fun.

Alan Sircom

Micromega DA Ltd, PO Box 13, London E18 1EG. ☎ 081-989 0692

VERDICT

VARIODAC/MICROAMP

- ▲ Small, cute; loads of fun; easy to listen to.
- ▼ Not for big speakers; limited flexibility; a bit costly.

▶ **£599.00/£699.00**

SOUND QUALITY



VALUE FOR MONEY



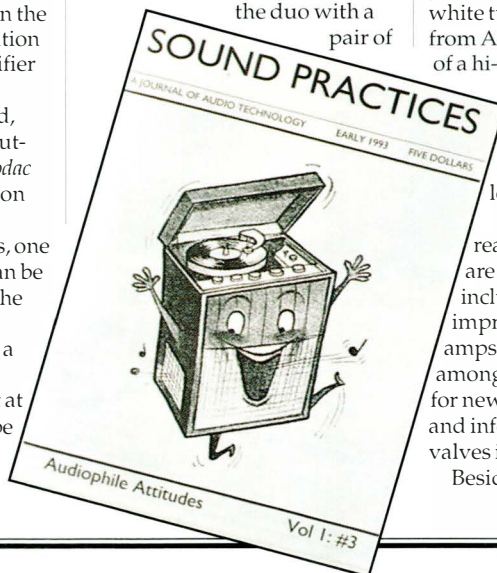
UNDERGROUND PUBLICATIONS

Sound Practices

Sound Practices, a professionally put together 36 page, black and white tube and horn fanzine from Alexandria, Virginia, is less of a hi-fi magazine and more of an enthusiast's forum — enthusiasts, that is, of serious valve amplification and horn loaded loudspeakers.

There's a lot of good, readable stuff on topics that are usually pretty dry, including how to build and improve gear such as *WE-91* amps and *Onken* bass horns among others, circuit diagrams and information about specific valves in *Meet the Tube*.

Beside this, there are philo-





For us,
 the realistic
 reproduction
 of music
 is the essential
 premise.

The critics agree.
 "The CD 52 Mark II SE
 may just be
 the biggest bargain
 in digital
 hardware ..."

Hi-Fi News, March 1993.

See your nearest dealer for a demonstration.

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CLEARTONE HI-FI	0204 31423
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PRACTICAL HI-FI	0282 33464
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PRACTICAL HI-FI	0524 396575
LEEDS	
SUPERFI	0532 449075
LINCOLN	
SUPERFI	0522 520265
LIVERPOOL	
BEAVER RADIO	051 709 9898
MANCHESTER	
BILL HUTCHINSON	061 839 8800
CLEARTONE	061 835 1156
PRACTICAL HI-FI	061 839 8869
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sophical, historical and most excellent pieces about all aspects of the subject. My favourite has got to be the hugely entertaining Vincent Gallo, an American-Italian who has contributed to two of the four issues so far.

His *Mono Mia* piece enthuses about the wonders of mono, comparing it to black and white photography and suggesting that, 'Stereo is like having to wear 3D glasses every time you go to a movie.'

And in *Forget About Amps*, where he sums up various output devices and configurations; 'I don't want to be heavy handed and declare that all solid state amps suck. But I have no choice because they do all suck', and 'Ahhh, Triodes. Che Bella, triodes. Wonderful, wonderful triodes', and then there's his finishing gambit on OTL (output transformer less) amps; 'I say OTL, schmo-TL'.

It's not all flippant, however. Herb Reichart's piece in issue one asks, 'How much and what type of information does one need to become involved in a recorded musical experience? CD has made this the most important question in audio. I am convinced that more information is better, BUT the quality of information is far more significant.'

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RECORD REVIEW ● RECORD REVIEW

Music by Gershwin, Gregson, Maw, Persichetti, Schoenberg. Cincinnati Wind Symphony; Eugene Corporon Klavier KCD 11047 (CD only), DDD TT:74:16

Music for Concert Band (winds and brass) has long been popular in America. And, through the pioneering efforts of Frederick Fennell's distinguished series of Eastman Wind Ensemble recordings for the Mercury label, popular with hi-fi enthusiasts too — especially those wanting wide-range material to demonstrate the sonic capabilities of their equipment.

A sizeable wind/brass ensemble makes a lusty noise, especially when augmented by a large percussion section. Dynamic range can be huge and the palette of tone colours enormous — from brilliant, biting trumpets to throaty growls from bassoons or tuba.

The present CD, one of nine featuring this ensemble on the Klavier label, offers a good spread of music from familiar pieces like Gershwin's *Rhapsody in Blue* (given in its original jazz band orchestration) to *American*

Games by English composer Nicholas Maw. Also included are Persichetti's *Symphony No 6*, Schoenberg's *Theme and Variations*, and Edward Gregson's aptly titled *Celebration*.

The latter gets the disc off to a splendid start, immediately establishing the high quality of the recorded sound. Bass is very deep and powerful, while the treble is open and airy, with plenty of space around the various instruments. The music has impact and body without sounding excessively close.

Dynamics are excellent. The recording gives a big sound with floor-shaking bass drum and ringing percussion. Yet the engineering never obtrudes; the sound is good because the playing

is crisp and clean, the recording team having simply captured everything without exaggeration.

Musically, the performances sound polished and expert, mature and assured, rather than brash or flashy. A large body of musicians are utilised giving a symphonic feel to events. Indeed, Gershwin's *Rhapsody* suffers slightly as a result, losing the cheeky abrasiveness one expects when the original jazz band version is performed.

The recording, made using Panasonic SV-3700 DAT machines, is among the most impressive examples thus far from this recording medium. Perhaps the

ensemble's next Klavier CD could be recorded using Pioneer's D-07 'Super' DAT recorder with its 96kHz sampling rate. Could be interesting!

Jimmy Hughes



LOUDSPEAKERS

Mordaunt-Short MS10

Mordaunt-Short's new budget price loudspeakers have dropped their predecessors' prefixes, the £130 baby of the range reaching well back into the M-S history book to call itself *MS10*.

However, the technical embellishments are all very much up to date, with moulded back and front panels, the latter including the basket for the 90mm plastic cone main driver. The brand new metal dome tweeter is now made by Mor-

daunt-Short itself, and a magnetically held mesh provides protection against transit and the under-fives, but can be removed for a sweeter and slightly brighter treble.

The overall cosmetics are a little demure, the baffle and trim arrangements favouring keeping the grille in place. The basic room measurements show an overall balance and sensitivity almost identical to one of my all time favourite miniatures — the *MS3.10*, which rated Best Buy way back in issue 78.

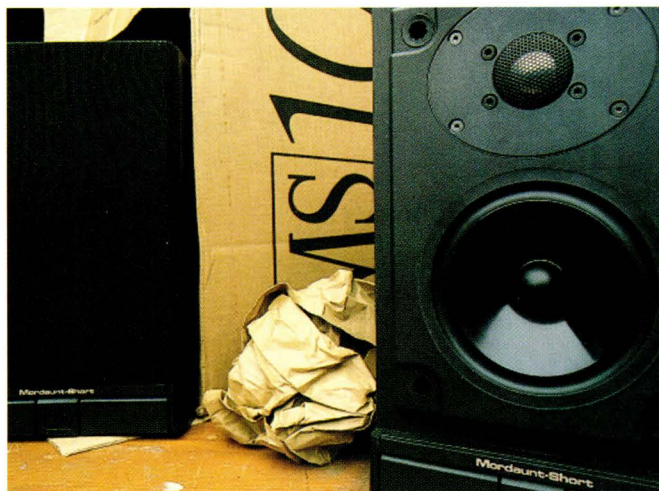
I don't actually prefer the

Will the Mordaunt-Short *MS10* be the next budget super-baby?

MS10 to the old 3.10, but the differences are much smaller and now very much a matter of personal taste. The new model is just slightly softer, fuller, sweeter and less aggressive, if mildly less explicit, and is probably the better overall compromise, especially from CD sources.

On the basis of my brief acquaintance with the *MS10*, I'm quite sure the it will get some sort of Recommendation in our next budget speaker group test. Indeed, it could well turn out to be the latest super-baby, and will certainly provide serious competition for the current budget market leaders.

Paul Messenger



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VERDICT

MORDAUNT-SHORT MS10

- ▲ Classy engineering; coherent; well balanced sound.
- ▼ Could have a touch more drive and drama.

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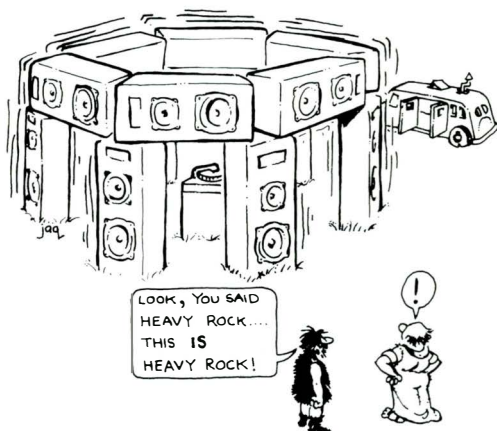
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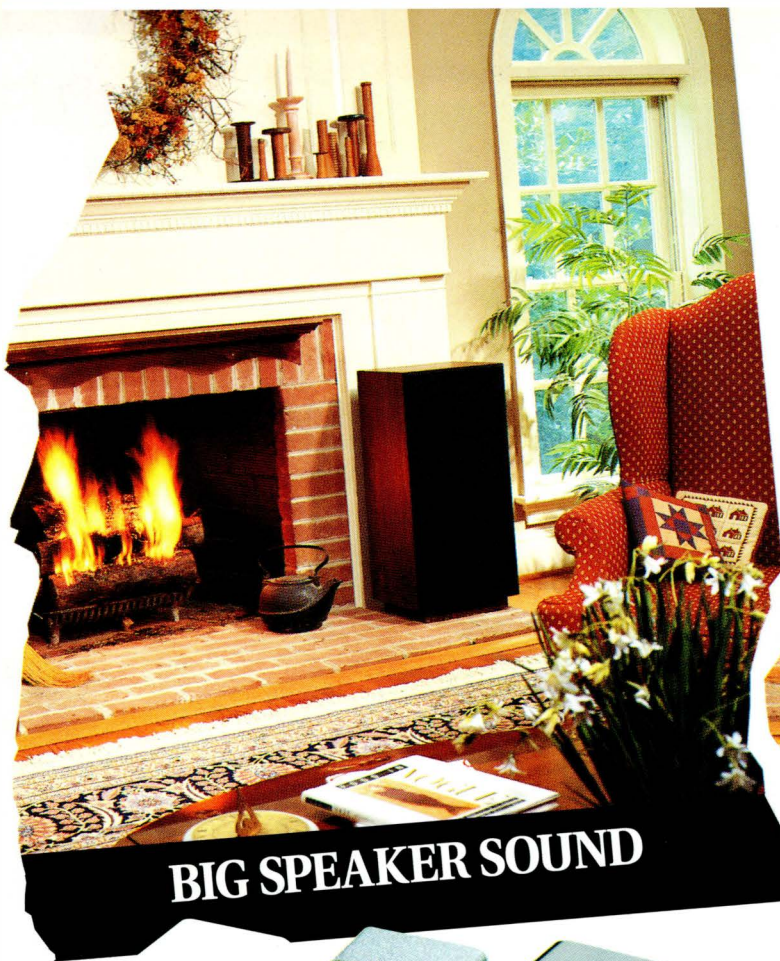
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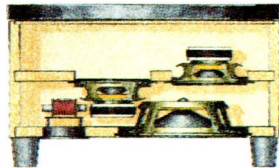
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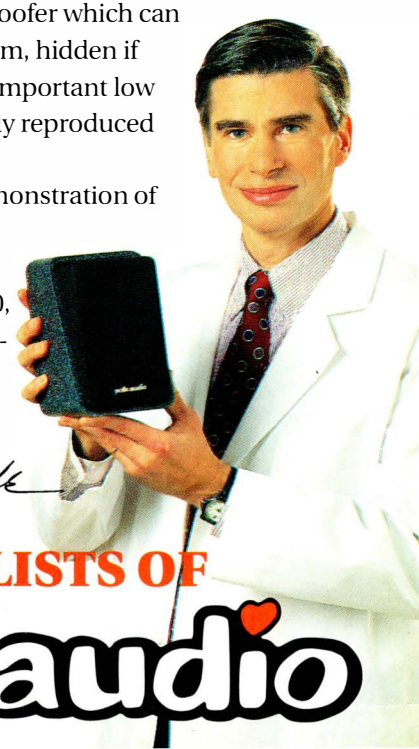
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Gamma Aeon

Valve amps come in a variety of guises; almost affordable, good looking and potentially awesome. Jason Kennedy has been trying one of the latter.

The £5,000 *Aeon* is the first product that Gamma has brought to the market place, and as you can see it's determined to make its mark. The *Aeon* is a monoblok power amplifier that employs a single ended, directly heated, 211 triode output tube.

The 211 tube is one of the most powerful and largest triodes ever created, yet because it has been in limited circulation for some time, only a few very costly amps, such as the Audio Note *Ongaku*, have used it. Now that the Chinese Gold Dragon brand is building the 211, several companies have introduced amps employing it and no doubt more will follow.

The true path

The *Aeon* is a large amplifier. It's longer than most equipment tables, even sitting sideways, and the 211 makes it unduly high. I had no choice but to stick with the pair of Seismic *Sinks* that Gamma brought along for support purposes. I also dabbled with the Goldmund power cables that accompanied them, but these had such a positive effect on the high frequency extension that I had to substitute something more mundane in order to keep things realistic.

I used the *Aeons* with a prototype Gamma preamp and the Audio Note *M7 Silver* that generally props up my system. I preferred the latter but the prototype made a good showing for something that hopes to retail in the region of £1,200. Sources were Voyd for black vinyl and Meridian 602/AN DAC 3 for silver discs, while the loudspeakers used were Audio Note *AN-E/SP* and Hørning *Agathon*.

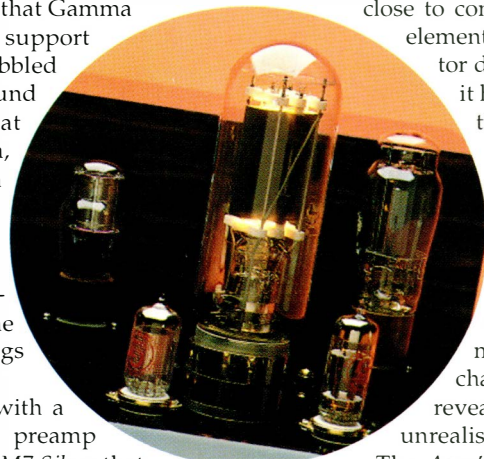
For some reason, the *Aeons* didn't get on with the *Agathons*, which was most frustrating as the two not only seemed made for each other in terms of balance, but appear to follow almost exactly the same philosophical path. The *AN-E/SPs*, on the other hand worked a treat, the combination proving one of the most exciting I have used.

Warts and all

Sonically, the *Aeon* is one of the cleanest and most open amplifiers I've used for a long time. Its ability to reproduce the air and space in recordings was quite extraordinary. And, unlike the few other amps that do this, it has got the welly to drive bass with clarity and control.

It revelled in live recordings, resolving the atmosphere and life of the event by creating three dimensional images that seemed to transcend the limitations of the listening room. The *Aeon* comes pretty close to combining the positive elements of tube and transistor designs in as much as it has the bandwidth of the latter and the dynamics and clean transparency of the former. It doesn't have the sort of low frequency grip that you get with big trannie jobs, but has more dynamic, less characterised bass that reveals texture without unrealistic weight.

The *Aeon's* transparency is of the gritty, warts and all variety, rather than the smooth, creamy sort created by other designs. This way you get a crystalline cleanliness at high frequencies and totally open midrange that lets everything through. It also has the speed that one associates with trannie designs, picking up the pace and driving music along



without having to resort to aggression.

In many respects, the *AN-E/SPs*, good as they are, weren't a perfect partner for the *Aeons*. I would dearly like to have tried the amps with Living Voice *Air Partners* or the *Sir Galahads*. An amp as clean as this combined with the dynamic capabilities of such speakers would be a totally huge experience.

All this and looks too

The Gamma *Aeon* is a welcome newcomer to the exclusive single ended fold. The design offers the sort of acoustic treasures that are usually the domain of far more expensive amplifiers. And it does so in a well finished, real wood veneered package. Gamma is to be applauded for this exciting new product. Let's hope those that follow it are of equal stature.

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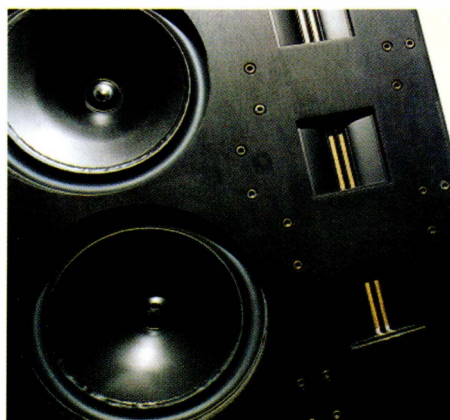


Townshend Sir Galahad

Loudspeakers, on the other hand, come in a variety of sizes; miniature, bookshelf, large and monstrous. Paul Messenger has been spending some quality time with yet another pair from the latter category.

As tall as the Python's Knights who say Ni, and a lot more expensive than a shrubbery, Max Townshend's *Sir Galahad* loudspeaker has been building a reputation among the UK cognoscenti as one of the most serious contenders around. Despite the price tag, £11,500, several pairs have now been sold, mostly overseas.

This review pair, however, is actually owned by ex-*Choice* editor John Bamford. He had so enjoyed a long sojourn with the



original SG prototypes, that he did much to talk Max into finalising the design for production. John then made sure he had the first pair by helping build them himself.

The *Sir Galahad* is a development of the engineering approaches seen in Townshend's earlier, simpler designs like the *Glastonbury* variations. Here, however, they're scaled up to an inordinate degree, to create an exceptional and unique experience.

I made no attempt to check the weight — claimed to be 150kg per unit. Though not the largest, this must surely be the heaviest single-box speaker system I've yet encountered. This is partly due to the large number of drivers involved, but also because the enclosure is a steel jacket thickly lined in plaster, giving an enviable combination of inertness and inertia. Only the steel baffle showed any noticeable vibration at high levels.

Standing 170cm tall, 54cm deep and

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32cm wide, finished in matt black, these coffin shaped objects are unlikely to slip into the background, but do have a certain monolithic magnificence. This is especially so if the steel plate baffle with 15 drivers, three flared ports and something like a hundred fixing screws are on view.

Line sources

The crucial difference between the *Sir Galahad* and a more conventional two-way model like the *Glastonbury* is not just the number of drivers involved, but also the geometry of their distribution. A two-way is fundamentally a point source (except usually just around the crossover point), whereas the *Sir Galahad* acts more like a line source (or rather, two line sources placed side by side).

The ultimate line source is the ribbon speaker which runs continuously from floor to ceiling, whereas the line here consists of a series of closely spaced sources. Using multiple sources does create interference lobes between the different elements, though these become less intrusive the further one moves away from the speaker itself.

A line source radiates sound very differently from a point source. The sound-waves grow from a point, like a spherical balloon being inflated, whereas the line source generates waves more like the inflation of a sausage balloon. This has two important implications which favour the line source.

The energy or intensity of sound falls off as one moves away from any source, but this happens more slowly (at a rate proportional to the square of the distance) from a line, compared to (a rate proportional to the cube of) the distance from a point. A line source therefore gives a much more even spread of relative loudness throughout the listening room — the difference between a lightbulb and a fluorescent tube.

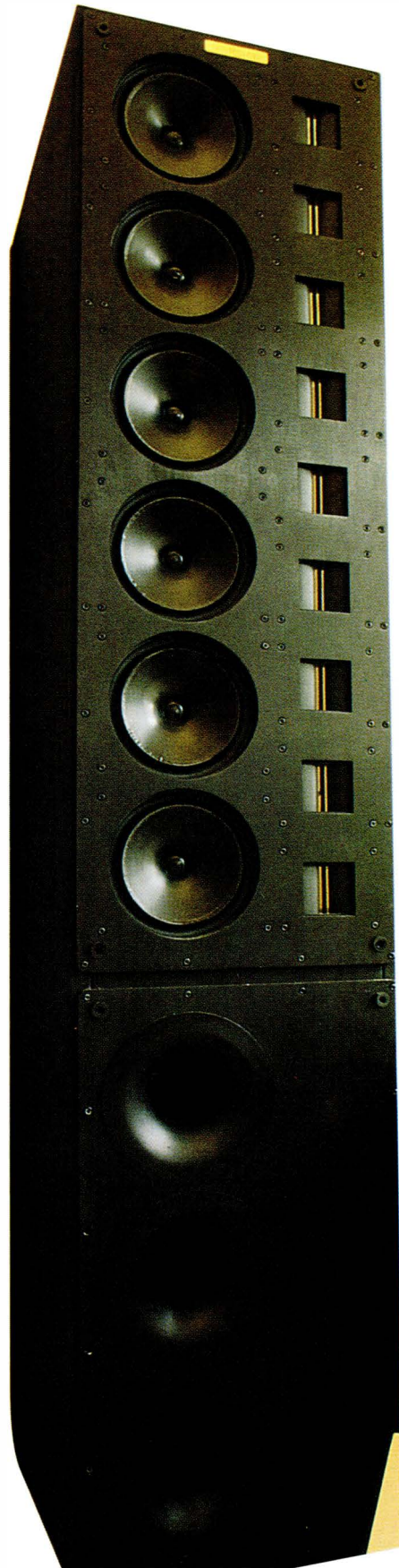
The other benefit is that because the sound is beamed out parallel to the line, significantly less reflects off the floor and ceiling to confuse the direct sound arriving at the listening position.

A drawback is that practical line sources fall short of the ideal. At a typical listening distance — head on the same height as the mid-point of the line — the path length from the top and bottom units will be significantly longer. This is sufficient to take the edge off ultimate phase coherence.

Sound quality

The fingerprint of the rather heavy and dull overall balance imposes itself on the sound, adding rather more character than is strictly desirable. This may be sufficient

to eliminate it from some audiophile shopping lists on grounds of personal taste, but it doesn't disguise the design's several very real strengths, or spoil what is otherwise one of the most fun loudspeakers I've yet encountered.



The really clever trick is the way the *Sir Galahad* has much of the stereo precision, phase coherence, delicacy and transparency of a panel speaker, but supplies this along with a bass end drive and bandwidth to match the very best boxes. This is rare, possibly unique, and sufficient reason alone to take such a behemoth very seriously indeed.

It doesn't grip the air and punch the transients with the sort of verve a full range horn can manage. What is an altogether more laid back experience is nevertheless distinguished by a superb impression of ease and great headroom reserves, and a dramatic yet natural range of dynamic contrasts. The lack of boxiness here is also quite remarkable, vindicating the massive construction, and giving an air and freedom that may be impossible to achieve with wooden enclosures.

I have to admit I found the very hot seat nature a trifle disconcerting, in the way the stereo soundstage perspectives shift about rather alarmingly with small head movements. But that is nearly always a by-product of speakers capable of ultra-precise imaging.

Conclusion

There's no such thing as a perfect loudspeaker. All is compromise between a host of variables. But if I were to attempt to list these different qualities, and apportion weighted marks in each category to the dozen or more contenders that have come my way this past five or so years, there's no question that *Sir Galahad* would be very close to the top of the list.

There are vices beyond mere aesthetics to be sure — it needs a big room for starters, the bass is rather OTT and the treble, er, UTT. But adjust to these by choosing partnering components with care and there's nothing I know which so effectively combines panel-type focus and imaging with top quality, full bandwidth driving monopole bass. The relaxing headroom, easy load and high sensitivity are just extra icing on the cake. In short, I fully understand why John Bamford talked Max into building them.

Postscript

Having discussed my findings with Max, he has been carrying out further experiments, into both the bass damping and the frequency at which the tweeter array comes in. Both these areas are apparently susceptible to some degree of fine tuning, which should further assist room and system matching.

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Arm wrestling

My system consists of a Roksan Xerxes turntable with XPS/11 power supply, Rega RB300 tonearm, Audio-Technica OC-7 moving coil cartridge, a Marantz CD-10 CD player, Musical Fidelity MVT preamp with P-270 power amp, and Acoustic Energy AE-1 speakers. I have a huge record collection and would like to upgrade the performance of my turntable.

The cartridge is due for replacement along with the arm. My difficulty is being able to audition exotic arms and cartridges within the context of my system. I have a budget of £2,000. Options include changing to an SME V arm with an Audio-Technica ART-1 cartridge, or perhaps a Roksan

Artemiz arm with Ortofon MC-3000 cartridge. The latter has a very low output, so would I need a step-up transformer? If so, would using it increase levels of hiss on phono? Would Roksan's Arta Xerxes phono preamp be a good bet?

Angus McLachlan, Rugby.

If you change to an SME V, you'll need to replace your Xerxes' top board for one with the correct cut out for this arm. Choose the Artemiz arm and you can fit it straight into the Rega RB300 hole.

In terms of finish and engineering the SME wins; it's a beautifully made product that sets fresh standards. But the Artemiz delivers crisper, cleaner sound with better separation and fine detail. Its unusual, decoupled 'intelligent' counterweight ensures an extremely clean, powerful bass and, being a Roksan product, it was designed with the Xerxes in mind.

Using a step-up transformer with a moving coil cartridge should result in less hiss rather than more, though hum pick-up can be a problem if sited badly. The MVT has a very quiet MC input and should certainly prove adequately silent with the ART-1.

The exquisitely subtle, refined-

Is the Roksan Arta Xerxes phono preamp a good bet for an Ortofon MC-3000 cartridge?



QUERY OF THE MONTH

Transform your CD player

My hi-fi system comprises the following; Linn LP12 turntable (Lingo/Trampolin/Cirkus) with Ekos arm and Troika cartridge, Arcam Alpha CD player, Naim NAC 72 preamp, Hi-Cap supply, NAP 140 power amp and Heybrook Sextet speakers.

The Arcam was a stop-gap purchase — it sounds okay provided you don't listen too closely. However, if you do, you become aware that the sound lacks depth, ambience and fine detail.

Am I looking for something that cannot be achieved with CD? I've auditioned the Linn Karik and Naim CDI, but both seemed to lack the 'welly' of my Arcam — though the CDI did give more air around voices and instruments. Do you have any suggestions?

I J Kellie, Haywards Heath.

When you run LP and CD side by side, it's essential to achieve some sort of parity in terms of performance. If either sounds significantly better than the other, you've got problems. Over the years, as Linn have updated the LP12 with various modifications — better power supply, new arm board, improved main bearing, glued subchassis, Trampolin support — they've made it sound tonally more neutral, more CD-like if you will. Yet there's still a certain naturalness about a good LP on a capable system that some people still prefer.

It's interesting you've not found either Linn or Naim CD players able to provide what you're looking for. Some aspects of the basic sound may be better, yet the fundamental issues aren't being addressed. If it's the squeaky-clean, antiseptic, matter of fact kind of CD sound you object to, adding a CD-line matching transformer might provide the result you're after.

This goes between CD player and preamp, isolating the two and filtering RF noise without

seriously limiting bandwidth. Moreover, a good CD-line transformer seems to impart a certain extra something — call it body, presence, depth — missing before.

The effect can be quite addictive, and helps give music the warmth, power, and added expressiveness of good analogue. Purists will object, but listen with an open mind and see what you think.

Alas, CD-line transformers have been difficult to sell in the UK. Dealers don't want to know, and few magazines have written about them. Help is on hand in the form of Audio Note, that still makes two CD transformers, the ANS1-CD and ANS2-CD, both costing less than £400.

Although radically different, Select Systems' Francin Stein, which introduces crosstalk in a similar way to vinyl playback, is still available and you may find this worth trying.



A

close your eyes and see



the Arcam Delta system

Close your eyes and see Arcam's Delta system of state-of-the-art hi-fi components.

Ignore the fact that the Delta 290 is our finest integrated amplifier, the recipient of a coveted Design and Engineering Award from the world's pre-eminent consumer electronics show, the Chicago CES. Don't be swayed just because the UK hi-fi press agree, giving it "a compelling and enthusiastic Recommendation"⁽¹⁾ and describing it as "an amplifier with real clout, able to deal with virtually any level of musical complexity".⁽²⁾

Next cast a jaundiced eye on the Delta 280 tuner. Again, disregard the pleasing aesthetics and the convenience of remote control*. Don't even be led by reviews revering its sound as "lucid", "warm" and "attractively open".⁽³⁾

Then, visit your scepticism on the Delta 270 CD player. "Solidly built", it "strikes a balance between smoothness and punch" to gain a class leading, 5 star recommendation.⁽⁴⁾

If that's not enough, take a sideways look at our remarkable two-box CD player, the Delta 250 CD transport and Black Box 50 DAC. "To justify their significant cost, two-box systems really have to offer that little bit extra in terms of sound quality; but Arcam's combination does just that - and more".⁽⁵⁾

Next, move on to the Delta 100 cassette deck. Try to dismiss once again its 1992 Chicago CES award and the reviewer who gushed, "In the beginning, I called for a round of applause for Arcam's bravery in producing a British-made cassette deck. At the end, I'm asking for a standing ovation".⁽⁶⁾

Finally, muster up your best disinterest for the "extraordinarily well engineered"⁽⁷⁾ Delta 2 loudspeakers, "a firm, positive sounding design with bold bass and mid and a firm grip on the musical architecture".⁽⁸⁾

In fact, ignore everything anyone else tells you. Ignore even what your eyes tell you is true. Just let your ears decide.

Just listen. Close your eyes, open your mind, and see the light.

1. Hi-Fi Choice. March 1993. 2. Audiophile. February 1993. 3. Audiophile. April 1993. 4. What Hi-Fi? Awards issue 1993. 5. What Hi-Fi? November 1993. 6. Hi-Fi World. April 1992. 7. What Hi-Fi? Awards. 1991. 8. Hi-Fi News Buyers Guide. November 1993
* CR.200 System Remote Control handset to operate all the electronics listed here is an optional extra.



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Q

sounding MC3000 may be too low in output for the MVT, but you might get away with it. Roksan's Arta Xerxes is very quiet indeed, but can sound rather bright unless matched with the right system.

Listen to Ortofon's Quasar, an excellent performer at a very attractive price giving crisp, clear sound, outstanding tracking performance, and a healthy output.

Lastly, try the Ringmat from QR Developments; although your existing felt mat works fine, you'll be surprised at the extra clarity and detail from this simple upgrade.

Quiet music to quell the studios academic

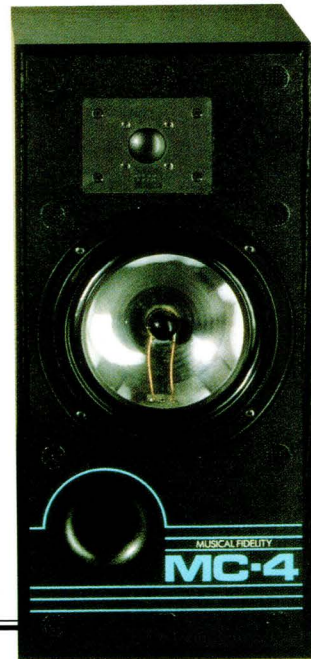
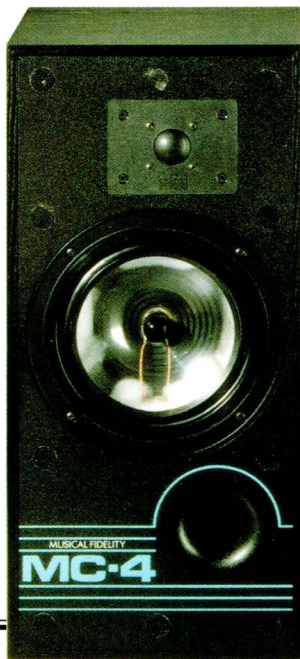
Living in a shared house I'm facing problems trying to upgrade my hi-fi. Thin walls and die-hard academics necessitate quiet music.

My current system — Rotel 956BX CD player, Pioneer A-400 amp, Musical Fidelity MC-4 speakers — sounds good, but only really opens-up when played flat out. I'm happy with the CD player, so I have £1,000 to spend on amp and speakers.

Gareth Phillips, Cambridge.

Lively articulate sound at low volume levels has much to do with

The DIY route to greater clarity — try Deflex panels in MC-4s.



Pioneer and Mission — is it the perfect match for any room?

speakers, and efficient (sensitive) types are usually better than those which take a lot of driving. Horn loaded speakers, with their high electrical and acoustic efficiency, can give lots of presence and detail at modest levels, but often tend to be rather large.

However, an exception is the new Impulse H-7, a full range floorstanding model little bigger than a typical compact speaker on a tall stand. These speakers are completely undamped — they have no internal wadding — which imparts an extra liveliness to the sound.

If you chose H-7s, the A-400 should be completely adequate. Another possibility would be a bit of DIY on your old MC-4s — try removing the internal wadding and see how they sound! For about £100 or so you could remove the

MC-4s' internal damping, replacing it with a set of Deflex acoustic panels (see Sessions, page 19).

Potentially this is a very cost-effective upgrade, and more likely to give the definition and clarity you want at low volume levels than many otherwise 'better' speakers that only sound right when driven hard. However, only consider such modifications if you're a reasonably capable handyman.

Room enough for floorstanders

I'm looking to buy a compact disc-based system with a budget of about £1,400. I have a choice of listening rooms — one 18ft by 17ft, the other 10.5ft by 9.5ft — and enjoy rock, jazz, and electronic music. As I want a big sound from floorstanding speakers, a pair of Mission 753s look as if they may be suitable.

Can you suggest a CD player and amplifier to compliment these? Alternatively, are there any good electrostatic speakers around the £1,000 mark? I want a system that produces good depth and fast, pacy rhythms with a clean top-end.

Kevin Corniah, Bognor Regis.

Given a budget of £1,400, it wouldn't be feasible to include a pair of electrostatic speakers, but the Mission 753s sound just right for what you want and should give a big, lively sound. The Marantz CD-52/IISE CD player is one of best CD players at £300, but auditions the slightly controversial

Pioneer PD-S802 and see what you think. Sound quality aside, the Pioneer is far better finished and sweeter to use than the Marantz.

Also worth hearing is the AMC CD-6 CD player, good and gutsy, with plenty of zip. Although a few years old now, Pioneer's A-400 is still a lively amp with good rhythmic drive and lots of pace. It's slightly more expensive brother, the A-400X, offers a cleaner, more refined sound, but lacks the A-400's sheer excitement. Spending a little more, Technics' SU-A900 offers impressive build quality, full-bodied clean sound, and the added advantage of remote control.

Whichever set-up you decide upon, experiment with the system in both listening rooms, as one may be more suitable for music replay than the other.



Don't get rid of the vinyl, just get a Thorens TD-115UK/RB250.

Revive the vinyl

My equipment is as follows; Thorens TD 115 record deck, NAD 306 amplifier, Technics SL-PG520A CD player, Sony ST-5505ES tuner, and bi-wired Tannoy 609/III speakers. My query concerns the turntable. I've enquired about replacing the cartridge (Shure M-75ED for LPs and Shure M-44 for 78s), but was told not to waste money and buy a new turntable. If you agree, could you suggest a good replacement turntable please?

John Windsor, Melksham, Wiltshire.

A

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Replacing your turntable would be a good option if records still represent one of your main sources.

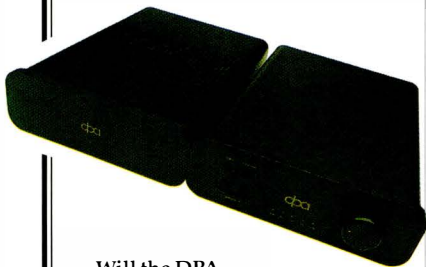
Audition the Rega Planar 2 and Planar 3, or the Thorens TD-166UK/RB250. Audio-Technica's AT-95E is a good cartridge at a reasonable price, and should sound much more open and lively than your old Shure. If something more refined is wanted, try Linn's K-5 or the Ortofon 510. If you do decide to upgrade your turntable, you'll lose the facility for playing 78s, so why not keep your old deck for just this purpose?

Get active!

I read *Hi-Fi Choice* regularly and find the answers to reader's letters very enlightening. However, I have never found anyone with my query, and discussions with friends and dealers have only added to my confusion.

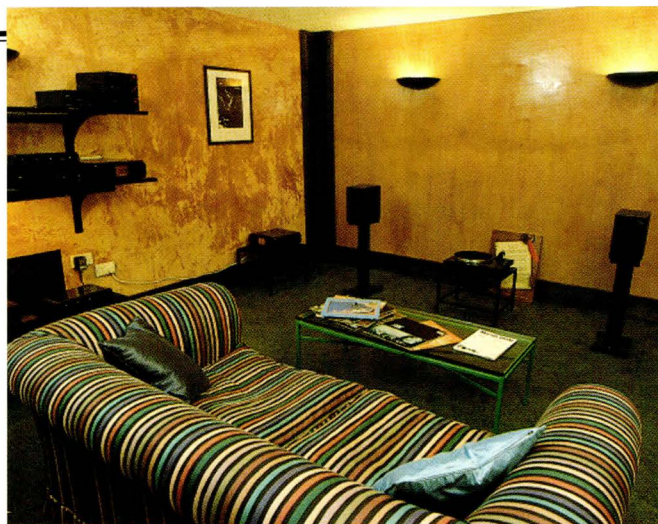
I have a Sony CDP-339ES CD player connected via its variable outputs to a Quad 606 power amp driving Acoustic Energy AE-1 speakers. I am thinking of buying a preamp so I can connect a tuner and cassette deck. I might even add a turntable at some future stage. Can you explain the pros and cons of passive versus active preamplifiers, and indicate the sort of differences I might hear?

Nick Kaloudis, Athens, Greece.



Will the DPA DSP-200S preamp sound better than a CD direct?

Adding a good active line-level preamp to your system could actually bring considerable benefits. Most CD players have insufficient output to adequately partner a typical power amplifier. You'll get an acceptable result in most cases, but the sound may lack bite and dynamics.



If your system lacks street cred — see a specialist!

Also, many CD players with fixed and variable outputs sound better on the former. Using a passive preamp — simply a volume pot and input selector switch — will give a slightly cleaner, smoother sound as well as the option of connecting other sources. However, there's a danger that sources like tuner and cassette may offer less output than the CD player, leading to insufficient loudness even at full volume.

A good active line-level preamp eliminates this problem. The Michell Argo would be an excellent choice, as would the DPA DSP-200S. Using a proper active preamp should result in a livelier, more immediate sound with wider dynamics and better fine detail. For those wanting to use analogue LPs, Michell make the Iso phono preamp as neither the Argo nor the DSP-200S have a built-in vinyl disc

Am I having fun yet?

Unusually, given the sort of letters printed in this section, I am actually quite happy with the sound of my present system — or at least I think I am. I read your excellent magazine from cover-to-cover each month and wonder what I'm missing.

My system has next to no street cred, consisting of a Dual CS505-3 turntable, Philips CD-630 CD player, Kenwood 5010 amplifier, Wharfedale W-40 speakers, and Furukawa FD-11 interconnects and PS-14 speaker cables. The speakers are large and quite sensitive (92dB), with a tone control. I suspect they're letting the side down, but I'm not sure.

The system can sound exciting, loud, and involving, but I wonder how detailed and revealing it really is. The point is; should I worry about the age and 'inferiority' of my

set-up? Are there worthwhile advances to be made? I listen to classical, pop, jazz and *The Archers*.

Rod Lane, Stourbridge, West Midlands.

Anyone with a wide experience of hi-fi systems in different locations knows that great sound can be had from some very unlikely combinations. We've all heard dire sounds from expensive, highly-rated components, and (on occasion) superb results from very modest set-ups.

Naturally, hi-fi mags tend to concentrate on the individual merits of separate components. But there's always an unpredictable element to be considered when putting a system together, and luck plays a bigger part in determining good sound than many experts would care to admit.

Your best bet is to listen to a varied range of systems playing music you know in order to ascertain how well they perform relative to what you're used to. Only then will you discover what (if anything) you're missing. Although you've pointed the finger of suspicion at

your Wharfedale speakers, these may not prove to be the weak link you suppose. So tread carefully before making any drastic changes. You may already have just the combination to suit both your room and your tastes.

Dunromin hi-fi

After a couple of decades working in various countries worldwide and collecting hi-fi piecemeal. I intend staying-put for a while and need help to make the most of my system.

It consists of a Rega Planar 3/Sumiko Blue Point turntable, Mission Cyrus 2/PSX amplifier, a Philips CD-850 CD player, and old (1976) KEF 104aB speakers on Sound Organisation stands.

The speakers have been modified but, alas, the sound from this set-up is dull, recessed and not especially life-like. My present budget cannot exceed £750, though extra funds will be available later in the year.

T L Barber, Sawtry, Cambridge.

Your old KEFs are almost certainly the weak link, their somewhat bland, tonally hard sound lacking sparkle and life. The new Impulse H-7 is a small, full-range horn-loaded speaker that is quite efficient and very open and lively. If you want a speaker with lots of pace and attack it's an excellent choice.

Mission 753s are worth trying too, likewise the cheaper Epos ES-11, and Castle Chesters. Get your speakers sorted out before considering other changes to the system.

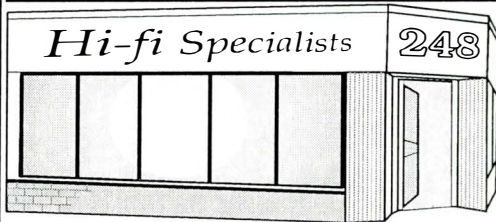
The Castle Chester speakers will breathe new life into a good system.



Billy Vee

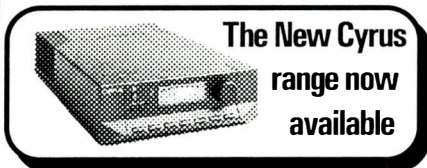
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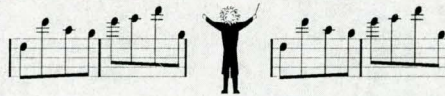


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Each month, we're giving away a fabulous *Hi-Fi Choice* sweatshirt to the writer of the most interesting letter.

So get scribbling and send in your views on anything to do with hi-fi or music to: The Editor, *Hi-Fi Choice*, 19 Bolsover Street, London W1P 7HJ, or, if you prefer, send a fax on 071-323 3547.

Wherefore art thou, ProAc?

A few months ago, I bought a pair of ProAc *Studio 1 MkII* speakers and a Mission *Cyrus 2* amplifier. I was told that ProAc is a good British company and that the *MkII* speakers are the latest version of the model, with a modified tweeter that sounds sweeter than before.

However, I was very surprised to find no mention of ProAc anywhere in your magazine. Is the producer of ProAc still in business and are the speakers as well appreciated as I was led to believe?

**Fulvio DeFazio,
Milano, Italy.**

ProAc is indeed a fine British loudspeaker company, still going strong and based in Borehamwood, just north of London. Our Reviews



ProAc; still alive and kicking, making loudspeakers from its Borehamwood base.

Editor has been using the company's Response One 'S' loudspeaker as his reference miniature speaker since its introduction, and has also used Studio 1 MkII speakers in the past.

You have not been ill-informed, as the tweeter in the MkII speaker was changed to a new soft dome, instead of the metal dome used previously. They will be a good match for the Cyrus 2. Ed.

References required

In issue 121, *Hi-Fi Choice* tested 17 amplifiers from £80 to £1,200 using a turntable that costs in excess of £2,000, a £3,000 CD player and a pair of speakers costing nearly £800.

In my opinion, this is ridiculous. If a buyer has £200 to spend on a new amplifier, he or she is hardly in the market to spend over £3,000 on a CD player. Products that receive cool reviews by *Hi-Fi Choice* have been reviewed more favourably in other magazines, using mid-price components.

A prime example is the Rotel *RA-935BX* amplifier, which was described as having a tight, agile bass in one magazine, but was considered by you to be bass light.

Of course, you will say that the individual should actually listen before buying. But people tend to look for the most competitive price, and the cheapest prices are often found in stores with no listening rooms.

Yet, even with the seriousness that reviews are taken, they are not relevant to what the hi-fi buying public wants. When an amplifier is bought for £200, it is rarely partnered with esoteric equipment, as used in your test.

**Ian Heffer
Hillingdon, Middlesex.**

The Hi-Fi Choice blind listening tests are intended as an absolute reference, showing what a product can or cannot do. If a piece of equipment is tested against a ref-

LETTER OF THE MONTH

Don't mess with midi

I have noticed a negative attitude towards the humble mass market midi system.

I believe that the value of a system can only be assessed by the way it manages to manipulate your emotions.

Plonk a CD in my Sony midi system and things soon begin to twinkle and shine.

I appreciate that the sounds produced by my set up will in no way rival those of a Nakamichi cassette deck or a Linn turntable, but by manufacturing mini and midi systems in addition to high-end separates, many quality manufacturers are making reasonably good sounding and attractive packages for those who cannot afford expensive systems made up of separates.

I think we have the best of both worlds — luxury separates for those who demand an absolutely faithful reproduction of their music, and compact systems for those

who require an enjoyable sound plus features at a reasonable price. I'm sure there are plenty of people at *Hi-Fi Choice* that disagree with me!

**Mark Chandler
Nottingham.**



In fact, we do agree with you, wholeheartedly. You mention your emotion-led method of evaluating a system. By the same token, our blind listening tests place

greater importance on a product's emotive abilities than its performance on the test bench.

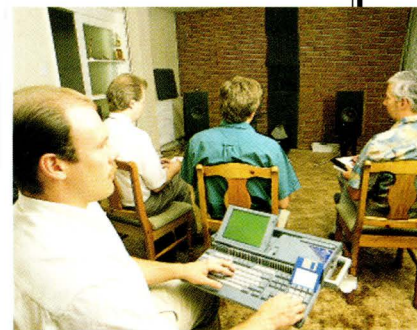
We are not opposed to midi systems per se. They offer a lot of facilities for the money. But the sound quality of the best systems, as you concede, seldom comes up to the standard of good separates. And we will always place sound quality above all other considerations.

The emotive reproduction of music is, after all, what you buy hi-fi for. In this sense, our treatment of midis and minis can be no different to the way we assess separates. Ed.

erence, then any shortcomings will be obvious, but these failings may not be as easy to notice when slotted into a less revealing system.

The Choice tests are the ultimate hurdle for any hi-fi product. Anyone reading them is safe in the knowledge that the product under scrutiny has been thoroughly evaluated.

But no matter how much you have to spend on a product, surely it's better to audition it before you buy. After all, you'd never buy a car before taking it for a test drive, would you? Alan Sircom, Reviews Editor.



Hi-Fi Choice's blind listening test panel in action. The tests represent the ultimate challenge for any piece of hi-fi.

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The second name to be pulled out of the hat will win the superb *Alpha 5* CD player, valued at £450. This comes complete with the *CR50* remote control, which can be used to operate the volume control on the £330 *Alpha 6* amplifier, the other half of the second prize.

Finally, the third prize winner will receive a totally excellent Arcam *Alpha 5* tuner worth £220. In order not to miss this opportunity of a lifetime, simply send in your entry now and who knows, you could soon be filling your living room with fine sounds, courtesy of those generous people at Arcam in Cambridge.

Questions

- What is the name of Arcam's up-market tuner?
a) Sigma 3 b) Delta 280 c) Alpha 5
- Where are Arcam products made?
a) Cambridge b) Carshalton c) Coventry
- What is the power output of the *Delta 290* amplifier?
a) 50W b) 75W c) 100W
- Delta* is the English translation of which Greek letter?
a) π b) δ c) β
- What sort of DAC is used in the *Delta 270* CD player?
a) multi-bit b) single-bit c) hybrid

How to enter

Write your answers to the five questions, along with your name and address, on the back of a postcard or sealed-down envelope. Please do not seal the answers within the envelope.

Send your completed entries to: Arcam Competition (HFC/0194), *Hi-Fi Choice*, Tower Publishing, Freepost WD7, Market Harborough, Leicestershire LE87 4AU. Entries must be received by first post on Monday January 24th, 1994.

Competition Rules

The Editor's decision is final and no correspondence will be entered into. Winners will be notified by post. The competition is not open to employees of Dennis Publishing Ltd, A&R Cambridge Ltd, their suppliers, agents or associates. The competition is open to UK residents only. No cash alternative will be offered. Submission of entry will be taken as acceptance of the rules. Proof of posting cannot be accepted as proof of receipt. Please notify us if you do not wish to be informed of any special offers or promotions.

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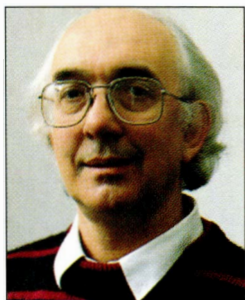
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Bands on the run at the Beeb

“Canned drama” my old teacher used to say, when dismissing the cinema as an art form. So far as I know, he wasn’t interested in music, otherwise he might have also said that hi-fi is nothing without live music.

Radio stations round the world have a tradition of keeping music live, by maintaining orchestras on a salary, and the BBC has been a shining example.

But at this year’s *Last Night of the Proms*, conductor



Barry Fox ponders live music’s fate on British radio as BBC orchestras face cutbacks.

Barry Wordsworth came as near as he could to a political statement from the podium when he told an audience of 90 million people worldwide how much he hoped the BBC would find the money to continue supporting the BBC Symphony Orchestra.

Wordsworth had good reason to be worried.

It is now three years since the BBC disbanded the Radio Orchestra, the light music equivalent of the Symphony Orchestra. Musicians from the BBC Big Band, which was part of the Radio Orchestra, were on the road at the time giving concerts and heard about the decision while watching television

in a pub between sets. The way the news was read the Big Band musicians thought they were also for the chop, but in the event, the BBC just sacked the strings and schmaltz sections.

A total of 450 musicians, in six house orchestras, were costing over £10 million per year. Despite this budget, said the BBC, our musicians “remain underpaid compared with the musical profession as a whole.” So, “in line with the corporate policy to employ fewer but better paid staff, it was decided to disband the BBC Radio Orchestra.”

The Director-General’s office then pledged that “the reasoning behind disbanding the Radio Orchestra is to release more funds to better the salaries and working conditions of BBC musicians generally.”

So what happened? Well, the BBC Big Band may have been better paid, but it too is now to be disbanded, probably next spring. Clearly, the band has long since seen the writing on the wall and has been laying plans to ensure its own survival. Ironically, it is just these plans which may have sealed the BBC Big Band’s fate.

By chance, I went to a recording of the BBC Big Band in early October, the day after its closure was announced. Conducted by Freddy Staff, it was taping

two half hour *Swing Affair* shows at the Golders Green Hippodrome. Signs round the theatre reminded people that *Radio Two* is “committed to live music”. Near the door there was a very low key effort to collect signatures for a ‘Save the Band’ campaign. I signed, but later wondered whether the BBC might not have a point in seeing the 18 piece band, plus leader, plus compere/vocalist, plus backup costs, as an easy cut.

Jeff Hooper did a very professional job both on compering and singing. The band was very tight. But each half hour show consisted solely of Hooper’s vocals, without any instrumentals. There were virtually no solos, just a snatch of piano and trombone.

Every number was a standard, closely associated with another singer. We had a medley of Nat King Cole hits, Mel Torme’s *Mountain Greenery*, Judy Garland’s *Trolley Song*, a couple of Matt Munro tributes and another medley of three Frank Sinatra songs (*I Got You Under My Skin*, *Come Fly with Me* and *New York, New York*). Some of the time Hooper was telling us how Freddy Staff had painstakingly ‘transcribed’ the original arrangements, as in Johnny Spence for Matt Munro. Other times it was painfully obvious that they were direct cribs (to wit Nelson Riddle’s arrangements for Sinatra).

Doubtless a lot of *Radio Two* listeners get a warm glow out of hearing a re-hash of tried and tested sounds. Audio buffs may like the strong clear FM sound of a digitally recorded session. But surely a good pick-up band of session musicians could have done the same palais job with just a few hours rehearsal? Why, you can hear the BBC accountants thinking, don’t we save money on the house band and just play the original old records instead?

The BBC’s line is that it will encourage the disbanded band to continue as a free-lance operation. So it will go out on the road and tour much like other repertory big bands, typified by Syd Lawrence. The big question now is how much work will the BBC put the Big Band’s way? Will it hire a repertory band that plays transcribed nostalgia, or will the BBC more likely simply play the original lo-fi records with the original bands instead of modern day hi-fi mimicry?

Sorry, but I’ll opt for the originals, although I’d willingly sign a petition for a band that did something new.

One of the UK’s top journalists, Barry Fox asks the awkward questions at press conferences all around the world.



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Bjorn again Brit

Alan Sircom treks north to the home of British artist Carl Cunningham-Cole, now resident in Sweden, to look over his hi-fi and ceramics and to be made dizzy by reverberating echoes.



Pottering away in Sweden, Carl Cunningham-Cole has created a unique lifestyle.



Candle light adds to the creative atmosphere of the sumptuous Scandinavian style living areas.

The Brit abroad is a strange beast. The species has evolved and there are now many varieties, from the exotic and almost extinct *Great Hunter* and *Old Colonial* to the migratory *Common Psycho* and *Torremelinos Beach Boozer*. Most expatriates retain a thick layer of eccentricity, which helps endear them to the local community.

Carl Cunningham-Cole is one such example. A ceramic artist, his work is proudly displayed in the head offices of the better known Swedish multinational corporations, such as SAS, Saab and Ikea. It also features in collections as diverse as that of the Chicago Institute of Fine Art, Denmark's Silkesborg Museum, Reading Museum and the Museum of Modern Art, Baghdad.

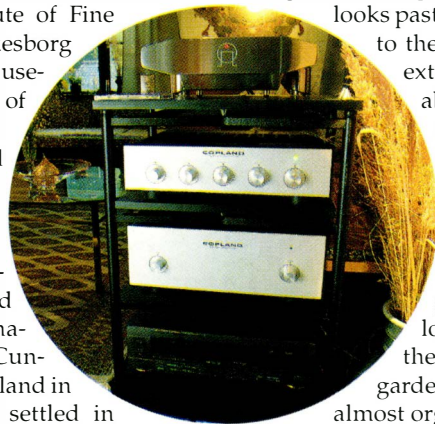
Having been picked out as one of the shining stars of ceramics in the early sixties when, at his first major exhibition, his work stood toe to toe with Miro, Chagall and Picasso, Carl Cunningham-Cole left England in 1964, and eventually settled in Sweden. In the interim period, he has lived all over the world collecting 11 languages on his way. Carl is not the easiest man to interview, as these languages quickly form a 'word pool' when he becomes animated.

His large house — "in Winter, we sometimes play badminton in the attic" — is in the heart of Swedish glass country. His vast

living room, around eight metres square with an alcove the size of a spare bedroom, shows that Carl Cunningham-Cole is far removed from the image of the struggling artist. Lit by a combination of candles and low-key lighting, the large room is a tribute to the restrained luxury of modern Scandinavian living, with soft, low sofas and a huge log fire, surrounded by silvered stars and planets on the ceiling.

Carl is the living embodiment of all things sixties, a quixotic Lord Byron, who looks past the material trappings, to the person beneath. He is extremely enthusiastic about absolutely everything, and demands the same enthusiasm from all whom he associates with, which makes his house rather like a kindergarten, with people looking starry-eyed at the fish tank, the maze-like garden and, above all, the almost organic-looking ceramics.

I expected Carl's hi-fi system to be as avant-garde as his ceramics, but with Carl, you soon learn to expect the unexpected and, contrary to my expectations, his system proved a rare beast in that it is reliable, simple to use and looks extremely elegant. It sings the praises of Scandinavian design, with top-notch products creating an inviting and capable sound.





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Sitting atop the Italian Solid Steel equipment support is the understated elegance of Bo Christensen's Primare 204 CD player, which plays music with a deft, yet subtle and easy going touch. The 18 bit, eight times oversampling one box player is styled like something from a science fiction film and costs nearly £5,000 in the UK. With studded remote control and heavy, powered top loading CD drawer, the Primare 204 operates with as much grace as it has style.

The 204 is connected — with some silver Audio Note cable — to a Copland CTA 301 valve preamplifier and CTA 504 valve power amplifier, as tested in last issue's *Statements*. Again built to superb standards, the Copland combination is made within an hour's drive from Carl's house and has a feel of solid reliability. This is allied to a sound quality that balances solid, powerful, almost transistor-like qualities with most of the warmth and grace of the classic valve sound.

The amps are more than a match for the tall, floorstanding QLN Artec loudspeakers, which cost £4,900 in the UK. These flagship models feature a line array of bass and treble units, in a manner reminiscent of the massive Townshend *Sir Galahads* tested in this issue. The two speakers are similar in many ways, in that they are both imposing designs that would dominate all bar the largest of rooms. The Artecs use conventional drive units and match Carl's room and his taste in mainstream rock music beautifully. Finally, the system is rounded off with a Fisher CR-W9040 twin tape recorder, but this is used very infrequently.

The idea of changing any part of the system is abhorrent to Carl. He has

The sound of Echo Tower

Sweden is not known for its drunken debauchery. Until very recently, all alcohol was heavily controlled by the government and even today punishment for drunk driving is more severe in Sweden than anywhere else. This makes the nightlife in the small, quiet Southern towns far from exciting. It seems that all that's left for the average Swede is Moose-hunting and glass-blowing. However, the scenery is some of the most stunning in Europe, and the hand-blown glass is fascinating.

Aside from the glass, the ceramics and the *Twin Peaks*-like countryside, one of the most understated tourist attractions in central Sweden is a water tower in the town of Växjö, less than an hour from Carl's home in Småland. The tower itself is discretely signposted and looks like the largest, most dismal bandstand ever seen. But beneath the legs of the tower lies a freak of acoustics.

Whether it's designer's folly or a happy accident is unclear, but the combination of a bright, reflective concrete floor and semi-circular roof make it the absolute opposite of an anechoic chamber, with a reverberation time of about 20 seconds directly underneath the tower. The local government of Växjö have thoughtfully installed a set of large, rusting chimes, rocks and a wooden fence, for visitors to make lots of noise with.

It's best to be led silently into the centre of the chamber under the tower. Gradually, the echo of footsteps get louder and speaking becomes a strange but fascinating adventure in reverberation. Eventually, like the anechoic chamber, the odd spatial effects from the constant echo interferes with the inner ear's ability to balance and it sends you dizzy — and probably crazy, if you stayed in there long enough.

become attached to it, and is especially enthusiastic about the finish of the Artec loudspeakers. During the course of my visit, the conversation turned to a pair of piano lacquered speakers that were seen in a shop in Malmø. Within seconds, Carl launched into a tirade of abuse towards any company that didn't use whole trees in the production of speakers — a view that's thankfully alien to an increasing number of manufacturers.



The Primare 204 CD player sits above the Copland amps helping to create the elegant, refined sound in this well balanced system.

After listening to Carl's system, it's easy to see why he has become so attached to it, as it's every bit as smooth and refined as its appearance. Normally, hi-fi systems try to impress by doing one of two things: bludgeoning the listener with a relentless wall of sound, or making a performance sound so laid-back that the music is lost in a sea of woolly noise. Occasionally, a system will tread the difficult middle path and shine by not over — or under — stating the music. This is one of the strengths of a good Audio Note system, and one of the key aspects of Carl's system.

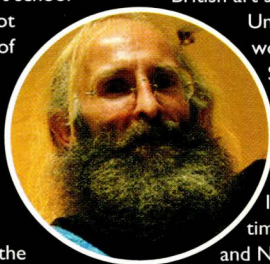
Although, ultimately, Carl's hi-fi lacked some of the ability to breathe with the music in the way that a really well-balanced set-up can, both Carl and his system are perfect ambassadors for the Scandinavian hi-fi industry. Carl's sheer enthusiasm pervades everything he touches, and his system reflects this love of life and art. It is both elegant and refined sounding, yet without being so refined that it suppresses the music.

A potted history

Carl Cunningham-Cole was born in Farnham, Surrey, in 1942. By the age of 15, his talents had come to the attention of the Torquay School of Art, and from 1957 to 1962, his art school training took him to Newton Abbot and, finally, to the Central School of Fine Art. He also became an assistant lecturer at Exeter College of Art.

Throughout the early sixties, Carl pursued the conventional career path, with exhibitions in Teignmouth, Bristol, and a stint representing young ceramists at the British Craft Centre in a major exhibition during 1964. Following this, his work was featured in a travelling British Ceramics exhibition that toured Tokyo, Copenhagen, Melbourne and New York.

Carl was subsequently offered an industrial course at Stoke-on-Trent, but from here, he



began to move away from the commercial art movement. About 30 years ago, Carl met the influential ceramist Christian Poulsen in Copenhagen and, soon afterwards, he moved to Sweden, expressing some disgust toward the British art scene at the time.

Until 1967, Carl concentrated on his work, with shows all around Scandinavia, including a permanent display in Arhüs, Denmark. The late sixties and early seventies, however, saw Carl broadening his horizons and travelling the world. In particular, he spent a great deal of time in Africa, the Middle East, India and Nepal.

He returned to Britain briefly in 1978, to lecture at the Central School of Fine Art, before embarking on a tour of the USA, China and Japan. Although he has continued to travel the world, the last decade has seen Carl mostly at his own Algutsboda Galleri, developing his unique style of ceramics.

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CD-interactive

The joy of CD-i

You may not have heard much of Philips CD-interactive (CD-i) since its launch, but the arrival of movies on CD looks set to boost CD-i sales, according to computer technology expert, Tim Ponting.

Ask a group of 20 'early adopters' (a marketing term for people who go out and buy new gadgets before asking their wives' permission) what a CD-interactive (CD-i) player is and you'll be faced with 17 blank looks, a couple of people who vaguely recall that it's a CD player that also stores pictures and a chap who thinks it's a video game console.

So let's get this straight. CD-i is based on conventional CD technology; it plays audio discs. It also plays special CD-i discs which store pictures, animations, data and audio all mixed in together. With the aid of a few com-



How a CD-i movie works

puter chips, all this information on disc can be manipulated in an interactive way using a remote control sitting in your hand. So, for example, there are interactive encyclopaedias available crammed with pictures, text and video clips; golf games in which you control the player's swing, and so on. The new CD-i technology is also Kodak Photo-CD compatible. In other words, you can take your 35mm films into Boots and get them developed onto a special recordable CD which can be viewed using your CD-i player.

Until recently, Philips was hampered by a lack of understanding of who might want to buy CD-i and why, poor games software, and an unrealistic pricing policy. In fact, it didn't have much going for it at all. Even the early adopters looked blank and asked their wives if they could buy a computer instead.

So what's changed? First, there is a new add-on cartridge available for all CD-i players that allows them to play Digital Video (or Full Motion Video). This effectively means feature films on five inch CD. Secondly, at long last Philips seems to be getting its latest software right, especially the games. And finally, the basic CD-i player now costs just £400.

Digital video

It's the so-called DV Cart that has really caught the public imagination. In principle, it's simple; in practice, it's fiendishly complex. Full Motion Video requires the delivery of at least 25 frames per second to the screen. In order to fit an acceptable amount of digital video and audio data onto a single CD, and deliver it at such a rate that you don't have to increase the speed at which the CD spins, you either have to reduce the picture quality to such a level that is to video tape what a knitting needle is to a diamond stylus — or you have to compress the data.

The only way this can be achieved is by using clever computer programs to encode the video and audio in such a way that it takes up a fraction of the storage space it did when uncompressed. The technique most commonly used to achieve this is called MPEG-1 (named after the Motion Picture Experts Group who cooked it up).

It's unbelievably complex, but MPEG-1 achieves the 200:1 reduction in the amount of storage space required by recording just a list of the differences between frames of video, rather than the frames themselves. The downside of all this is that there is a loss of picture quality, since the encoding technique involves visual compromises. Up to 74 minutes of Digital Video can be stored on a single CD using MPEG-1, and the leading consumer electronics companies have agreed a stan-

dard format known as Video CD for discs encoded in this way.

Much debate centres around whether Video CD gives results as good as VHS video tape. Film studios, with the exception of Paramount, refused to believe MPEG-1 was up to the task. From what I've seen, Video CDs played back on a DV-equipped CD-i player give results roughly on a par with VHS tape in terms of picture quality, though I have heard many opinions to the contrary. Rumour has it that other film studios are soon to follow Paramount's lead, which suggests industry opposition to MPEG-1 is crumbling.

The good news is that although the decoding end of Digital Video is a standard set in stone, the encoding techniques — which are what determine picture quality — are improving all the time. If DV is as good as VHS tape now, it should get better as the encoding facilities worldwide refine their techniques. Furthermore, the audio quality from DV discs is very good, comparable with that of DCC though not as good as conventional CD.

In other words, for the home cinema buff who is sick to death of poor surround sound results from video tape but who can't afford to upgrade to Laserdisc, DV should perform more than adequately through a Dolby Pro-Logic surround sound set-up. Not to mention perfect freeze frame and slow motion, indexing and all the other benefits of a digital medium.

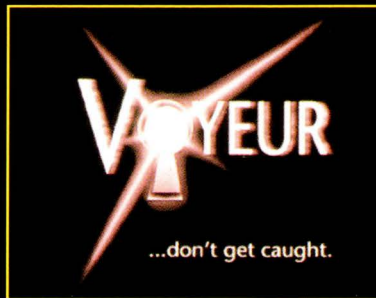
The new software

Interactive CD-i software to date has been fairly lacklustre; pretty games which don't feel as good to play as cheaper video games and worthy education titles that the market just wasn't interested in. But a new breed of CD-based software is appearing, with Philips converting titles from computer CD-ROM formats to CD-i and throwing in a fair few of its own.

Watch out in the New Year for *The 7th Guest*, a DV game in which you wander around a ghost infested house that is so beautifully rendered, it feels like you're really there. *Microcosm*, a DV game due next spring, features animation that was put together on the same computers used by George Lucas' studios to create the dinosaurs in *Jurassic Park*.

Ironically, the title that gives the biggest clue to the future of interactive DV games doesn't actually use the DV cart at all, although it contains a great deal of partial screen digitised video using clever pro-

CD-i stands for Compact Disc-interactive, which allows 5in interactive graphics discs to be played alongside conventional music CDs. The latest CD-i machines can also be fitted with a Digital Video cartridge, to play movies and advanced games. Conventional CD players cannot be converted to CD-i specifications.



Voyeur is the first interactive movie to be produced on CD-i...



You're in control, as your video camera spies on a corrupt political candidate...



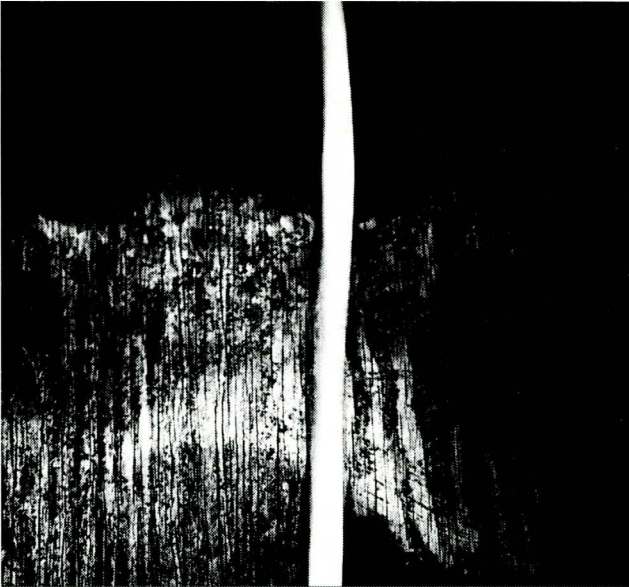
All the live action was shot against a blue background...



... while the scenery is computer-generated, to save disc space...



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To make sure you're getting the best from your system, all you have to do is pop into your local participating dealer and borrow an AudioQuest Home Demonstration Kit for a few days. (As you'd expect, the dealer may need you to provide some form of security.) The Kit contains full instructions for a home audition. Then, sit back and listen to your favourite music using different combinations of the AudioQuest cables, to see which gets the most noticeable improvement in sound quality from your system. We believe you'll be so impressed that you'll rush straight back to your dealer and buy them!

Of course, you may find that your existing cables are perfectly adequate. In which case, simply return the Demonstration Kit to your dealer - there's no further obligation. At least then you'll be sure that the sound you're getting from your system is everything it could be.

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Making your own music video

The record label Rhythm King has shown the music industry a new direction with an interactive CD-i sampler of the work of five of its bands. Utilising the Digital Video cart, it is an esoteric mixture of music videos, audio tracks with slide shows, and limited interactive soundtracks. For example, during one of the tracks, a mixing desk appears on screen that allows you to alter the mix of the drums, guitar and vocals in real time while the track is playing. It's like *The Chart Show* gone mad.

There are two reasons why CD-i music video could take off. In the first place, artists are looking for ways of breaking out of the linear music video straitjacket. Also, interactive CD offers almost unlimited opportunities for the music industry to hike up software prices.

The CD-i DV roster

OUT BY DECEMBER:

Top Gun, Naked Gun II, Patriot Games, Hunt For Red October, Fatal Attraction, Star Trek VI, Ghost, Black Rain

OUT IN 1994:

Indecent Proposal, Wayne's World

Non-interactive music videos

OUT NOW:

Andrew Lloyd-Webber, *The Premier Collection*;
Bon Jovi, *Keep The Faith*

OUT BY END OF DECEMBER:

Sting, *10 Summoners' Tales*

OUT IN 1994:

Lionel Richie, *Back To Front*;
Pavarotti, *The Essential...*

INXS, *Live Baby Live*;

Bryan Adams, *Waking Up The Neighbours*;

Interactive titles

OUT NOW:

Cartoon Carnival, The Joy Of Sex, Voyeur, A Child Is Born, Food Of France, Nature Under Threat, Ultimate Noah's Ark

OUT BY END OF DECEMBER:

Little Monster At School, Mindquest, Pulse, Shipwreck,

The Wacky World Of Mini Golf, Time Life Astrology

OUT BY SPRING 1994:

Asterix, Dino's Quest, Earth Command, Littil Devil, Mega Maze, Microcosm, Phantom Express, Secret Name Of Ra, Solar System, Soundtrap, Striker, Surf City, The 7th Guest, What's It Worth, World Of Rhythm, King

Films and non-interactive music videos, £15.99 per title. Prices for interactive titles vary.

DV cartridge required for all titles.

Release schedule given above remains subject to last minute changes.

gramming techniques. In *Voyeur*, you're staked out in a building opposite the home of a dodgy presidential candidate, gathering evidence to bring him down. Through your telephoto video camera lens, you watch film clips that vary depending on which window you're looking through and the time of day. The film company involved, Propaganda Films, is rumoured to be working on a full DV title for release next year.

The CD-i line up

The final element of the CD-i equation that Philips has got right is the pricing. At £400, the new *CDi 210* is not far adrift from a decent standalone CD player, but with the addition of all the extra goodies that interactive CD offers. The DV cart, however, is an extra £150. Without it, you will not be able to watch films, play *The*

7th Guest, discover *The Joy Of Sex* or take in the latest Bon Jovi music video.

Philips is committed to keeping the price as low as possible, so expect a new machine with DV built in sometime next year for less than £550, the current cheapest combination price.

At long last, Philips has a package that is worth marketing. The addition of DV brings CD-i right up to the cutting edge of interactive entertainment. But Philips, sadly, has a remarkable record for shooting itself in the foot, shin, knees and anywhere else you care to mention.

Will the company sell loads of players in 1994? The current crop of TV ads would tend to suggest not, proudly proclaiming 'Philips invents for you', without explaining what they've invented actually does. Is the buying public expected to work it out for themselves?

EXCLUSIVE TEST: Philips CDi 210

Before Digital Video was released, we were assured that picture quality would be up there with VHS tape. Up there? Would it really be that bad? Given manufacturers' propensity to indulge in hyperbole, would it even turn out that good?

It was with thoughts like these that I finally unwrapped the *CDi 210*, slotted in the DV cartridge (basically £150's worth of memory) and sat down to watch early copies of two of the first completed discs — *Black Rain* with Michael Douglas and *The Hunt For Red October*, a submarine caper featuring Sean Connery.

These were both NTSC films — the first true PAL titles are only surfacing as I write — but the distinction between NTSC and PAL is much subtler than with older forms of video software.

In the event, I was knocked out. I had only seen one such film previously, *Top Gun*, under rather adverse conditions. It was good, very good, but the shortcomings were not hard to see. Changes of scene sometimes seemed to momentarily faze the system, detail taking on a coarse, blocky appearance before and after the transition. Then the player would catch up, leaving an excellent picture which was both clear and noise

free, and essentially unspoilt by cross colour effects such as colour fringing in areas of fine detail.

These two new titles confirmed that even in the short period since *Top Gun*, mastering standards have improved. Now, on-screen quality was clearly superior to VHS tape in those areas most viewers put first, namely graininess (video noise) and picture stability, which is almost to broadcast standards.

Video noise was often completely absent, but there was some low level granularity as the bit allocation was concentrated on fast moving action. Picture transitions were handled better too. The level of detail was a little disappointing — little better than video tape — but the range of colours, especially the subtler colouring associated with skin tones, was marvellous, rivalling Laserdisc or (again) broadcast standards.

Sound quality is somewhere between MD and DCC standards, though closer to DCC. Again, on the robbing Peter to pay Paul principle, the pool of bits allocated to the sound changes dynamically, and there were times when the soundtrack seemed threadbare and lightweight. At other times, it was indistinguishable from a decent DCC or CD. In any event, the good phase behaviour of the system paid off in explicit, stable imagery and clear directional effects with Dolby Pro Logic.

Alvin Gold



Philips latest *CDi 210* CD-i player, complete with Digital Video cartridge. Is this the future of video, as we know it?

The CD-i line-up

<i>CDi 210</i> ,	£399.99
<i>CDi 220</i> ,	£449.99
(with Comptons Encyclopedia or four games)	
DV cartridge	£150.00

(All of the above will play DV movies if fitted with DV cartridge.)

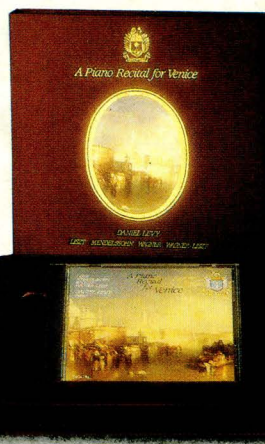
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 **SONS**



On test: loudspeakers

This is the first example of a new approach *Choice* is taking to the review programme which forms the heart of the magazine. The move to the current A4 page size and monthly schedule some five years ago has made the magazine much more flexible, but we've hitherto largely retained the 'single topic' main review group for each issue.

Thrice a year we'd cover some twenty-five pairs of speakers at a time, taking a pretty random selection priced anywhere from £70 up to around £2,000 per pair. The very size of the group made it quite representative of the market as a whole, but it also rather dominated the magazine.

The new plan is now to run speaker reviews more often, on smaller and more tightly focused groups of models — an approach which will reflect rather more accurately the choice a buyer has

to face. The review procedures themselves remain precisely as before, maintaining continuity with our existing database which currently includes well over two hundred models.

The group

This particular test covers eight

results from these will also require the services of a decent pair of stands (which should set you back around £100).

The heavyweights are four very competitively priced floorstanders, which initially look much better value than their bookshelf counterparts, especial-

reviews will hopefully bring out.

Ultimately, a good biggun should outclass a good littlun — but it should also cost one heck of a lot more money. If costs are pegged to a £400 limit, the manufacturer has the option to spread his engineering relatively thinly over a large multi-driver system, or more thickly on a compact little two-way. In this group, for example, B&W has had a bite at both cherries.

It's also no coincidence that the two smallest models (Mission and Lumley) are also the prettiest, simply because some of the money has gone into cloaking (or part cloaking) their modest enclosures in real wood veneer.

The Mission 751 was actually part of our last group test (issue 122), but showed a worrying lack of consistency between samples. Our decision was to re-test it completely four months later, after giving production (and

Paul Messenger has been taking a look at four stand mount speakers and four floorstanders in his quest for the best buys between £300 and £400.

models between £294 and £412, which embrace a surprisingly wide range of physical sizes and configurations.

In the 'small is beautiful' corner there are four 'bookshelf' size/shape models. To get good

ly as no stands are necessary.

But speaker choice has never been a matter of looking for the biggest box for your bucks. There are all sorts of compromises involved which are not immediately obvious, but which our

quality control) time to settle down. Well, that was the plan anyway.

Both Mission and Lumley are 'luxury miniatures', with small high-tech main drivers and elaborately engineered small enclosures of less than 10 litres volume. Such designs inevitably lack the bass power, extension, sensitivity and loudness capabilities of larger models. However, they often give a very good in-room balance when mounted quite close to a wall. Moreover, the small main cone will usually make a better match with the tweeter up in the vital crossover region, while small cabinets introduce much less coloration.

The Aura and Tannoy models are also stand-mount designs, but roughly twice the size. This 14-20 litre box is the archetype 'bookshelf' size, but in practice a bookshelf is the last place they should be sited. There is more bass output than from the miniatures, but this all too readily translates into midbass boom if placed too close to a wall.

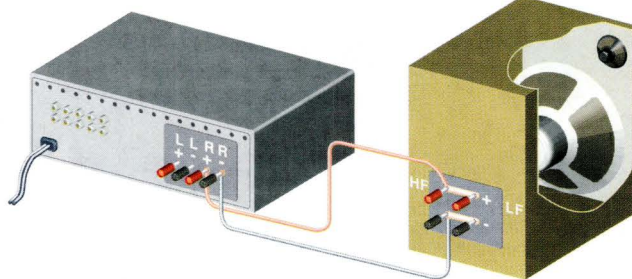
These two examples balance best when brought out two or three feet into the room and placed on decent stands, with the potential for a cleaner midband than any wall-mount design.

Much the same is usually true of the two compact and two not-so-compact floorstanders in our test, though the lack of fresh air under the main driver is not an advantage. These are often based quite closely on standard bookshelf size models, but with the enclosure re-tuned and extended down to the floor to obviate the need to use a separate stand.

Doubling or trebling the enclosure volume will theoretically improve bass extension, but will also double or treble the enclosure surface area, which is a major source of coloration.

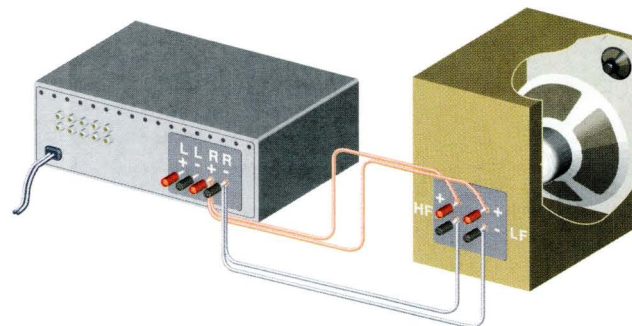
Floorstanders use their extra volume in various ways. Some have extra drivers (TDL), others passive radiators (B&W). Some just blank off the lower part of the cabinet (KEF), sometimes allowing it to be filled with sand and/or lead shot to mass-load the whole structure for stability.

Most nowadays are fitted with floor-spikes — though these are often poorly seated, so don't over-tighten the lock-nuts, and rarely match the long-footprint stability of a proper stand.



Correct phase

Conventional single wired connection between an amplifier and bi-wirable loudspeakers, with bridges across the speaker terminals. It is important to make sure the positive output on the amp is connected to the positive terminal on the speaker in order to maintain absolute phase.



Bi-wiring

Bi-wired connection between amplifier and bi-wirable loudspeakers. Two cables are connected to each terminal on the amp which go to the individual bass (LF) and treble (HF) sockets on the speaker. Again, it is important to connect positive to positive and negative to negative to maintain absolute phase.

How the listening was done

A crucial component in *Hi-Fi Choice* reviews is the blind panel listening test, so called because the panel (of five people) is unaware of the identity of the model under audition.

The speakers are installed a pair at a time behind an acoustically transparent curtain, on sites predetermined from the measurements to give optimum in-room balance. Each undergoes a half hour presentation, covering as broad a range of music and speech as possible, split evenly between vinyl and CD.

Care is taken to try and match the relative volume of each loudspeaker, though differences in frequency balance, bass extension and room drive unavoidably get in the way; grilles are removed wherever possible to take account of the mild influence of the black net curtaining.

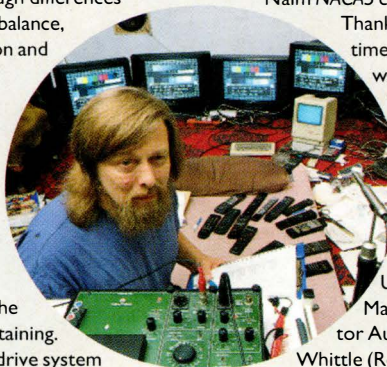
The main drive system

comprises Naim amplification (NAC52 and NAP135), backed up by Linn and other alternatives. Vinyl disc sources include Linn *Sondeks* with Naim ARO and Linn *Ekos* tonearms, Linn *Arkiv* and Audio Note *IO* cartridges. CD replay came from Linn *Karik/Numerik* and Naim *CDS* players, most mounted on Mana isolation tables.

Bookshelf loudspeakers were mainly used on Linn *Kan*, Foundation *Designer*, Heybrook *HBSI*, Epos *ESI 1* and Slate Audio stands. Most of the work was done with Naim *NACAS* cable.

Thanks to all the time and hard work put in by the panel:

Jason Kennedy, David Jeffries (Tannoy), David Inman (van den Hul UK), Robin Marshall (Monitor Audio) and Andy Whittle (Rogers).



What the lab tests mean

Every speaker has a distinct frequency balance which says much about the way it sounds. Given that there's no such thing as a 'flat' loudspeaker, this is a sonic fingerprint, showing which parts of the audio range are emphasised and which are short of relative output level. Measurements are made with the speaker close to a rear wall and a metre out into the room; intermediate positions produce intermediate degrees of midbass reinforcement.

The measurement is made in the same room as the listening tests, using a far field technique averaged across seven microphone positions (after Colloms). The disadvantage of adding the room characteristics to those of the speaker is offset by the true relevance of this approach to the real world situation, especially as a large database of comparative information has now been built up.

Since low frequencies especially are heavily modified by reflections and room modes, a perfectly flat straight line is not expected. Nevertheless, the ideal balance should be as flat and smooth as possible. Gentle variations are preferable to sharp discontinuities, prominences are more irritating than dips, and a gentle high frequency roll-off is very common and usually sounds perfectly natural.

The same traces are used to derive the relative sensitivity of the speaker, which is a guide to how loud a speaker will sound for a given amplifier volume control setting. In our case it's a deliberately conservative figure, averaged across the broad midband. A 3dB increase in sensitivity means that the speakers will sound twice as loud for the same volume control setting of the same amplifier.

The qualification is the loudspeaker's impedance. A 4ohm loudspeaker will actually be drawing twice the current (and hence power) as an 8ohm design for the same volume control setting, so its true sensitivity in terms of electrical energy conversion efficiency is actually 3dB less.

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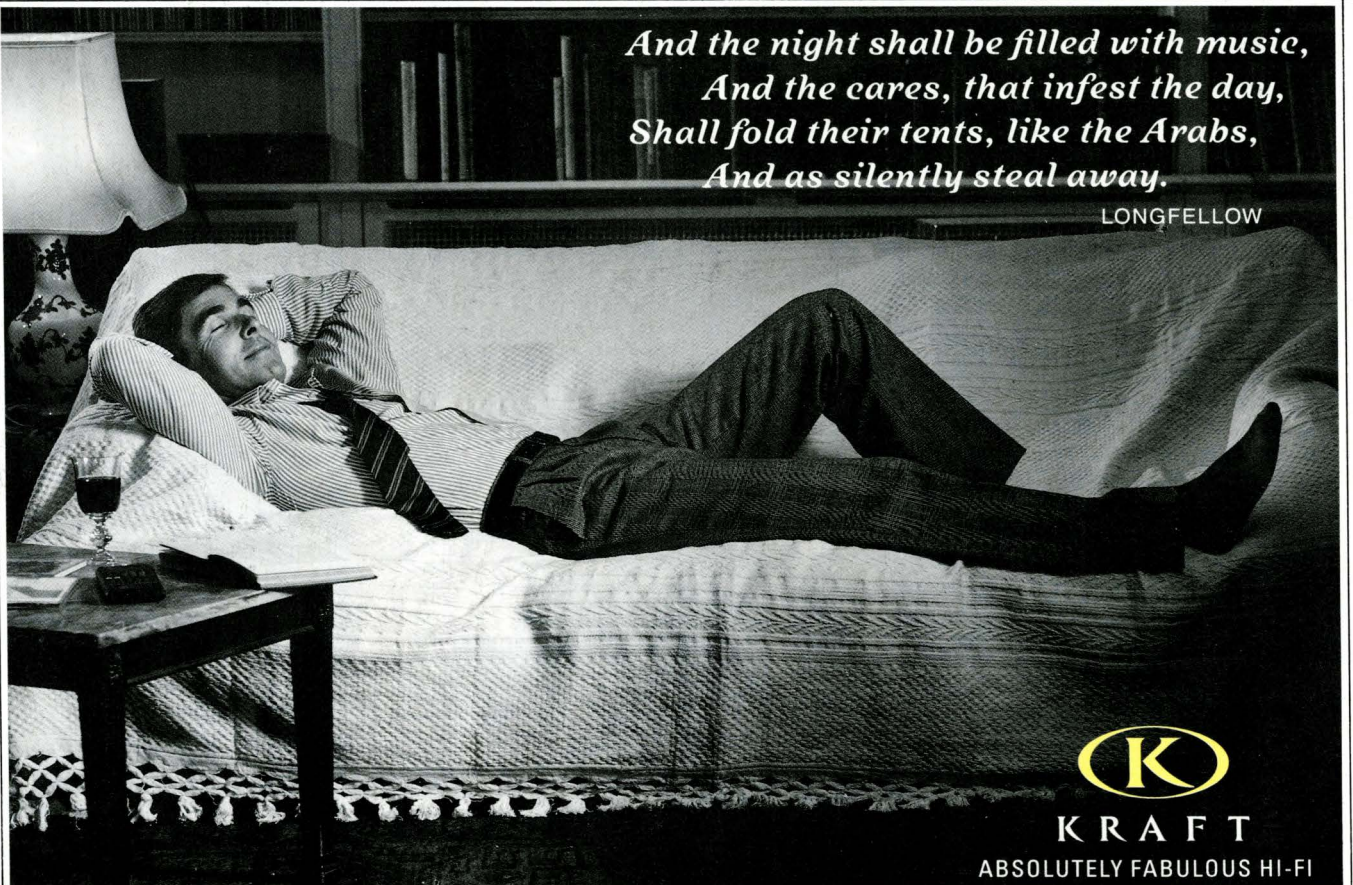
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Shall fold their tents, like the Arabs,
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Aura SP50



This debut loudspeaker under the Aura brand gives B&W an opportunity to exercise its design skills in a rather different framework from its normal mass- and upmarket contexts. Aura is a specialist electronics brand which has grown rapidly since B&W took over a few years back, so adding a speaker or two to go onto the end of the chain is a natural enough progression for the brand.

Looking at the £399 SP50 reminds me a little of B&W's own super luxury £4,500 *Silver Signature* compact, which I'm sure has provided some influence and inspiration. The accompanying press release makes all sorts of unlikely claims for the Aura's effortless superiority, but does draw particular attention to the advanced nature of the drivers.

Subsequent inspection and audition made it abundantly clear that these vital ingredients in the whole mixture are very much unsurpassed at this £400 level. The main driver has a rigid yet unobstructive cast alloy frame, plus a 120mm carbon fibre reinforced cone. The 26mm metal dome tweeter is claimed to be derived from that fitted to B&W's £3,500 801 studio monitor.

Compared with the attention lavished on the drivers themselves, the rest of the package is a shade disappointing. External finish is black woodprint vinyl — better than some, but still vinyl for all that, although the extravagant can pay an extra £180 for 'black mirror' finish. The rebated drivers are held in place by far from tight and distinctly feeble woodscrews, which would certainly risk tearing the 19mm chip-board panels if properly tightened. The wrap is reinforced by a double figure of eight brace, and the box is lined in thick acoustic foam. A PCB crossover is tag connected to the drivers

and bi-wire terminal block. The port is carefully flared at each end to minimise turbulence.

Sound quality

The SP50 was not a particular favourite with the listening panel, partly because its rather dark and hooded balance tended to put the panellists off on first acquaintance. More extended, sighted listening revealed considerable treble delicacy and clarity, tending to con-

VERDICT

- ▲ Fine drive units are capable of great clarity and delicacy when used in the right system.
- ▼ Bass and balance are both a little suspect; pricey for a vinyl speaker box.
- ▶ £399.95

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

firm the manufacturer's claims, but the lack of relative level remains a deterrent.

The midband too is impressively clear, giving fine voice reproduction and good insight into the different characteristics of various recordings. But the bass is less convincing, lacking somewhat in pace, dynamics and poise. It also sounded somewhat heavy and poorly co-ordinated.

Conclusion

This Aura speaker does have two fine drive units, but overall the package is a shade disappointing. It doesn't really match the more mainstream B&W for value, although the rather shut in balance could suit some tastes and systems, and the treble has some beguiling qualities.

B&W Loudspeakers Ltd., Marlborough Rd, Churchill Ind Est, Lancing, W. Sussex BN15 8TR.
☎ (0903) 750694

LABORATORY REPORT

Size (hwxwd)	40x21.5x25cm
Weight	8.5kg
Recommended amplifier power	20-100W
Recommended placement	stands, 1ft from wall

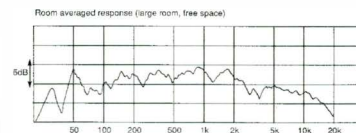
In room averaged response limits	
50Hz-10kHz	±4dB
Large room space LF roll off (-6dB ref midband)	30Hz
Large room/wall LF roll off (-6dB ref midband)	28Hz
Large room output at 20Hz (ref midband)	-15dB

Estimated midrange sensitivity (ref 2.83V, 1m)	87dB
Impedance characteristic (ease of drive)	good

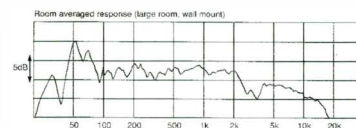
Our far-field in-room measurements confirm overall performance parameters which are pretty typical for the size of enclosure and main driver. The impedance represents an easy load for Aura's amplifiers, though the sensitivity is just a shade below average.

Decent bass extension — slightly better, ironically, than for B&W's floorstanding 620i — is achieved through a combination of the lowish (65Hz) driver/box resonance and even lower (40Hz) port/enclosure tuning.

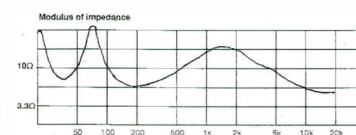
The bass is also well aligned for real rooms, achieving the smoothest net response about one to two feet out from the wall, whereupon the whole range from 60Hz up to 2.5kHz falls within an impressive plus or minus 2.5dB window. However, the crossover notch, 2.5 to 4kHz, is rather obvious, and the overall treble level is at a slightly lower relative level than the market norm. This means that the net energy over the upper decade (two to 20kHz) is significantly down.



Balance a little mid-forward and upper bass light from walls; treble rather restrained.



Balance is midbass heavy if tight against a wall; try 1-2ft out for best bass balance.



Impedance is an easy load for the amp; port here is tuned to around 40Hz.

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B&W DM620i



B&W's original 620 was awarded Best Buy status when reviewed way back in issue 94. This was for several reasons, the most important being that this was a genuine and quite beefily built floorstander at a very modest price (£299). The most obvious criticism was that no spikes were fitted for proper floor coupling.

Three years later and B&W has attended to the latter, but somewhat at the expense of the former. The new DM620i now costs £399, 33 per cent more than before. It's still a good value package to be sure, but not quite as obviously so as before.

Combining the inevitable vinyl wood grain with an attractive combination of chamfered, textured grey plastic trims all the way up the baffle means the styling still looks contemporary, although the box shape is a shade dumpy, defined by the size of the main driver's 155mm plastic cone.

The lower part of the apparent main drivers is an unpowered drone cone, which in practice acts as a very well behaved reflex-ported system. The box is a real toughie, built up from 18mm chipboard throughout, with the baffle reinforced by an equivalent depth of plastic moulding, and the wrap by a double figure of eight brace. All is lined in thick foam.

The main driver (and drone) are blessed with cast alloy frames and plastic cones, which are fixed primarily to the plastic sub-baffles by half a dozen rather flimsy screws. The tweeter has a 26mm metal dome and annular phase compensator, and both drivers are tag connected to a printed circuit board crossover

that is fed from bi-wire terminals.

Sound quality

Despite a split vote and quite wide polarisation of opinion, the 620i scored well in listening tests, with particular praise for the clarity,

VERDICT

- ▲ Lots of speaker for the money; particularly fine mid-to-treble balance.
- ▼ Bass tuning is slightly suspect; drive and analysis are similarly questionable.
- ▶ £399.95

SOUND QUALITY
■■■■■□

VALUE FOR MONEY
■■■■■□

coherence and integration of voices, and near-tactile midband imaging.

The down side, however, is rather indifferent bass quality. The adjectives 'plummy' and 'boomy' cropped up on several score sheets, along with general criticism of limited dynamics and murky low frequency resolution. That said, it still sounds quite powerful with a fair turn of speed and drive, and delivers high levels without signs of stress.

Conclusion

I'm not convinced the new bass alignment is an improvement, but a proper set of spikes is certainly welcome. The price hike is pretty hefty, but the 620i is good value nonetheless.

B&W Loudspeakers Ltd, Marlborough Rd, Churchill Ind Est, Lancing, W. Sussex BN15 8TR.
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LABORATORY REPORT

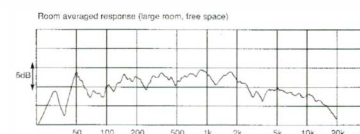
Size (hxxwxd) 77x23.5x32cm
Weight 14kg
Recommended amplifier power 15-120W
Recommended placement well clear of walls

In room averaged response limits
50Hz-10kHz ±6dB
Large room/space LF roll off (-6dB ref midband) 40Hz
Large room/wall LF roll off (-6dB ref midband) 30Hz
Large room output at 20Hz (ref midband) below -17dB

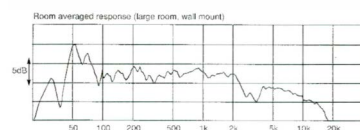
Estimated midrange sensitivity (ref 2.83V, 1m) 89dB
Impedance characteristic (ease of drive) quite demanding

The outline parameters show that the basic 620i is very similar indeed to its predecessor, although there are subtle changes in the bass unit alignment. Sensitivity achieves the same generous 89dB rating, while the load presented to the amplifier is now a little easier through the important midband. There's now a little less energy through the main midband (200-500Hz), which leaves the mid peak around 1kHz rather more exposed, while at the same time the ultimate bass roll off is slightly more abrupt.

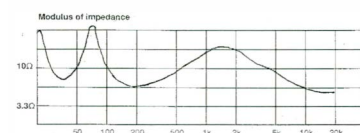
Bass limitations apart, the overall in-room balance is very good, provided the speaker is kept well clear of walls. The slight 1kHz prominence and broad but shallow subsequent presence depression are bound to add just a touch of character over and beyond strict neutrality, but only a touch, while the relative treble level would seem particularly well judged to supply openness without undue aggression.



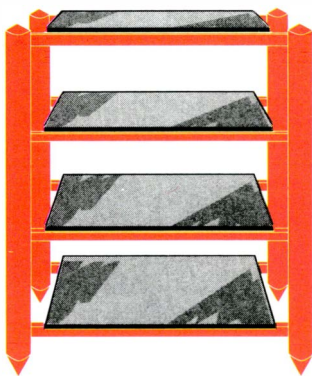
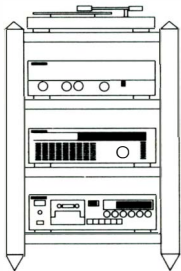
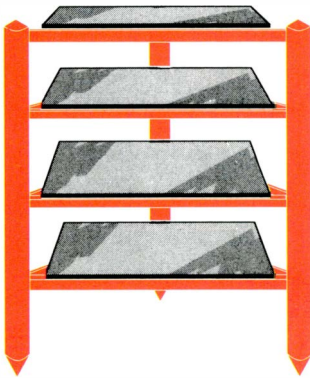
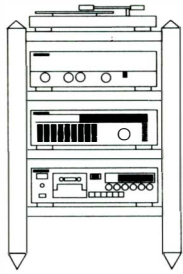
Bass is less extended and 50Hz richer than before but presence and treble well judged.



Boomy midbass indicates that this is not a wall-mount loudspeaker.



Impedance is a little demanding, especially at high frequencies.



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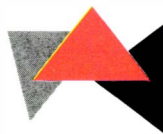
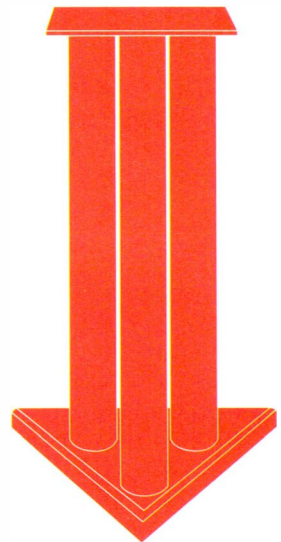
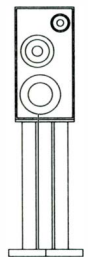
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KEF Q30



This £360 Q30 is in the middle of three new, near budget price models. Each one features KEF's unique Uni-Q coaxial driver which places the tweeter deep in the main driver, giving greater directivity control (Q), especially through the crossover region. The compact floorstanding box is slim and deep with attractive front aesthetics. The single main driver has a small 115mm cone (and integral 19mm tweeter) plus reflex-tuned port.

Although the box sits directly on the floor, only the top 16 litres act as an acoustic enclosure; the bottom third is effectively a stand. So what looks like a competitively priced floorstander is really no more than a bookshelf size box with an expensive integral stand, in the context of the similarly driven, smaller £200 Q10.

An adequate spike kit is supplied, was fitted, auditioned, and even matches the illustration in the colour leaflet. But KEF has some reprinting to do, as the plastic plinth designed for the Q50 is now to be supplied with the 30. This will help the value balance, but you'll have to pay another tenner for the optional spike kit.

The box is built up from 16mm vinyl woodprint chipboard, and is lighter than the other floorstanders in the group. Although the bottom section of the cabinet is blanked off, there's no provision to add mass loading — DIY is always possible. The magnetically shielded, pressed frame driver is surface mounted with three woodscrews and disguised beneath a trim ring, but you'll want to leave the (two) grilles and trim strip in place in order to hide

all eight of the ugly looking mounting lugs.

Sound quality

The Q30 fared better in the blind rather than sighted listening sessions. The good overall bal-

VERDICT

- ▲ Pretty curved front aesthetics; fine focus and good basic balance of sound.
- ▼ Lacks grunt, drive and drama; upper treble frequencies are also rather lacking.
- ▶ £360.00 (inc spikes)

SOUND QUALITY

■ ■ ■ ■ □

VALUE FOR MONEY

■ ■ ■ □ □

ance with slight mid-forwardness certainly gives a good impression, and the fine, stable stereo focus provides vindication for the Uni-Q approach. Yet there is some cabinet coloration and timesmear, plus a weak, droning bass.

The new plinth seemed to improve things a little, especially in terms of focus and general stability, but it didn't transform this speaker's basic dynamic constraints and its fundamental lack of grunt, grip and drive.

Conclusion

The Q30 is a respectable speaker at a respectable price. It's a pretty package with exceptionally good focus, but a rather feckless dynamic performance that lacks excitement and inspiration.

KEF Audio (UK) Ltd, Eccleston Road, Tovil, Maidstone, Kent ME15 6QP. ☎ (0622) 672261

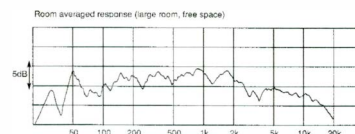
LABORATORY REPORT

Size (hwxwd)	73x19x29cm
Weight	10.5kg
Recommended amplifier power	20-80W
Recommended placement	2ft from wall
In room averaged response limits	
50Hz-10kHz	±4dB
Large room/space LF roll off (-6dB ref midband)	44Hz
Large room/wall LF roll off (-6dB ref midband)	30Hz
Large room output at 20Hz (ref midband)	below -16dB
Estimated midrange sensitivity (ref 2.83V, 1m)	88dB
Impedance characteristic (ease of drive)	quite demanding

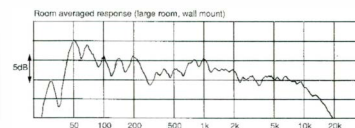
The measured performance looks respectable enough, with a decent 88dB sensitivity rating which doesn't inflict cruel or unusual punishment on the partnering amplifier. However, the absolute bass extension is pretty puny for a floorstander, even a small one like this, partly because the main driver is small and the port tuned to a highish 48Hz, but also because the full volume of the box isn't used acoustically.

The in-room responses clearly favour bringing the Q30 out a foot or two away from walls if midbass boom is to be avoided. Do this and the overall trend is a touch mid-forward, peaking up a little at around 900Hz and falling away very gently immediately thereafter, and rather more determinedly above 8kHz.

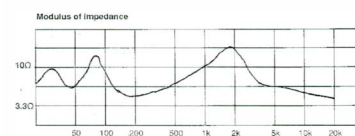
However, it's not a very even response. Although the overall limits are quite tight, there's quite a bit of up and down along the way, through the midrange as well as the presence regions.



Bass and treble are both a bit shy, giving a rather upper-mid dominance (900Hz peak).



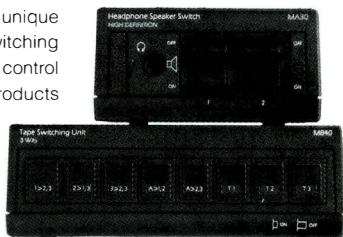
Close-to-wall site leaves midbass exposed; try them 1-2ft out for best balance.



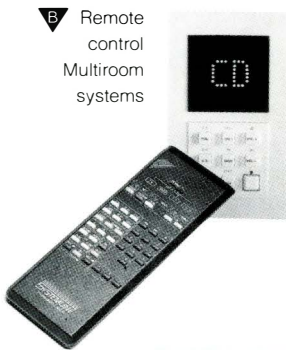
Trace dips quite low in midband and treble, so amp should have fair current reserves.

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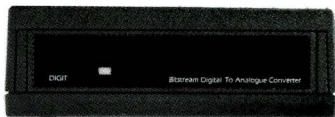
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Lumley Monitor Ref 4



The Lumley brand is rather better known for valve amps than loudspeakers, the connection being through John Jeffries' Reference Imports operation, which handles Lumley amp marketing and which has re-branded its own *Reference* range of loudspeakers for consistency's sake.

It's a much smaller operation than the other manufacturers in this group review, but that need not be a disadvantage, given today's high quality OEM (original equipment manufacture) suppliers. Indeed, if you add up all this model's audiophile brownie points, it comes close to the top of the class. Which is as it should be, given that this pretty little near-miniature sells for a not insubstantial £375.

The main driver has a metal cone, which until recently has only been available on a handful of very upmarket models (for example Acoustic Energy and Monitor Audio). That there is now an all-metal diaphragm speaker for less than £400 is itself notable, although that's not to imply that metal is necessarily superior to other more widely used materials. Ultimately, how a material is used is at least as important as the material itself.

The enclosure is beautifully finished in a real light oak veneer (walnut, mahogany or black alternatives) on all six faces. One distinguishing feature is an extra polished black raised section which covers the three quarters of the baffle around the rebated drivers; another is a dinky little lozenge-shaped grille, to keep the delicate ceramic-coated metal diaphragm away from prying fingers.

The box is ported at the rear and built up from substantial 18mm MDF, further reinforced by a cross-brace and well stuffed with fibrous damping felt. The drivers are bolted in place, rare at this price level, allowing them to

be kept well tightened (even if they weren't when I tried them). The main unit has a small (90mm) cone, pressed frame and decent magnet, while the tweeter uses a mesh-protected 25mm dome. Both are fed from high class bi-wire terminals and a hard-wired crossover.

Sound quality

The balance — or rather, the lack of it, see Laboratory Report — proved this Lumley's

VERDICT

▲ Pretty miniature boasts all the luxury trimmings at a very realistic price.

▼ Suspect balance: mid lean; upper-mid forward; treble light; midbass strong.

▶ £375.00

SOUND QUALITY
■ ■ ■ ■ □

VALUE FOR MONEY
■ ■ ■ □ □

nemesis in blind and sighted listening tests. There were regular complaints of splashy sibilants, and accurate observations of the relative lack of scale and weight, and of true treble level.

Listen past (or through) the effects of this rather uneven characteristic and there's no question the sound has good timing and clarity, and the ability to sort out the contrasts between different music and recordings.

Conclusion

This pretty little loudspeaker is reasonably good material value for money, given the extended roster of luxury touches. However, its potentially good sound is marred by a rather uneven overall balance in the real world situation.

Reference Imports, Pineridge, Theobalds Green, Sandy Cross, Heathfield, East Sussex TN21 8BS.
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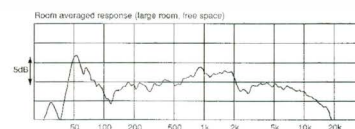
LABORATORY REPORT

Size (hxxwd)	35.5x17x23cm
Weight	6kg
Recommended amplifier power	20-80W
Recommended placement	experiment; try 1ft out
In room averaged response limits	
50Hz-10kHz	±6dB
Large room/space LF roll off (-6dB ref midband)	44Hz
Large room/wall LF roll off (-6dB ref midband)	44Hz
Large room output at 20Hz (ref midband)	below -14dB
Estimated midrange sensitivity (ref 2.83V, 1m)	86dB
Impedance characteristic (ease of drive)	very good

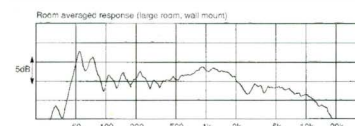
The Lumley gives a respectable enough basic measured performance, but like an earlier, larger Reference model I examined, the bass tuning is rather suspect.

There's more than ample output at 50Hz, the frequency to which the port is tuned (this is made all the more obvious because it coincides with a major typical room mode). There's also plenty of output in the upper mid, 1-2kHz, but the upper bass and broad midrange is several decibels off the pace in terms of relative output, irrespective of whether the speaker is close to the wall or moved out into free space. This is also true of the treble above 2kHz, with a slight extra dip around the crossover point between midrange and tweeter.

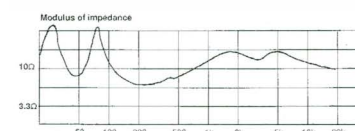
Sensitivity and bass extension may both be a little below average, but are fair enough in the context of the enclosure volume, especially as the impedance is very benign towards amplifiers.



Midbass strong, even clear of walls; balance elsewhere is notably upper-mid forward.



Alternatively, main midband is lacking 90-600Hz, and treble above 2kHz.



Very mild impedance will make life easy for valve or transistor amplifiers.

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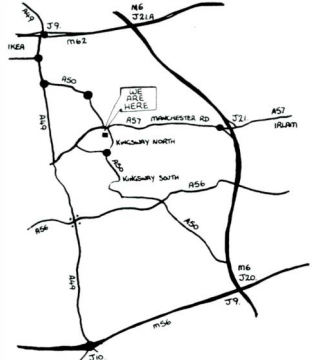
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Mission Cyrus 751



This very small loudspeaker costs a far from petite £300, but pretty little rose-wood cheeks also make it one of the most attractive miniatures around. The styling follows firmly in the successful foot-prints of its 753 big brother. Heavily chamfered lacquered edges all round the unusual vertical wrap (transverse fold) give a strikingly modern appearance, as well as high rigidity.

The speaker has already picked up one major award in the British press, but our own previous findings (issue 122) have performed been equivocal. Our first pair bombed in the blind listening tests, but a second pair clearly sounded much better in sighted A/B comparisons. The difference was tracked down to variations in main driver compliance, and Mission has since changed quality control procedures in order to avoid a repeat of the problem. Accordingly, we decided to undertake a complete re-review in this issue, after giving production and quality control a little time to settle down. Hope may spring eternal, but it's not always fulfilled. . .

The vital statistics include a little 98mm clear plastic cone main driver with decent size magnet, and a 25mm plastic dome tweeter. The neat grille is aesthetically and sonically entirely optional. The textured, narrow wrap (front, back, top and base) is 19mm MDF, while the veneered sides are 25mm thick, with additional bituminous mass/damping pads.

Tight bolts hold the drivers in place, the eight for the main unit locking the pressed frame via a pressed steel clamp ring. Light foam lines the rear panel of the front-ported enclosure, hiding a good quality crossover with bi-wire terminals and hard-wiring throughout. A new, neat, pressed steel pillar style matching stand is available for around £100.

Sound quality

I really liked this particular pair of 751s, but the panel as a whole was much less convinced. Several members complained of the unruly and obvious top end exaggeration, which the measurements confirm.

Treble anomaly aside, the sound is a little thin, lightweight and lacking oomph, but is also lively and coherent, with decent timing and pace and a fine sense of urgency. Compared

VERDICT

▲ Very pretty luxury miniature that has fine pace and a very strong sense of timing.

▼ Plagued by sample variations — this time a treble sting let the Mission down.

▶ £299.90

SOUND QUALITY
■ ■ ■ ■ □

VALUE FOR MONEY
■ ■ ■ ■ □

to Slate Audio references, the new Mission stand adds richness, thickness and a little sloth, but makes a good basic subjective match with Blu-tack coupling.

Conclusion

Once again, asked to sum up the performance of the 751, I am forced to answer: which 751? At its best, this speaker is very capable indeed, probably a class leader and certainly one of the prettiest models around. Unfortunately, the sample variations remain sufficiently perturbing to make a generalised endorsement rather inappropriate. Find a good pair though and you could have something really very special — but I don't feel able to estimate the odds.

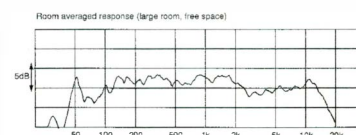
Mission Electronics, Stonehill, Huntingdon, Cambridgeshire PE18 6ED. ☎ (0480) 451777

LABORATORY REPORT

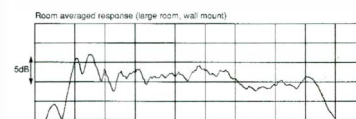
Size (hxwxwd)	32x17x27cm
Weight	6.5kg
Recommended amplifier power	20-80W
Recommended placement	1ft from wall
In room averaged response limits	
50Hz-10kHz	±4dB
Large room/space LF roll off (-6dB ref midband)	48Hz
Large room/wall LF roll off (-6dB ref midband)	45Hz
Large room output at 20Hz (ref midband)	below -14dB
Estimated midrange sensitivity (ref 2.83V, 1m)	86dB
Impedance characteristic (ease of drive)	fair

It was concern over sample variations which consigned the final verdict on our original 751 review to the pending tray. Minor differences between the two speakers which make up this pair is a shade worrying, but it's a much smaller variation than that found between the 'good' and 'bad' original samples, and fortunately both newbies are close to their 'good' predecessors.

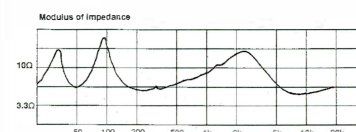
However, these new samples had another little trick up their sleeves, in the form of a nasty looking peak at 11 to 12kHz, which is 3 to 4dB above the equivalent level measured for the originals. In other respects, the response remains exactly as before, giving a fine in-room balance about one foot from the wall, and the expected combination of slightly below average (86dB) sensitivity and modest bass extension, which is fair enough considering the small box size and mild impedance characteristic.



Fine basic in-room balance needs a little wall reinforcement; note peak at 11kHz.



One foot out should give best, slightly lean overall balance; note 11kHz peak.



Impedance shows that modest sensitivity is accompanied by an easy amplifier load.

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NAD 804



NAD is known primarily for the amplifiers and other electronics which have often set budget hi-fi's performance benchmarks. But every brand which supplies complete systems is virtually obliged to offer a couple of speaker options, if only so the pedantic can have the same badge on the whole system. And NAD's previous offerings have been impressive. The miniature 8225 and closely related floorstanding 8100 both received Recommend flags (issues 86, 98).

This £320 804 is the direct descendant of the 8100, the price having gone up just £20 in the last two and a half years. The box size and two-way-plus-rear-port driver line-up are the same as before, although the overall weight seems to have increased by a couple of kilos.

It all feels suitably solid and hefty, helped by a little MDF plinth that's 25mm thick and provides a firm foundation for mounting the very substantial set of spikes. This is very encouraging, even though the overall fore-and-aft footprint is not too great. The box is built up from vinyl woodprint 19mm chipboard throughout, and the long vertical panels are reinforced by an angled lateral brace, with light damping fill.

A large port exits stage rear, close to the floor and next to the bi-wire terminal block. With a decent magnet, pressed frame and 125mm plastic cone, the main driver is secured by tight but flimsy woodscrews. The tweeter has a 25mm fabric dome, and the simple hard-wired crossover is tag connected.

Sound quality

'Expressive, but a bit splattery and shouty . . . high fun but high fatigue factor', is one quote

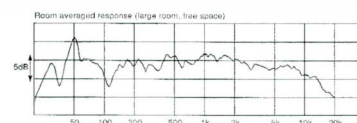
from the listening test notes that is generally representative and sums the 804 up rather well. Certainly the sound is more coloured — more obviously so — than the average for this group, but by the same token the NAD loud-speaker brings a sense of drive and purpose that is often found lacking elsewhere.

Size (h x w x d)	75x20x26cm
Weight	12kg
Recommended amplifier power	15-80W
Recommended placement	clear of walls
In room averaged response limits	
50Hz-10kHz	±7dB
Large room/space LF roll off (-6dB ref midband)	25Hz
Large room/wall LF roll off (-6dB ref midband)	25Hz
Large room output at 20Hz (ref midband)	-13dB
Estimated midrange sensitivity (ref 2.83V, 1m)	89dB
Impedance characteristic (ease of drive)	current hungry

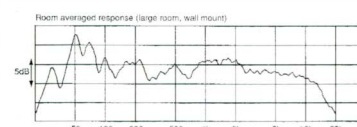
The load is still demanding from the point of view of amplifier current delivery — but then NAD amps usually have abundant reserves in this department. And in compensation, the sensitivity is a healthy 89dB, and bass extension registers a respectable -13dB at 20Hz too. The latter is down to a generous rear port which is tuned to a lowish 40Hz, well below the natural 65Hz driver/box fundamental resonance.

The room responses clearly favour keeping the 804 well clear of walls to avoid midbass boom, and even in free space the 50Hz output is a shade enthusiastic. The traces are also a little uneven, somewhat lean through the main midband (100-400Hz) and then rather stronger through the upper mid (especially around 1-2kHz)

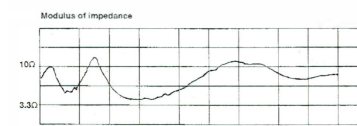
LABORATORY REPORT



Fine crossover transition but balance is rather uneven and upper-mid forward.



Midbass boom and increased unevenness confirm the 804 needs to be clear of walls.



Low impedance through main midband will suck current from partnering amplifier.

VERDICT

▲ Strong communication skills and a high fun factor; good material value too.

▼ Has a tendency to shout and a potential for generating fatigue with some material.

▶ £319.95

SOUND QUALITY



VALUE FOR MONEY



Cuppy and chesty effects are audible, as well as some lack of power through the main midband, and a degree of detachment about the bass. Not totally convincing overall, there is reasonable life and coherence all the same, alongside fundamentally good communication skills.

Conclusion

In a group context, the 804 is clearly very good material value for money, and what the sound lacks in neutrality it more than makes up for in enthusiasm. Recommendation is therefore appropriate, though potential purchasers should make sure that its 'fatigue factor' doesn't exceed their own particular tolerance threshold.

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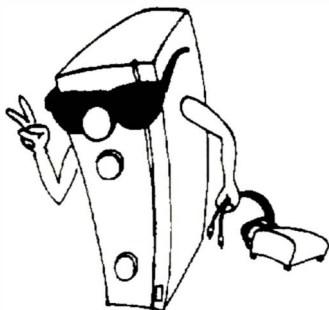


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Tannoy 609



These new *MkII* series Tannoy Sixes look almost identical to their predecessors, and just as different from everything else around. There's no point in changing a winning formula, after all, even if it is a funny hexagonal shape. The £294 609 II is therefore just a slightly tweaked version of the original, which received a Best Buy rating when covered two years ago (issue 102).

It also shares the same basic enclosure as the 607 II (issue 122), the £75 price difference due to the fact that the 609 II has one of Tannoy's famous dual-concentric drive units in place of the conventional main/tweeter arrangement of the 607s. In the dual concentric arrangement, a horn-loaded tweeter is built into the neck of the main cone, so everything is built up on the same solid cast chassis, and all the sound appears to emanate from a single point source.

The hexagonal box shape performs useful mechanical and acoustical functions, conferring rigidity without recourse to bracing, and de-concentrating the internal horizontal standing waves. The top and base are connected by a single brace coupled to the main driver magnet, and the enthusiastic may add sand or lead shot mass loading within the hollow base.

Build and engineering content is good, though cost-effective, heavy gauge, tight wood-screws firmly holding the pressed frame driver into the 19mm vinyl woodprint chipboard.

Sound quality

The 609 II did really well in the blind listening tests, coming top of several (but not all) lists. This reflects in part the good overall balance, but also, perhaps, the acoustic advantage of supporting the main driver on a high quality

stand with fresh air all round. By the same token, Tannoy's hexagonal enclosure is also refreshingly low in boxy effects.

The treble is quite transparent if slightly hard-edged and shut-in, while the bass is clear and informative but a bit short of power and authority. The whole package could have more urgency and drive, but the soundstage is natural and generous, and the various limita-

VERDICT

- ▲ Fine balance from dual concentric driver and hexagonal enclosure.
- ▼ Modest sensitivity; this is a speaker that needs very careful stand matching.

▶ £294.99

**SOUND
QUALITY**



**VALUE
FOR MONEY**



tions are mild in degree — and largely the consequence of erring a little on the side of caution in order to avoid causing offence.

Conclusion

I still have no explanation for the degree of measured difference between this 609 II and its 609 predecessor, but checking a second pair of *MkIIs* shows the current findings are entirely representative, as well as thoroughly impressive in every respect save perhaps sensitivity.

Evaluation has to take account of the cost of some stands, but there's no doubt that this speaker is very competitively priced, and significantly better balanced than its less expensive but similar size 607 II stablemate. In consequence deserves firm Recommendation.

Tannoy Ltd, Rosehall Ind Est, Coatbridge, Strathclyde ML5 4TF. ☎ (0236) 420199

LABORATORY REPORT

Size (hwxwd)	50x32x24cm
Weight	8kg
Recommended amplifier power	15-80W
Recommended placement	stands clear of walls

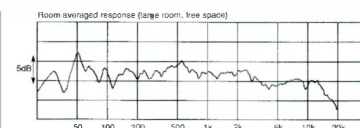
In room averaged response limits	±5dB
50Hz-10kHz	
Large room/space LF roll off (-6dB ref midband)	22Hz
Large room/wall LF roll off (-6dB ref midband)	22Hz
Large room output at 20Hz (ref midband)	-7dB

Estimated midrange sensitivity (ref 2.83V, 1m)	86dB
Impedance characteristic (ease of drive)	fair

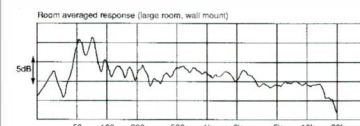
The measured performance of this speaker is very good indeed, despite being cheaper than all and smaller than most. True, sensitivity is a little below average, but bass extension is impressive and the amplifier load fairly benign as well. The balance is clearly best away from walls, whereupon the 609 II delivers a remarkably smooth and well balanced in-room response right across the band.

What is puzzling — indeed unexplained — is that the measurements vary rather more significantly than they should from those obtained for the original 609. I criticised the latter for insufficient relative treble level, and according to my measurements the whole midband (200Hz-2.5kHz) of the new model now has 3 to 4dB less output, which has a similar net effect — hence the 4dB lower sensitivity rating and much smoother overall response.

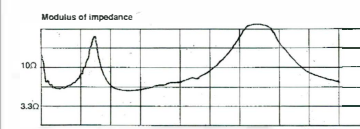
However, according to Tannoy, the *MkII* realignment reduces just the upper midband output (1 to 2.5kHz) by a few dB, and the lower mid should be unchanged.



Clear of walls it gives well judged in-room balance; smoother than its predecessor.



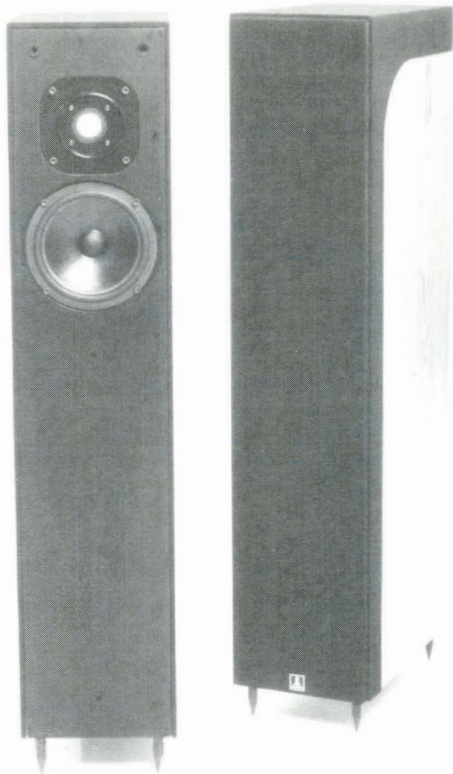
Exaggerated midbass and uneven midband reflect the fine dispersion of hexagon box.



Good bass extension; port tuned to 35Hz, an octave below natural driver/box resonance.



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Pioneer SX221R Receiver	230	169	SYSTEMS		
Pioneer A201	150	109	Kenwood UD900	950	669
Pioneer A229	150	109	Kenwood M45 CDS with EQ	730	519
CD'S			Kenwood M56 CDS	650	459
Pioneer PDM 701 Multiplay	300	219	Kenwood M85 CDS Prologic/EQ	1200	799
Pioneer PDS 501	220	159	Pioneer N92M Multiplay	750	499
Pioneer PDS 601	240	169	Akai MX650 Multiplay	650	429
Pioneer PDS 101	150	109	Technics E/O Lifestyle	800	499
Pioneer PDS 201	170	119	Akai MX550	450	349
Akai CD 27	180	99	MISCELLANEOUS		
CASSETTE DECKS			Pioneer GR777 Equaliser	230	149
Pioneer CTS 410	200	150	HECO Centre Speaker	150	99
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TDL RTL3



One of the surprises of last Autumn's Ramada hi-fi show was a complete new range of budget speakers from TDL, dubbed the *RTL* Series to signify what is claimed to be a hybrid reflex/transmission line form of bass loading.

The more expensive of two floorstanders in the four strong range, it's difficult to believe a speaker as big as the *RTL3* only costs £399. However, you do have to fork out a rather excessive £12 for a set of spikes to provide proper floor coupling.

Another reason for the modest price is presumably the rather tacky simulated rose-wood finish, which is tolerable enough under dim lighting, but shows the odd trapped air bubble in the light. It's also perhaps a pity that the bi-wire terminal block is towards the top of the box, which will emphasise the trailing wire syndrome, but these are only minor nig-gles given the high overall perceived value.

Big it may be, but this speaker is attractively shaped, looking slim from the front with plenty of depth for a firm mechanical footprint. There are two identical main drivers, each with 125mm plastic cones, pressed steel baskets and fair size magnets, placed above and below a little 19mm soft fabric dome tweeter.

Reasonably tight woodscrews hold these into the 16mm chipboard cabinetwork. The lightly damped interior is closer to a reflex than transmission line, but the complex internal bracing does have certain labyrinthine characteristics, while the very generous port is foam-damped.

Sound quality

The rather rich and heavy balance on offer here somewhat polarised the panel. Some loved the extra weight and scale, along with the expressive vocals generated by the well

VERDICT

- ▲ A big box for the money; gives a rich but well ordered sound quality.
- ▼ Tacky simulated wood finish; might sound too thick and heavy in some systems.
- ▶ £411.95 (inc £12 spikes)

SOUND QUALITY



VALUE FOR MONEY



maintained treble, while others complained that the bass was both thick and rather overblown, without genuine extension and fine detail discrimination.

But the net reaction was still positive, thanks to the very well ordered overall trend. It's not the fastest or most exciting sound around, but it is very even-handed and capable of generating some sense of scale and weight, despite slight dynamic constraints and mild shut in effects.

Conclusion

Good value despite the tacky finish, the *RTL3* should work best in fairly large rooms to avoid emphasising its bass rich balance. But the even overall trend and stable shape all contribute towards comfortable Recommendation.

TDL Electronics Ltd, PO Box 98, High Wycombe, Bucks, HP12 3AD. ☎ (0494) 461803

LABORATORY REPORT

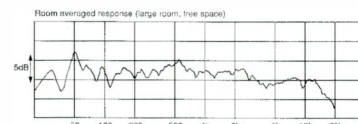
Size (h x w x d) 92x20x38cm
Weight 16kg
Recommended amplifier power 15-120W
Recommended placement well clear of walls

In room averaged response limits 50Hz-10kHz ±6dB
Large room/space LF rolloff (-6dB ref midband) 25Hz
Large room/wall LF rolloff (-6dB ref midband) 25Hz
Large room output at 20Hz (ref midband) -9dB

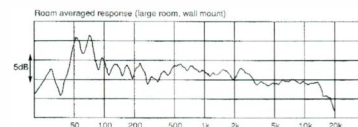
Estimated midrange sensitivity (ref 2.83V, 1m) 88dB
Impedance characteristic (ease of drive) current hungry

TAs befits the double main driver and generous enclosure, the *RTL3* combines good sensitivity with reasonable bass extension. The snag is that the impedance is at or below 4ohms over most of the range, so the partnering amplifier will need plenty of current reserves to take full advantage of the sensitivity. The well damped impedance shows the port/line tuned to around 30Hz, somewhat below the driver combination's 55Hz.

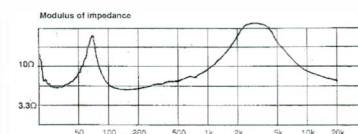
Provided that the speaker is kept well clear of walls, the overall frequency balance is impressively smooth and well judged, with even bass output maintained down to below 40Hz, and just a slight notch around the crossover point. As expected from the twin main driver arrangement, the overall trend is gently downward from bass to treble. However, the drop of about 5dB across the whole range will prove subjectively very acceptable, and is much better controlled than some examples of this arrangement I've encountered.



Fine extended overall balance; a bit rich through the bass; slight crossover notch.



Boomy bass when wall sited suggests preference for space and largish rooms.



Low impedance through bass and midband demands plenty of current from amplifier.



Loudspeakers: conclusions, best buys and recommendations

Paul Messenger rounds up his findings on these two diverse sections of the market, and finds that what may seem like a narrow price range encompasses a wide variety of loudspeakers.

Eight new loudspeakers, all priced from around £300 up to around £400, should give some interesting contrasts in this highly competitive segment of the market. Four are stand-mounts and four floorstanders. Is one approach better than the other? Not on your elephant. Every model is different, so let's be cautious about stereotyping. There are patterns to be seen, but they're not always the most obvious.

Small main driver, under 10 litre box size and real wood veneer separate the Mission and Lumley from the rest. The middle ground in terms of size is occupied by Tannoy, Aura and KEF, then comes the NAD, with a small main driver but quite a large box, while both the B&W and TDJ models are significantly larger still, both in driver area and box volume.

The trouble with making glib generalisations about loudspeakers is that you can't isolate the variables properly. This is because there are far too many,

and not all are fully understood.

It's my considered guess — and I stress this does only have the status of a guess — that if all were made equal, the stand-mount would have the slight edge, in this price band at any rate. The Tannoy 609 II was arguably the most complete all rounder in this group, and stays

within the price range even if you add the cost of a decent pair of stands.

However, the other three stand mounts were less convincing packages for various different reasons, and as a group the floorstanders tended to be better balanced overall. But the differences between any

two loudspeakers are usually greater than any factors directly attributable to the shape.

Stand-mounts

The £375 Lumley Monitor Reference 4 might have the longest name and be stuffed with all the currently fashionable audiophile tweaks, but ultimately it's let down by the least neutral balance of the assembled models. That aside, it can still sound good, certainly looks very pretty and brings the advantages of a metal cone main driver at a relatively modest cost.

The need to re-review the £300 Mission 751 after the sample inconsistencies encountered in issue 122 was one of the reasons we chose this particular price grouping. It was therefore depressing to find different audible and technical problems with this latest pair. I know the 751 is potentially a very fine loudspeaker, but I don't see how I can give formal endorsement when two out of three

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Recommended products are also very good, but not quite in the same league as Best Buys. Despite being runners up, they are definitely worth considering, as they may prove more compatible in a particular system context.



samples tried have been flawed.

The Aura *SP50* has a lovely pair of drive units, but the vinyl box finish is a trifle disappointing at £400. The balance is pretty slightly idiosyncratic too, especially in the context of B&W's own-branded *DM620i*, while the need to add the cost of a stand further compromises the value. But in the right system context, it can still make very pleasant music.

The final stand-mount, the Tannoy *609 II*, is the one model selected for a full Best Buy rating. Modest sensitivity limits the practical loudness attainable, and some listeners might prefer a livelier and more immediate sound, but it's the least expensive in this group, yet arguably has the best overall technical performance.

Floorstanders

It would be glib to dismiss the £350 KEF *Q30* as combining disadvantages of both stand-mounted and floorstanding configurations, but the fact remains that only a third of the slim and attractive enclosure performs an acoustic role.

Stereo focus is superb, but in other respects the sound is pretty uninspiring.

For rather less money, the £320 NAD *804* is an altogether beefier proposition. It's flawed by a degree of coloration which some may find unacceptable. However, it's also exciting and communicative, and certainly good enough material value for money to warrant formal Recommendation.

Likewise, the £400 B&W *DM620i*, which differs slightly from its Best Buy *620* predecessor, notably in the 33 per cent price hike and the provision of proper floorspikes. I'm not convinced that the retuned bass is an improvement, but this is still one of the best voiced models in its class.

There's no denying you get a great big box for £400 with the TDL *RTL3*, even if the vinyl is tacky and the price has crept up to £412 by the time you've added the essential (DIY) spike kit. The sound is rather impressive too — a trifle heavy and laid-back for some tastes, but open and better balanced than most twin main driver systems.

Best of the rest

Several important contenders in this segment of the market have been covered in previous *Choice* review programmes, and are mentioned here to balance the overall perspective provided by this group test.

The now £390 Epos *ES11*, a Best Buy from issue 94, has done so much to create and define the market for luxury stand-mounts we included a current production pair in our blind listening tests. This real wood grilleless compact remains fully competitive, even though it's no longer the stand out model it was three years ago.

Other noteworthy and competitive stand-mounts include the Arcam *Delta Two* (£340 in real wood) and Heybrook *Trio* (£359, the twin main driver Monitor Audio *Monitor 11* (£330), the SD Acoustics *SD3* (£399), and keep the port blocked), the semi-reflecting Bose *305* (£430), wide-imaging Canon *S-50* (£350) and luxury sub-miniatures Harbeth *HL-P3* (£400) and JRT *AD1 Micro* (£389).

Alternative floorstanders range from the delicate but lightweight little Rega *EL8* (£300) up to the big, blousy and slightly uncouth Celestion *15* (£389) and Infinity *Reference 30* (£400).

The only extant Best Buy is the £403 Linn *Index II/Ku-Stone*, a lively bookshelf box with its own dedicated stand. But watch out also for the new £389 Mordaunt-Short *MS40*, which just missed the deadline for this latest group test, as its similar 5.40 predecessor was warmly Recommended.



Alternative competitors in the £300 - £400 stakes: Epos *ES11* above, Arcam *Delta 2* below and Harbeth *HL-P3*.



Best all-rounder of the bunch: Tannoy's competent *609 II*.

Best Buy and Recommended listing

BEST BUY

Tannoy 609 II £295 Large bookshelf size model with dual concentric driver has fine balance and scale with low levels of coloration.

RECOMMENDED

B&W DM620i £400 Good material value, this compact floorstander has a beautifully voiced midband, but less happy bass tuning.

NAD 804 £320 Good value compact floorstander sounds lively and coherent, but quite coloured due to an uneven balance.

TDL RTL3 £400 Bargain price floorstander has rich, heavy and bright sound with good scale and fine basic neutrality.

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BI-WIRING &

what's the difference?

The traditional two channel hi-fi system uses a stereo power amplifier, each channel of which drives one of a pair of loudspeakers with a single cable, made from two electrical conductors (often copper) separated by insulating materials. Although the term is rarely used, this could be described as a single-wired or mono-wired speaker.

Recently, however, an increasing number of speakers have appeared with more than one set of speaker terminals, to allow what is known as bi-wiring. Bi-wire (or in some instances, tri-wire) connection uses the same single power amplifier to feed the speaker, but does so with separate two-way cable runs to each pair of terminals.

Technically speaking, this puts the common earth of the speakers back at the amplifier output terminals where it belongs, which should help avoid eddy

Why are there two sets of terminals at the back of almost every loudspeaker these days?

Paul Messenger and Alan Sircom describe the whys and wherefores of bi-wiring and bi-amping your loudspeakers.

current interference between drivers. This also means that the large current swings on the signal feeding the main driver will not get mixed up with the smaller, faster tweeter signals during their passage down the speaker wire.

Bi-amping takes the process one stage further than bi-wiring. Instead of feeding each network/driver combination with a separate cable from a shared power amp, you double up the power amps as well. The theory is that each power amp now has an easier task than before, and the sound should be better as a result.

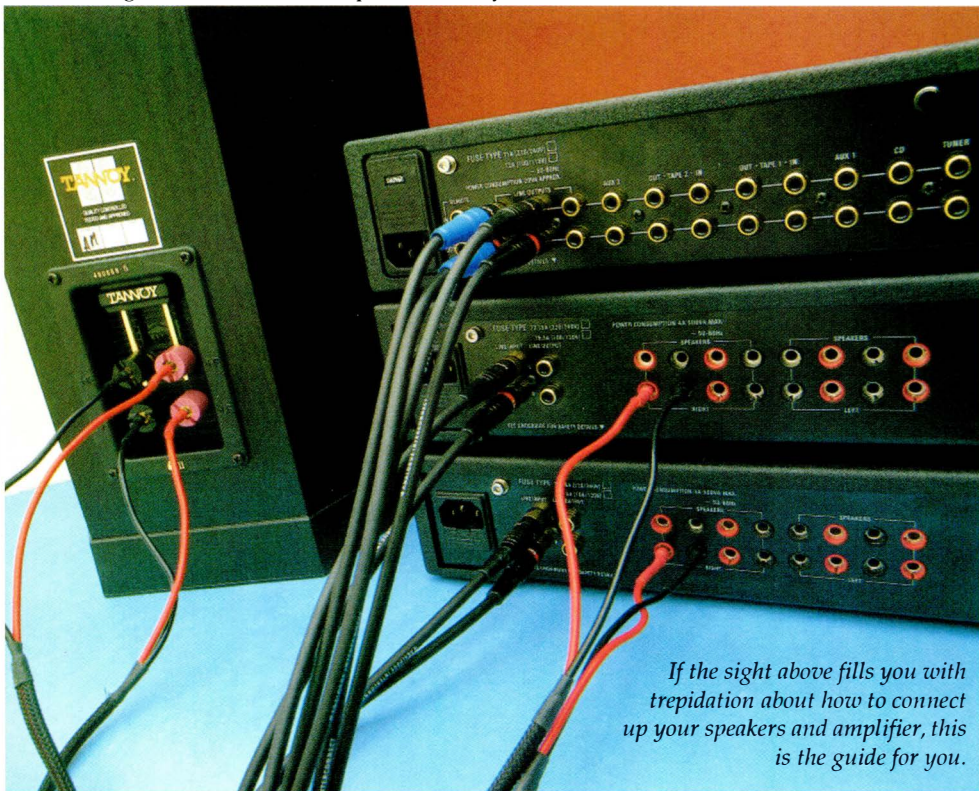
Bi-amping is very different from 'bridging' — where two identical stereo power amplifiers can be operated effectively as separate monophonic amplifiers. Generally, bridging can only be performed with amplifiers specially designed for the purpose. However, the value of either bi-wiring or bi-amping remains a matter of controversy and debate, supported by some but dismissed as unnecessary by others.

The cynical wonder whether the whole issue is merely an opportunity for manufacturers and dealers to double or triple sales of speaker cables and amplifiers. However, in most instances the sonic benefits of bi-wiring contradict this. Get a dealer to demonstrate them for you.

As far as domestic harmony is concerned, even a solitary wire feeding a loudspeaker is one cable too many. For reasons of economy and aesthetics bi- and even tri-wired runs are now packaged within a single jacket. But the dilemma remains as to whether to opt for bi-wiring with regular grade cable at £2.50 per metre, or spend the same money on a single run of super grade at £5.00 per metre and more instead.

Passive resistance

Normally, loudspeakers are driven passively. This simply means that there's an electrical equalisation circuit in the signal path between amplifier and drive unit(s). Such circuits are normally referred to as



If the sight above fills you with trepidation about how to connect up your speakers and amplifier, this is the guide for you.

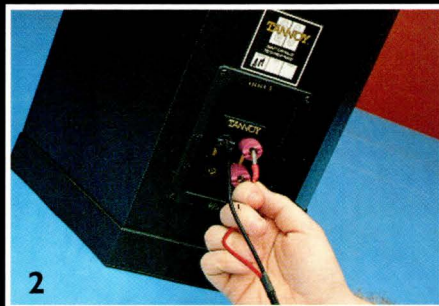
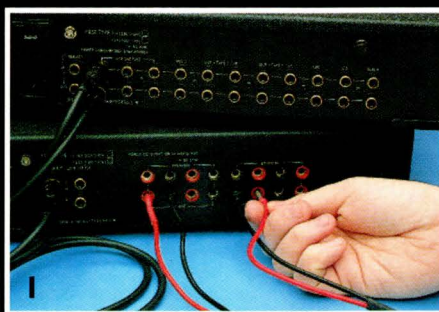
BI-AMPLING:

The stereo pair

This is the simplest way to wire a system. For conventional stereo, all that is needed is an integrated amplifier, or a preamplifier and power amplifier with a single pair of interconnect cables between them.

The amplifier is connected to the loudspeakers using just one pair of cables, of exactly the same length. Use four red and four black 4mm banana plugs where necessary.

Wherever possible, use good quality soldered 4mm plugs, but decent clamping plugs, Michell or similar, would suffice. Although most cables are terminated with nickel-plated or tin-plated plugs, some people prefer the sound of silver-plated, gold-plated or even rhodium-plated plugs, despite the extra cost such luxuries incur. If you're not a dab hand with a soldering iron, a good dealer will terminate speaker cables for you.



A single pair of interconnect leads run from the preamp output to the input of the power amplifier. The power amplifier is then connected to the speaker by two sets of speaker leads (fig 1), each with a single positive (red) and negative (black) conductor. Ensure that the power amplifier is switched off at this time, as the amplifier can short-circuit and be seriously damaged if the two conductors accidentally touch.

Plug the corresponding speaker cables into the red and black sockets at the rear of the loudspeaker (fig 2). If the speaker has two sets of terminals for bi-wiring, make sure that there are links fitted, to connect the treble and bass sockets. These are generally supplied with the speaker, but can be made from any conductive material, even humble fuse wire. Convention suggests that you should plug a single set of cables into the bass (often marked low frequency, or simply LF), when mono-wiring a bi-wireable speaker, but do experiment. Make sure that the cables from the left channel are plugged into the left speaker and vice versa.

crossover networks, and their prime task is usually to make sure that each driver receives the right part of the audio signal — in a conventional two-way loudspeaker, for example, bass and midrange are fed to the main driver and treble signals are sent to the tweeter.

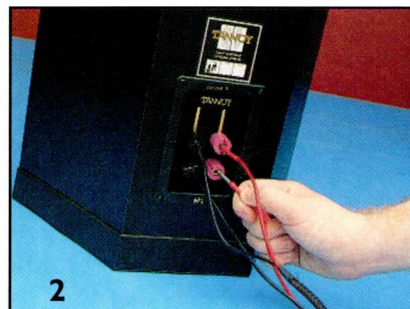
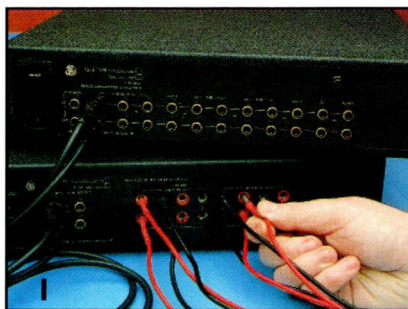
Crossover networks can be designed in different ways, but most treat each driver individually, feeding the bass/mid driver via its own low pass filter, and the tweeter through a separate high pass network. If these are combined at a single pair of speaker terminals, mono-wiring is the only option, but the recent trend (among many manufacturers) is to provide separate terminals for each network/driver combination. You still have the option to link the two terminal sets together for mono-amping/wiring, but bi-wiring and bi-amping are further options. There is also a third more advanced alternative available to the wealthy enthusiast.

The final stage is active drive, where the crossover network is completely removed from the speaker, and each drive unit is directly coupled to its own power amp. This further reduces the effort required of the amp, and significantly improves its control over the dri-

Bi-wiring

Bi-wiring a pair of speakers is only possible if the speaker has a crossover designed to be bi-wired. Adapting a conventionally wired speaker is generally not recommended.

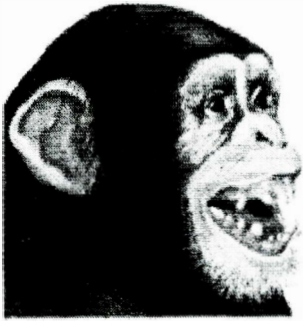
Bi-wiring only needs a second set of speaker cables and plugs and it does not affect the choice of amplifier, as both integrated and pre/power amplifiers can accept bi-wired cables. Some amplifiers only have a single set of speaker terminals, so it may be necessary to join both speaker cables together at the amplifier end. This usually involves more soldering, but at least it saves an extra pair of 4mm plugs.



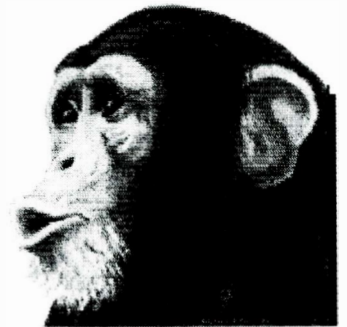
Bi-wiring involves using a single stereo amplifier as with basic stereo wiring, but uses two sets of cables to each speaker. In the system illustrated (fig 1), the amplifier has more than one set of speaker sockets per channel, but if this is not the case, the two cables will need to be joined together at the amplifier. If you have binding posts, two plugs can be used simultaneously.

Remember to remove the links connecting the terminals at the speaker itself. In the speaker illustrated (fig 2), this involves moving a bar upwards, but the link may only consist of removing two lengths of wire. Some may involve opening up the rear panel and snipping a pair of cables, but this should only be performed — with great care — if it is recommended in the owner's manual.

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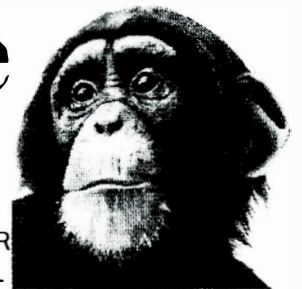
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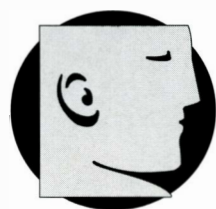
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ver. The equalisation is handled (more precisely than ever possible with a passive network) by an electronic crossover inserted between pre and power amps.

Until very recently, active drive was the domain of the very rich, the very dedicated or those who were competent enough to design and build their own active crossover circuit. Of late, however, a few companies which make both electronics and loudspeakers have brought the price of active speakers down to make them a realistic adjunct to the bi-amped speaker system. Before you run out to have an active package added to your system, though remember that they are still comparatively rare, especially as the electronics involved in an active crossover are more complex than those in a conventional passive crossover.

Put the prices of the various options into the equation and there are no easy answers. The interested enthusiast ought to make his or her own decisions based on personal inclination. Some may prefer the effortless headroom of a single super amp, while others might favour the agility of smaller amps in multiple passive, or even active, configurations.

The practical message must be to pay attention to advice from dealers and manufacturers concerned, and also to ask for trial by demonstration.

Bi-amping

Unlike the other forms of loudspeaker wiring mentioned, bi-amping involves upgrading the electronics in addition to the cables. To bi-amp a system, two power amplifiers and corresponding interconnect cables are needed, together with two pairs of speaker cables of identical lengths, eight black and eight red speaker plugs.

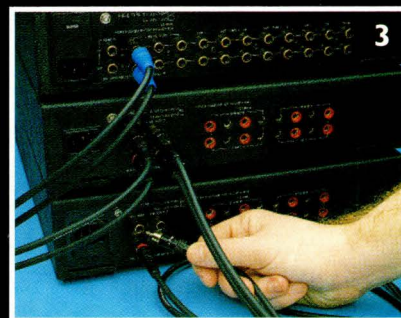
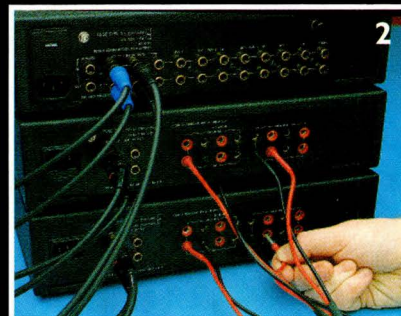
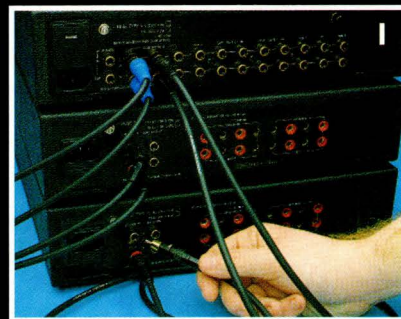
Ideally, the speaker cables should be of the same type, although bi-amping does give the listener a prime opportunity to play with different combinations of speaker cable. If you feel like a little experimentation, try using solid-core for the high frequencies and multi-strand for the bass. But remember that the resale price of cables is very low indeed, so mistakes could be costly.

Essentially similar to bi-wiring, bi-amping normally needs a preamplifier with two sets of output sockets. Plug one pair of interconnects into each power amplifier (fig 1).

From here, plug one set of speaker cables into each amplifier (fig 2). Although it is not absolutely necessary, it is advisable to have one amplifier dealing with the treble signals and one dealing with the bass. This should produce the best sonic results.

Some power amplifiers have a separate set of outputs, which allow 'daisy chaining' of subsequent power amplifiers (fig 3), which is useful if your preamp only has a single set of outputs. It is also possible to use two phono Y-connectors, available from Tandy, but these may contribute a marginal loss of signal.

Finally, as if to add further confusion, a few pre-amplifiers invert the phase of the signal to the power amplifier. This can slightly alter the

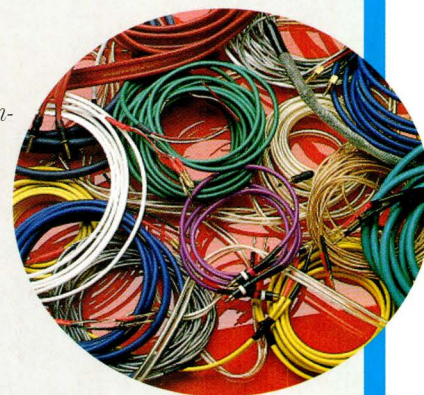


sound of the system, making the speakers effectively work in reverse, and you are likely to prefer the sound in correct phase. It's easy to correct though, by swapping the red and black loudspeaker connectors over, on both channels, at the amplifier end only.

Which loudspeaker cables are best?

Obviously, if a system is commonly recommended with a particular brand of speaker cable, it is probably best to use that cable throughout. However, if the manufacturer has no firm cable recommendations, the following list of our current Recommended cables, picked from the Choice Directory, should help to make the decision easier.

CABLE	PRICE/M	COMMENTS
Budget (under £5/m)		
Audioquest F-14	£4.45	Ideal for laying under carpets; warm and vibrant.
Bandridge LC7401	£3.00	Very traditional figure-of-eight cable; good for long cable runs.
Mission Stranded	£2.00	A slick performer and a Best Buy upgrade; a hit with the listeners.
Straight Wire Waveguide 1.5	£2.00	Up-beat, crisp cable, but with a slightly lean balance.
Mid Price (£5/m — £20/m)		
Audio Note AN-B	£16.50	High capacitance Litz cable; warm and mellow, with a clear treble and a rich mid and bass.
Silver Sounds 16/4	£20.00	A prime choice for bi-wiring; good, but lacks the full finesse of the 12/2.
Straight Wire Flex-4	£5.00	Very quick and dynamic sounding; short on subtlety but very engaging.
High End (over £20/m)		
Audio Note AN-SP	£127.00	Silver stranded cable; very civilised and exceptionally detailed sounding.
Cogan-Hall Intermezzo Full-Range	£46.50	Superb sounding cable; easy to damage, so handle with care!
DPA IS19	£27.50	Clear, neutral and transparent; could be tauter and more detailed.
Silver Sounds 12/2	£30.00	Tonally accurate and exquisitely detailed; a transparent window on the music.
van den Hul MC The Wind	£33.00	Blown in from the continent, kicks up a storm with its lush midrange and bone-crunching bass.



On test: car hi-fi

Simon Davies and David Rowlands have been listening to six serious in-car systems only to discover that things ain't what they used to be.

Car hi-fi has come a long way since the days of eight-track, endless loop cartridge players and mono, manually tuned radios. Today, you're more likely to encounter a CD autochanger unit, plus associated trimmings, in a dash aperture not much bigger than a box of Maltesers viewed end on.

Prior to the arrival of CD in the car, top quality sound of a standard that would not disgrace a domestic hi-fi system was only attainable at a high price. To rise above the hostile noise of engine, tyres and wind, it was necessary to invest in a high-flying tape deck, like as not from the Nakamichi stable, along with some fairly crunchy amplification and speaker drive units capable of flexing the body seams of the family Skoda.

Then the silver disc came along, and tunes on the move were never the same again. The much vaunted increase in signal-to-noise ratio from CD may not have had Nakamichi die-hards rushing to trade-in their prized metal tapes, but it did bring the quality of sound

enjoyed by said enthusiasts within financial reach of a much wider audience.

In a very short space of time, the multi-bit and bitstream technologies that had made their presence felt in domestic CD players were also to be found in the car. The provision of digital outputs (both coaxial and optical) soon followed, along with boot-mounted CD multichangers, stand-alone DACs, digital sound processing (DSP) and, most recently, time alignment to optimise stereo imaging in the car.

With DSP units able to replicate any number of acoustic settings, and time alignment working to create a perfect stereo image, has car hi-fi reached a point where it can recreate sound that's as good as a live event?

In order to find out, we took six demonstration cars from different manufacturers, each one bristling with hardware, and put them to a gruelling *Choice* listening test.

The cars all feature digital sound systems of varying complexity. From Harman Kardon and JBL, we had a monster

The cast list

Alpine Vauxhall Frontera,	£6,262
Clarion Mazda 626 Executive,	£2,464
JBL/Harman Kardon Peugeot 605SRi,	£6,461
Kenwood VW Passat CL,	£4,745
Pioneer Audi 80,	£3,047
Sony VW Corrado VR6,	£2,530



sound system with surprisingly simple image manipulating equipment on board. Clarion, on the other hand, kitted-out a Mazda 626 Executive with the simplest system in the test, but one of the most powerful on-board DSP processors. Other DSP systems of varying complexity were on offer from Kenwood, Pioneer and Sony, while Alpine went one better with full blown time alignment in its Vauxhall Frontera.

Clearly, we are in no way comparing like with like here, and it was not our intention to carry out a comparative test between the six. The demonstrators have different systems to highlight different abilities.

Common to all six, however, is a commitment to digital sound in the car, and we set out to discover just how capable today's car hi-fi is. Can the latest digital technology really put you in the front row at the proms. More to the point, would it have you leaving before the first interval or roaring your appreciation and clamouring for more?

How the tests

All six systems were auditioned on the road with the engine running. This was important as it provided both real world listening conditions and ensured that the equipment drew a regular and stable current from the battery. Normal car batteries may be rated at 12 volts, but with the engine running, the alternator charge boosts this to around 14.4 volts.

With the balance, fader and tone controls optimised for normal use, the digital processing capability of each system was assessed using a variety of programme material off CD. This included classical works, jazz and rock, plus a blast of good vibrations from the Beach Boys.

In each case, the simplest form of signal manipulation was sampled before moving on to progressively more complex layers of processing. The systems were assessed at each level before our final deliberations on the overall effect of the package, with particular attention



Understanding time alignment

One of the biggest problems with a car hi-fi system using more than two speakers is that the sound sources are dotted all over the car. The speakers are also set at different distances from the listener which means that the



sounds from each drive unit arrive at

Alpine has currently won the high ground in the battle to create a pin-sharp point sound source in the car.

his or her ears at very slightly different times.

Though these time differences are tiny (milliseconds) they can confuse the brain when it processes the stereo image, resulting in a distorted picture of the sound. Time alignment staggers the emission of sounds from the speakers around the car so they arrive at your ears simultaneously.

In theory, this digital coup should yield a point sound source and no confusion of the image. In practice, it's not quite so simple. The subwoofer, for example, at the back of the car in most designs, has a very vague image and demands precise positioning in the time frame. Even when this distance has been sorted out, other speakers may need greater delays though they are nearer to the ear. This is because the point source should be created in front of the listener.

If you are still with us, you will have realised by now that time alignment is a pretty self-ish technology. No matter how many people are in the vehicle, only one person can benefit from a properly time aligned image. One other point. Time alignment is not a universal panacea for badly placed equipment. A speaker pointing into a seat cushion is going to sound dire no matter what digital process is used.

were done

paid to specific effects that were achieved along the way. All manufacturer's pre-set calibrations were observed where appropriate.

Sony's unusual stalk controller means you no longer need to reach across the dash to alter volume, fader and tone levels.



Just what can digital sound processing do for your car?

If you are listening to music in a concert hall, rock stadium, night club or even a church, your ears actually pick up relatively little direct sound from the band or orchestra located directly ahead of you.

Most of the sound and, in particular, clues as to the position of various musicians and their instruments, are derived via reflected sound. This is the sound that bounces off the walls and ceiling of the venue before it reaches your ears.

In an attempt to recreate this sensation of being there in the audience, Digital Sound Processing (DSP) units use digital delay to recreate the effect of reflected sound. Thus a



You too can make the inside of your car sound like a hall, rock stadium or even a disco using DSP technology.

slight delay in the signal reaching the rear channels gives an echo typical of a large auditorium.

By varying the level of delay applied to the signal, DSP technology can change the acoustic environment of a car into that of a concert hall, a jazz club, disco, or literally any venue you care to make the effort to preset.

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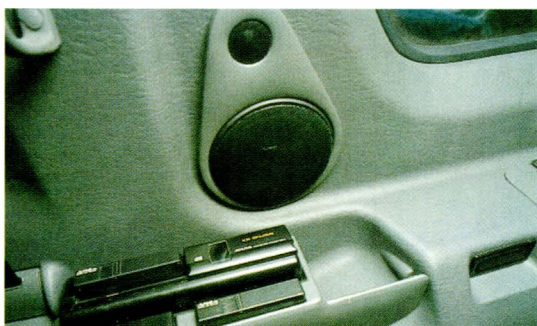
Alpine Vauxhall Frontera



It's a mean looking machine, yet the Vauxhall Frontera disguises a particularly subtle application of DSP.



The sleek and unobtrusive 1310R acts as a controller for the CD changer and boasts an RDS EON radio tuner.



Alpine's 5957S six-disc CD changer is neatly installed next to one of the rear sets of 6562 component speakers.



Creating the perfect image is the job of the 3681 digital crossover with time alignment, right of the subwoofer.

Vauxhall's *Frontera* is a purposeful poseur and the unlikely cloak for as subtle an application of DSP as you'll find in this market. It's presumed that the audiophile sector is not interested in the pastiche of a church or nightclub and so Alpine uses time alignment to sell them digital interest.

The system is headed up by a 1310R control unit governing a superior RDS EON tuner as well as, to greater aural interest, a 5957S CD autochanger with a six-disc magazine. Next come the clever bits; a pair of 3681 digital crossovers with time alignment. Alpine isn't monkeying about with time shifts here.

The software works in 0.3 millisecond intervals in a range up to 30 milliseconds delay, and we don't have to tell you the speed of sound to record that this means a theoretical point source shift of up to 10 metres. The rear crossover is responsible for delays to the subwoofer department — a pair of 10in 6013s in a sealed box driven, via a little level-controlling pot, by a bridged Class A 3558 amplifier (200W per channel in this mode). Two further 3558 amps, both used on normal four-channel (60W) mode, are each dedicated to the left or the right side of the vehicle and handle both front and rear signals for their respective sides. Speakers on the sharp end are sets of 6562 component tweeter and five inch woofer units.

Fronteras have little load floor, and the way Alpine has built its system leaves no space for

luggage behind the rear seats. Sheer craftwork includes the viewing panels over the time alignment crossovers, part of a deliciously trimmed plinth on which stands the sealed 39 litre sub-bass box.

Such is the novelty of the Alpine equipment to its UK engineer support teams that ideas are in a state of flux about when it comes to the set-up. There is an almost automatic assumption in time alignment that the rear-most speaker be brought forward to the notional focal point and that a simple wielding of a tape measure provides the extra delays by which all

other speakers move forward or backward to the same sound focus or point source.

However, Alpine's experts learned this was not the glasnost of time alignment and now use nothing more scientific than a pair of decent ears. The point is that, at least within a vehicle, you don't have a focus; you have a plane of foci, or a new aural windscreen.

With the Alpine, even the unprocessed sounds have a swoon potential. Add in the subtle influence of spatial relocation and a transparent stage of sounds develops, each perfectly sited and proportioned. They create a high definition mirage, powerful in all dynamic aspects as well as spatiality, but perhaps more definite in width than in depth. 'Pick of the bunch' is too pat a label for such a rare sonic treat.

Alpine Electronics of UK Ltd, 13 Tanners Drive, Blakelands, Milton Keynes MK14 5BU.

☎ (0908) 611556

System specification

Head units	
1310R CD shuttle controller/RDS EON tuner	£550
5957S six-disc shuttle, 20 bit/eight times oversampling	£450
DSP system	
3681 digital crossover with time alignment (two used)	£1,500
Amplifiers	
3558 Class A, 4x60 watt amplifier (three used)	£2,970
Ancillary equipment	
4313 subwoofer level control	£62
Speakers	
6013 10in subwoofer speaker (two used)	£250
6562 component reference speaker sets (two used)	£480
Total	£6,262

VERDICT

▲ Spacious; good image; a system that redefines clarity, with truly great staging.

▼ Fine for introvert hedonists; unfortunately, requires renewed mortgage.

▶ **£6,262.00**

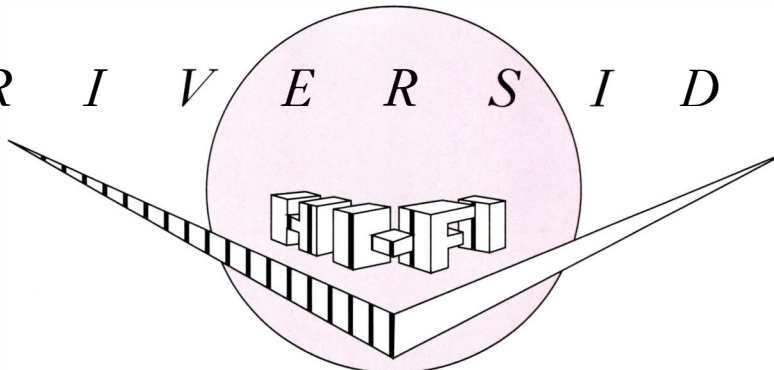
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Clarion Mazda 626 Executive



Not the slickest motor around, Clarion's Mazda 626 is home to a simple but beguilingly effective DSP system.



The CDC6700R (top) plays single discs and controls the CD autochanger; effects are via the DSP959E (bottom).



Component speakers in the front of the car are hidden from prying eyes behind the standard trim panels.



Clarion CDC9500 CD changer takes a six disc magazine but remains one of the most compact units available.

Clarion shares with Alpine the distinction of being a wholly car audio company with no links to domestic audio. In Japan, Alpine has Luxman lurking in the background, but Clarion is pure car audio. Thus it is a company that has fewer preconceptions about the wash over from home into car and, while it surfs with the market, it takes a rather idiosyncratic direction in innovation and design. Clarion was a very early entrant into big component systems and it is a brand that has very naturally moved from the novelty of graphic electronic displays and equaliser processing into DSP.

Surprisingly, the car on show was no crowd puller. Although a Mazda 626 Executive is far from humble, this was an area sales manager's car, beating up motorways more than ears. And this is reflected in the affordability of the system on board, a snip at under £2,500. Clarion wasn't entirely happy that the visible head unit, a CDC 6700R CD tuner with RDS, was barely current or that amps and the subwoofer are now replaced with work alikes — but the rest of system holds good. Call it overkill, but the head unit controls a CDC9500 six-disc autochanger, a unit that can make a digital optical feed into the DSP959E sound processor.

Among the group of six, this unit had by far the highest fiddle factor (eight sound field presets, that's stadia and so on, plus eight more user settings, an equaliser and a quintet of seat-

ing position adjustments). But its controls were undeniably the simplest, defaulting into a main mode when fumbling was apparent and always leading by an instructive display.

Back-up came in the shape of a 504HA amplifier working in four times 80 watt mode to drive front component speaker pairs and rear shelf six inch coaxials. There's nothing fancy about this high and midrange capability. Nor is there in Clarion's no-nonsense parallel connection into the rear DSP output channel, hitching in a low pass crossover to feed a second 504HA in twin channel mode (140

watts per channel). This puts some oomph behind the twin-driven SEW106 10in subwoofer in its central enclosure.

If ever proof was needed that simplicity pays dividends, Clarion's relatively minimalist system is it. In an extraordinary display of bravura, this collation stole listeners' ears with its lively renditions which, as modes on the DSP were switched, developed a clever, if ultimately ersatz, transport into the best venues around.

Spacious, passably accurate in location, florid at the high-end, but convincingly brisk in bass, this was real entertainment. Not everyone seems to have grabbed this fundamental message. And would someone please tell me what Livehouse is? It sounds fun and I'd like to buy one with a fair sized garden.

Clarion Shoji UK Ltd, Unit 1 Marshall Road, Hillmead, Swindon, Wilts SN5 9YX.

☎ (0793) 870400

System specification

Head units	
CDC 6700R CD player/CD controller/RDS EON tuner	£550
CDC 9500 six-disc autochanger, 1 bit/eight times oversampling	£425
DSP system	
DSP959E digital sound processor	£530
DCA001 optical digital cable link	£48
Amplifiers	
504HA multiway 4x 80watt/2x 140 watt (two used)	£600
Ancillary equipment	
20GX active low-pass crossover	£90
Speakers	
SEW106 10in subwoofer	£80
SE2091 component tweeters	£28
SE2400 four inch coaxials	£53
SE2600 six inch coaxials	£60
Total	£2,464

VERDICT

▲ Stagey, hot, vivacious and a rather low-cost vaudeville solution.

▼ Pure hi-fi it isn't; it would make a fine system for extrovert hedonists.

▶ **£2,464.00**

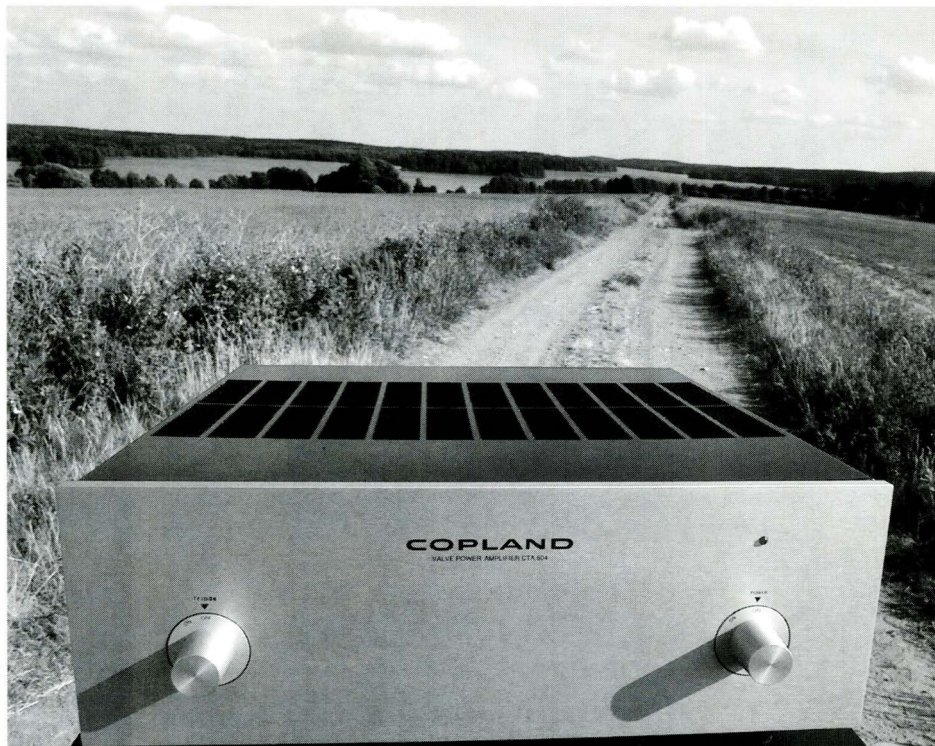
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Longer exposure to the Coplands will make it obvious that these are products of real integrity which can deliver very high levels of musical realism.

(Copland CTA301/504) *Steve Harris Hi-Fi News & Record Review May 1993*

For a valve amplifier to survive in today's solid-state market, it has to be really special...the style is pure Swedish sophistication, understated and refined.

(Copland CTA301/504) *Alan Sircom Hi-Fi Choice December 1993*

...the best feature of the Copland 501 was its midband and treble...quality was simply glorious with excellent resolution of fine, subtle, expressive detail.

(Copland CTA501) *Alvin Gold Hi-Fi News & Record Review February 1993*

Versatile power amp with a warm, cosy sound and solid good looks into the bargain. Copland is on a winner here.

(Copland CTA501) *What Hi-fi? August 1992*

Do yourself a favour and give it an audition. But be warned, this sort of sound quality can be extremely addictive. The Copland lets the music grab your attention and refuses to let go...there aren't a lot of products at this price point that are capable of doing that.

(Copland CTA501) *Andy Benham The Collection Winter 1992/3*

Care and attention have been lavished upon internal construction—neatly dressed wiring runs, star earthing, and enough high quality parts to satisfy all you audiophile grade component spotters.

(Copland CPA401) *Malcolm Steward Hi-Fi Choice February 1992*

Overall I feel that the CTA401 is representative of the best and the least 'fad-ish' in modern valve design and it will certainly please devotees or for that matter anyone with an ear for a good sound and an eye for proportion and style...

(Copland CTA401) *Ivor Humphreys Gramophone May 1992*

Expert reaction to the Copland range of amplifiers is unambiguous. These Swedish valve amplifiers offer extraordinary value, outstanding sound quality and clean, stylish design. Imagine then the reaction to an integrated Copland amplifier at under £1000. Designer Ole Möller brings true valve transparency of sound into what is principally a transistor amplifier without the complexities and compromises of valve/transistor hybridisation. Identifying the pre-driver stage as critical to sound quality, Möller has used low voltage valves in this section to capture the essence of valve musicality in this new integrated 60 watt CSA14 amplifier.

Contact Absolute Sounds for details of dealers offering field trials of the full range of Copland amplifiers.



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JBL/HK Peugeot 605SRi



Spat-dressed and bespoilered, the Harman/JBL Peugeot 605SRi boasts a huge power output of 1.6 kilowatts!



With no head unit of its own, Harman has turned to the Alpine 7618R tape deck and CD changer controller.



Front doors are bursting with drive units, including an 8in subwoofer, each set driven by a 400 watt amplifier.



The big JBL subwoofer, visible through a perspex screen at the back of the boot, has its own 600 watt amp.

JBL has been shouting about a spat-dressed Peugeot 605SRi that comes close to safe loading limits both in weight of audio equipment and decibel listening. One of its least fatal attractions is a centre channel processor, the ESP-3 image amplifier by Audio Control which is a company, one guesses, fairly close to the Harman stable.

The centre path is well-trodden in the domestic hi-fi arena and has attracted some interest over the last four years in car audio as a means to focus appropriate sound within an enhanced aural plane. From the car point of view, the history is banal and stems from early poor early stereo and the realisation that, in the facias of many cars, there still lies the redundant speaker aperture of mono sound.

Harman Kardon, with its grip on the US market, has exploited this central focus more effectively than most. However, cynics say expansive American facias are as Texas is to New Hampshire compared to any runabout on UK streets. Perhaps European car confines contain all the sonic data that a pair of ears can handle.

The Peugeot is tricked out by more amplifiers than we have space to fully describe with a total output of around 1.6 kilowatts. Modestly, the bang-shoot is headed up by an Alpine 7618R cassette/tuner (RDS) CD controller, and the exceptional 5959S six-disc shuttle shoebox, all of which feeds to a CX-01 three-way crossover. From here, all hell is let

loose. Front doors have a complete three-way system including eight inch subwoofers, each set being driven by its own 400 watt amp. The rear parcel shelf is nest to a 18in subwoofer (in the boot behind perspex with its own 600 watt booster) and even the rear doors house humble six by nine subwoofers driven from their own units on the boot floor.

But the focus of this immaculate, if over-elaborate, installation lies in a tiny pool of light in the boot. Here dwells the ESP-3 feeding via a little CA30 amp to a pair of 87mm full range

units deep in the facia and. The visible means of control is the little sub-panel by the steering wheel. This has two controls inviting you to pull images forward and then to shuffle them about a bit. Astonishingly, the positioning works.

The heavy metal at the front end is over-bearing but clearly has the necessary high-end processed element to locate images with some success. However, the staging is dependent on pulling forward mid and low frequencies as fill-in elements. Thus the synthesis is not expanded and has a poor portfolio of pictures to present. HK work very hard with high frequencies, which are pushily expressed to create these shibboleths, although there is no doubting, ultimately, that amid DSP's artifice, this is one of the more honest solutions.

Harman International Industries Ltd, Unit 2, Borehamwood Ind Pk, Powley Lane, Borehamwood, Herts WD6 5PZ. ☎ 081-207 5050

System specification

Head units	
Alpine 7618R tape player/CD controller/RDS EON tuner	£550
Alpine 5959 six-disc shuttle, 20 bit/eight times oversampling	£650
DSP system	
Audiocontrol ESP-3 centre chnl processor	£339
Amplifiers	
HK TC-400 multi-way 400 watt amp (two)	£1,400
HK TC-600 bridged 600 watt subw amp	£899
HK CA70 35x2watt (two used)	£600
HK CA30 15x2 watt centre chnl amp	£149
Ancillary equipment	
HK CX01 3-way active dividing network	£179
Speakers	
1800GT 18in subwoofer speaker	£350
T81 203mm woofer (four used)	£720
TC60 160mm woofer (pair)	£125
TR87 87mm full range for cntre chnl (pair)	£45
TC25 25mm tweeters (two pairs)	£140
TO30 75mm mid-range (pair)	£315
Total	£6,461

VERDICT

▲ Bright, full, vigorous and nearly focused sound; this is a total power-house.

▼ Dominating and pushy; lacking in true width; a real credit limit breaker.

▶ £6,461.00

SOUND QUALITY



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Kenwood VW Passat CL



No flash motor from Kenwood, but the system it has shoe-horned into this VW Passat is worth nearly £5,000.



CD changer control capability comes courtesy of the KRC1054R, an RDS/EON equipped radio/cassette deck.



Three 300 watt amplifiers power twin sets of full-range drivers, plus full-range component sets, in the front.



Kenwood's 10-disc KDC-C800 autochanger is mounted to the left of a boot positively bristling with amplifiers.

There is always a danger that a car audio system rivals the pretensions and capabilities of a car — and might, on occasions, compete with the price. In these respects, Kenwood Passat CL, into which is shoe-horned the best part of £5,000 worth of equipment plus two kilowatts of amplifier, steers a fine line between virtue and ostentation. The car is a classic exercise in avoiding street attention from unworthy denizens with light fingers and yet, at the same time, advancing the siren's lure rather literally.

Much is solid Kenwood respectability. At the front is the KRC1054R, an RDS EON unit of many graces which include a superbly equipped deck and CD control capability. Discs are in the hands of the marque's reference player, the KDC-C800, a ten-disc changer in a compact box. And then, tucked away, you'll find the KDS-P100 DSP unit, modest in dimensions and not so over-stuffed as others with multiple stage effects, either. This unit combines seven-band graphic equalisation with the provision of what Kenwood calls 'hall ambience effects'. There are five of these which run the gamut from a jazz dive to the O'Shea stadium.

These ambiances apparently demand the attentions of a frontal system fed from the core KEC-600 six-channel electronic crossover into three two-channel 300 watt amps, pushing twin sets of high power full-range drivers as well as pairs of full-range component sets. Then there's

the rear, where four amplifiers shift a couple of three-way component sets along with two 12in subwoofers. It does not do to dwell on how all these were fitted into a medium saloon shell. But, as the power is undoubtedly there to bore the Channel Tunnel, they may well have slotted themselves into place. Specialist dealer Sounds Alarming was confident enough to attach a plate to the finished ensemble which is, as these cars go, the very model of visual discretion.

Turning up the wick reveals a less urbane face. The fact is that the bass power is totally

overdone. In almost every spatial effect the low frequencies were all that drew the ears — and even then the bass, loaded by reverb, was not wholly clear. What emerged from many tracks was a phase confusion. On others, a very clear tunnelling of the image resulted from this overbearing presence. On the stadium setting, you felt right by the stage with no impression of a great beyond on either side, other than this ghost image behind — or was it in front?

In short, this was a not a very easy listen compared to the neutrality and common sense that prevailed once the processor was disengaged. A choppy ride through a rock-strewn canyon was one simile on offer — others expressed a clear preference for the door handle rather than the on/off button.

Trio-Kenwood UK Ltd, Kenwood House, Dwight Road, Watford, Herts WD1 8EB.

☎ (0923) 816444

System specification

Head units	
KRC-1054R tape player/CD controller/RDS EON tuner	£590
KDC-C800 10-disc autochanger, 1bit/eight times oversampling	£410
DSP system	
KDS-P100 digital sound processor	£450
KEC-600 6-chnl active dividing network	£300
Amplifiers	
KAC-823 2x150 watt (four used; three front/one rear)	£1,120
KAC-723 2x95 watt (two used at rear)	£390
KAC-923 2x200 watt (one used twin channel for subwoofers)	£400
Speakers	
KFC-W412 12in subwoofer pair	£440
KFC-W208 eight inch subwoofer pair	£120
KFC-T201 component tweeter (two pairs)	£130
KFC-M204 component midrange	£65
KFC-M205 component midrange	£70
KFC-HQ173 six inch coaxials (two pairs)	£260
Total	£4,745

VERDICT

▲ A potentially good system that's clawing for escape; fairly modest cost.

▼ Overbearing bass; rather low image development; sepulchral feel.

▶ **£4,745.00**

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KENWOOD

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Pioneer Audi 80



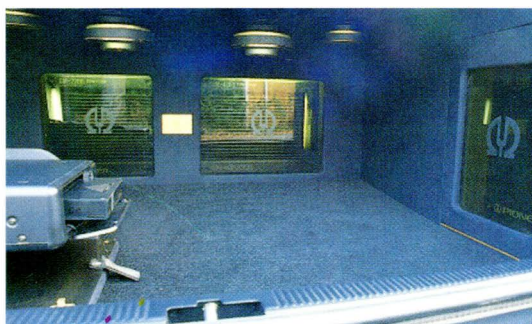
Pioneer's Audi will not excite too much attention in the parking lot, but it houses a full-house DSP system.



The hand-held remote control (top) makes switching between the various DSP modes on the move far easier.



A three-way, full-range component speaker set driven by a GM-1200 amplifier finds a home in the front doors.



The reinforced parcel shelf keeps a firm grip on two 10in subwoofers drawing current from a 240 watt amplifier.

As befits the company name, Pioneer has thrust many innovations before the consumers' ears with success and, in car audio, was notably way ahead of the field with CD. While the marque hasn't jumped the gun with DSP, the Pioneer approach to a synthesised sound environment has been here long enough to have gained street cred and even a certain cachet among the light-fingered.

Pioneer's car, too, is a workhorse for a senior manager with an eye to occasional use of dodgy parking areas and a yen for the ultimate in product knowledge. Car buffs will appreciate the minor differences between a Passat and an Audi 80 — Pioneer and Kenwood compete on similar terms. Visible tip of a £3,000 iceberg is the KEH-M9500RDS flagship of the radio/cassette range. An RDS/EON tuner and a very comprehensive and competent tape deck lift this unit way above a rut, as does the CD multi-player control. On this system, the shoebox in the boot, carefully crafted into load floor walls that hide almost all the heavy metal from view, is the CDX-M30 six-disc, single bit player. From here, the link to the DEQ-7500 DSP processor is analogue, but the black box offers remedies.

As with Clarion's unit, the Pioneer processor combines a full set of equalisation parameters with the simulation of auditoria and a similar range of preset time alignment and reverb

adjustments for listener positions within the car. There are five preset soundfields in which differentiation is made between studio and jazz club, as well as between concert hall, stadium and cathedral (grandiose that, compared to other makes' Church). A further field allows the listener free rein on creative location simulation.

A very distinct difference between this unit and Clarion's is the use of a processed centre channel. Amplification is fairly restrained. A little GM-620 70 watt unit drives the mono centre channel, while a front three-way, full-range

component set is stirred by a GM-1200 (two times 70 watts) amplifier. At the rear are twin three-way units fed by a two times 130 watt GM-220. Twin 10in subwoofers attempt to rattle the reinforced parcel shelf under the influence of a robust 240 watt GM-4200.

But for all the good works, there is some disappointment. Whereas we felt a tunnel limited the Kenwood system's environment, there was a feeling that Pioneer's offering drew you down into its depths. This was a cloying morass of chaotic bass, stirred by phase shifts and riven with shrill, high-end souls in torment. Dark forces offered little escape except into a brassily strident centre focus. "I'm thinking of good vibrations" sang The Beach Boys — so were we as we fled the centre channel's clutches. Pioneer High Fidelity GB Ltd, Pioneer House, Hollybush Hill, Stoke Poges, Slough SL2 4QP. ☎ (0753) 789789

System specification

Head units	
KEH-M9500RDS cassette player/CD controller/RDS EON tuner	£550
CDX-M30 six-disc autochanger, 1bit/eight times oversampling	£300
DSP system	
DEQ-7500 digital sound processor	£550
Amplifiers	
GM-620 2x35W (centre channel)	£69
GM-1200 2x70W (front doors)	£190
GM-2200 2x130W (rear full-range)	£250
GM-4200 2x240W (drives subws)	£490
Ancillary equipment	
UD-322 three-way passive crossover (pair)	£85
Speakers	
TS-W251 10in subwoofer (pair)	£166
TS-1703 six inch three-way units	£115
TS-M5 three inch tune-up centre chnl	£49
TS-S21 component tweeters	£72
TS-M131 component midrange	£66
TS-W161 component woofer	£95
Total	£3,047

VERDICT

▲ Componentry that has proved itself already; affordable; lovely CD player.

▼ Grasping centre channel that does much to create a doom-laden tunnel effect.

▶ **£3,047.00**

SOUND QUALITY



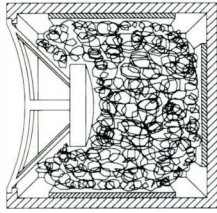
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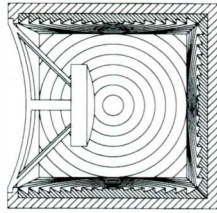
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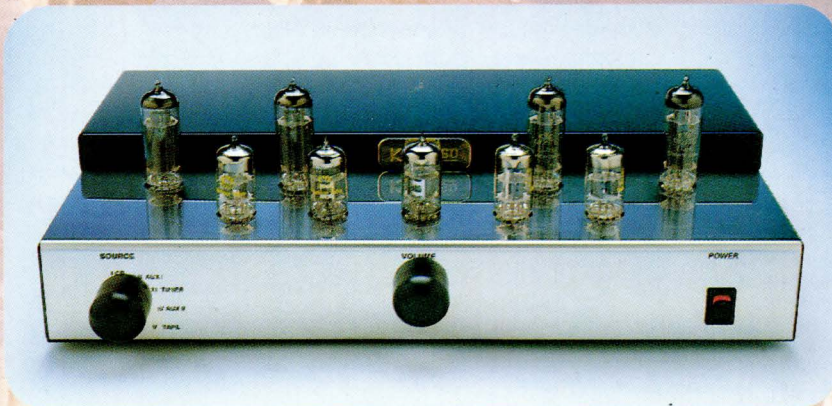
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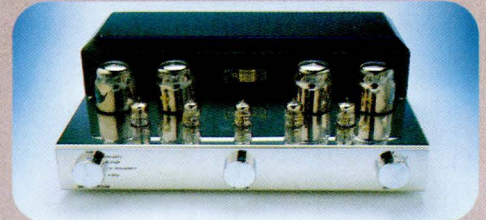


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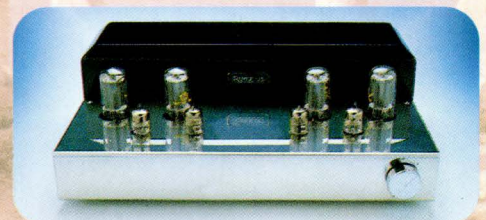
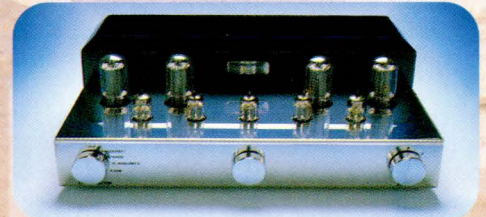
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Sony VW Corrado VR6



Sony uses a VW Corrado in an attempt to prove that you can make the interior of a sportscar sound like a disco.



The Sony XR-U800 plays tapes, has an RDS EON tuner, and controls both the CD changer and digital processor.



Front speakers fire up into the car windscreen; a centre channel driver (not shown) is in the middle of the dash.



That's one big subwoofer, a 12in XS-L300 in fact, and it is very neatly installed in a custom-built rear parcel shelf.

Sony rarely treads where angels have feared, but is a sharp trend-watcher in car audio. Even so, it's surprising how fast the marque has brought in DSP capability, which includes a modicum of time alignment at the high-end of the latest range.

We checked out the new Sony potential inside a Corrado with the big V6 engine from VW, with whom the company does a lot of dealer option business. Can DSP work in the tight confines of a rorty-torty roadster?

Filling the fascia slot is the remarkable new XR-U800RDS (EON) radio/cassette combination with a wrist-thick manual, one page of which covers tape play. This doubles up as a CD autochanger controller (in this case, the CDX-U606 with four megabyte laser tracking shock protection memory), and then triples up as the interface to the digital processor.

Chopping all the digital bits about and shepherding them into the right places is the anonymous, hideaway and pretty expensive XDP-U50D digital sound processor. All the 'U' designations in these product codes mean that the little widgets talk to each other via the Sony Unilink databus system.

The system's fairly stock after this set of flourishes — although the head unit is remotely controlled by a joystick device that can, at a mere caress and finger flick away from the steering wheel, enhance safety in the fast lane. More mundane plumbing includes front speak-

ers driven by one channel of the unusual three to four, five to six-way XM-C2000 400 watt amplifier. In this configuration, it is also driving a rear parcel shelf pair of two-way, full-range units. The DSP unit separately feeds out a subwoofer signal to a bridged XM-6020 pumping 380 watts maximum into a 12in woofer (XS-L300) on the custom parcel shelf.

The head unit commands selection of ten preset sound environments. These are set up as syntheses of common music venues and defined in the manual right down to the thickness of the walls (as in Disco, which is differentiated from a Cellar with lots of reverb). With Sony, you can chill out in a Park, bag

best Stadium concert seats or sit inside the cello in a Theatre's orchestra pit. Techniques include reverb, phase shift and time alignment in varied programs to create each aural cameo — but that is what they tend to be.

On the right material, we found the Jazz setting extremely convincing and there was a sonorous and reverberant character to Church that captured the essence of vaulted ceiling and sombre proceedings.

However, the pretty pictures don't extend any further than the windows of this sports saloon. Much of the rendition is a hollow shell, promising at the centre, but vacuous as you move your focus outward. The experience of Alpine is that time alignment really can move the rear sounds (including the sub-bass) forward to cement and join these sonic black holes.

Sony UK Ltd, Sony House, South Street, Staines, Middlesex, TW18 4PF. ☎ (0784) 467000

System specification

Head units	
XR-U800RDS tape player/CD controller/RDS EON tuner	£550
CDX-U606 10-disc autochanger, 1bit/eight times oversampling	£600
DSP system	
XDP-U50D digital sound processor	£320
Amplifiers	
XM-C2000 multi-way 4x 50 watts (configured front/rear)	£370
XM-6020 bridged mono 380 watts	£270
Speakers	
XS-L300 12in subwoofer	£180
XS-3051D rear five inch coaxials	£90
XS-1051D front four inch coaxials	£75
XS-L6 front six inch woofers	£75
Total	£2,530

VERDICT

▲ Occasional flashes of genius; a wide and varied choice of ambiances possible.

▼ Black holes in images; the effect can be fairly claustrophobic at times.

▶ **£2,530.00**

SOUND QUALITY



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Car hi-fi:

conclusions, best buys and recommendations

David Rowlands and Simon Davies take a pit stop to round up the test findings. Is DSP a passing fad or a major breakthrough in car hi-fi entertainment?

The varied experience of DSP techniques and differences in approach within this little fleet are sufficient to draw some fascinating conclusions. Trite though it may be, the first lesson is that the simpler the concept (no matter how complex its realisation), and the least embellished its application, the greater the chance that the aural con trick will come off.

This has been a good part of the stumbling block for Pioneer and Kenwood. For the former, the centre channel, aided and abetted by the enthusiasm of a sub-bass system which heightened the vertiginous descent of the image, did no apparent service other than to extend, rather than broaden, the sound field.

In Kenwood's *Passat*, the heavily clipped picture simply lacked this unwanted dimension. Here the bass crowded the image in and there was abundant evidence of over-speakering, not to mention of the muscle-bound amplifier department.

It was in the Sony *Corrado* that some benefits of greater simplification could be seen. It may well be that within these cramped confines, in which occupants sit far too close to key image providers, Sony and its fitter (ABC of Newbury) have done well. Some of the ambiences began to work and there is a real sense that, in a more sympathetic environment, Sony's work could flourish. But the sonic landscape barely went beyond the glass/metal skin and imaging across the whole focal plane was patchy.

In one sense, JBL and Harman Kardon kept the Peugeot *605SRi* simple, because this DSP system relies on one

Best Buys and Recommendeds

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Recommended products are also very good, but not quite in the same league as Best Buys. Despite being runners up, they are definitely worth considering, as they may prove more compatible.



black box, a tiny amplifier and a centre channel driver of no great size. Then the engineers went and ruined all by sealing inside a concretely amplified and speakered Tower of Babel.

The centre channel's David to the rest of the car's Goliath too often seemed puny, although on much well-focused material there was a distinct enhancement of positioning within a sharper plane of sounds for front seat occupants. There is no salvation any further back.

This superior front row reservation applies the more so to Alpine's wholly time aligned system in the *Frontera*. This is wide landscaping of the finest kind. Of course, there are 'trompe l'oreille' to be found, particularly on heavily synthesised music for which time alignment dissembles intended information. But this is superb engineering, albeit at a high price, and the most appealing to discriminating ears.

To Clarion, whose solution in the Mazda *626* differed little electronically from Pioneer and Kenwood, but whose execution was so much simpler, goes the award for light entertainment. It also gets the diploma for proving a more complex equation, involving all elements of the aural picture, can work.

Musically, there are some exotic aspects to its rendition and Clarion would gain few points for flat fidelity. But it's the vivacity and clear image development as well as the highly spatial effects that win through.

It's easy to see that there are aspects of DSP that have a profound appeal to the motor industry. If with a custom chip inside a car audio head unit you can counteract poor speakering and acoustic design, it will be a small price to pay. DSP as a car audio accessory in the aftermarket has a more restricted audience. Potential buyers would be right to be cautious lest pockets become as damaged as ears.

Best Buy components

Head unit

Sony *XR-U800RDS* (£550) Superb RDS tuner, excellent high power stage and a stimulating listen in its own right.

CD autochanger

Alpine *5957S* shuttle (£450) Award-winning CD autochanger with immense fan club and warm, spacious sound.

Amplifiers

HK TC400 (£700) One/two channel maximum 400W amplifier; big-hearted, rapid in response. Alpine *3558* (£990) Class A, four times 60W reference amplifier for sheer precision and musicality.

Speakers

JBL *1800GTi* (£350) 18in earth-moving subwoofer that is surprisingly accurate and taut. Kenwood *KFC T201/M204/M205* (£200 and over) Three-way component speaker set, rich in detail and presence.

Recommended components

Head unit

Clarion *CDC6700R* (£550) Honest, medium-priced CD player and competent RDS EON tuner without DSP trimmings.

CD autochanger

Pioneer *CDX-M30* (£300) Lower cost, high performance, compact design for compatible Pioneer head units.

Amplifier

Kenwood *KAC-723* (£195) Two times 95W pro-quality amp; ideal for the front two or three-way drivers.

Speakers

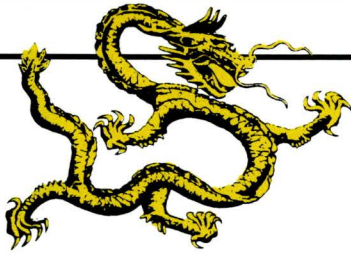
Pioneer *TS S21/M131/W161* (£233 plus) Bright three-way drivers with abundant clarity.



Safe behind perspex; the earth-moving JBL 1800GTi.



Alpine's 5957S six-disc changer sounds great for £450.



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On test: integrated valve amplifiers

Jason Kennedy listens to four valve amps that offer an attractive, alternative approach to sound, while Paul Miller takes them apart to find out why.

Why spend a lot of money on a large, low powered, hot piece of old technology when there are a myriad affordable alternatives that seem to offer a good deal more? Possibly because hi-fi is not made to be measured, it's made to listen to music with, and getting the most out of recorded music requires more than good specifications.

Tube amps measure relatively poorly but can sound great. Once people hear a decent tube amp they stop wondering why a technology that's nearly as old as this century is still so popular.

Sonically, the majority of tube amps sound mellow next to their transistorised counterparts. They have a relaxed style that allows music the time and space to breathe. This is not to say that they can't imbue drama and energy, far from it. Their dynamic capabilities allow them to do this better than the competition. In fact, it's a valve amp's ability to repro-

duce dynamics that make it so alluring. They can create a convincing sense of three dimensions that makes the alternatives seem positively flat.

Like any other hi-fi component, a valve amp needs to be used in an appropriate system. As they are not naturally very powerful devices it makes sense to use loudspeakers with a sensitivity of about 89dB or more (at eight ohms). Some can handle less attractive loads but generally,

to hear a tube amp at its best, give it the most efficient and transparent speaker you can.

For the purposes of this review I used two such designs; the Audio Note AN-E/SP(91dB) and the Hörning Agathon (95dB). Reviewed last month, the latter harks back to the days when tubes were king with Lowther drivers and a horn loaded bass unit.

Some people are put off valve amps as they don't necessarily last as long as their semiconductor cousins. Estimates vary

The cast list

Audio Innovations	
Classic 25	£699
Audio Note Oto SE	£1,499
EAR 834	£1,298
Sonic Frontiers SFC-1	£1,595



Valve amps prove they can convey great dynamics — just don't throw any bricks at them.

but a consensus would suggest that a set of tubes lasts for about 6,000 hours, which equates to between four and six years, depending on usage.

In most cases, replacement tubes are not difficult to get hold of and they are as easy to change as a light bulb. A replacement tube set costs approximately 10 per cent of the retail price of the amp. In the case of the Audio Innovations Stereo 25, this equates to £103, the kit format nature of that amp distorting the percentage somewhat.

This aspect also offers scope for upgrading. Tubes themselves vary in quality, so the enthusiast can improve the sound of an amp merely by buying higher grade valves.

Understanding the

Pentode/Triode: the majority of contemporary valve amps use either pentode or triode output tubes. Pentodes are more powerful and technologically advanced and are found on all the amps in this group, as well the majority of 'affordable' tube amps. Triodes tend to sound cleaner and more dynamic, and are favoured by aficionados of very efficient loudspeakers.

Transformer tapings: the output transformers on valve amps often have two tapings. These are windings for different impedance loudspeaker loads, usually four and eight ohms. As loudspeakers rarely



Valves versus transistors

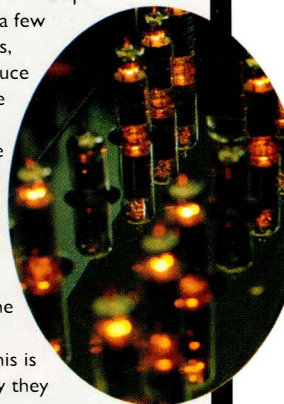
The difference between valve and transistor amplifiers is something like the difference between analogue and digital watches. They both tell the time but the former do so in a more legible and natural fashion.

The fundamental difference between the two is that valve amplifiers have hot, glowing, lamp bulb'esque output devices that are naturally inclined to operate in Class A and require output transformers to match their high output impedances to loudspeakers. Physically, they are usually bigger and heavier than transistor amps and, with a few exceptions, they produce a lot more heat and cost more per watt.

Valve amps use technology developed in the fifties and earlier. This is partly why they don't measure particularly well by transistor standards — the majority producing high distortion on the test bench. Ironically, they sound less distorted than many technically perfect transistor amps which is largely due to the inoffensive, even euphonic, nature of that distortion.

Sonically, the areas where valve amplifiers are traditionally criticised include a lack of bass 'slam' or drive and high frequency softness. Many non-believers feel that they give a rose tinted view of events. However, tube amps are generally given credit for having fine midrange, and the transparency and dynamics that even the poorest examples can achieve are a treat after many a solid state design.

As far as the user is concerned, valve amps don't generally have the sort of facilities that their transistor cousins usually offer. In a less is more kind of scenario, you're not likely to find such added extras as headphone outputs, multiple sets of speaker outputs, tone controls or separate listen and record selectors. But just count how many racing cars have glove compartments.



technology

have a constant impedance, it pays to experiment with tappings to find the one that suits your speakers the best.

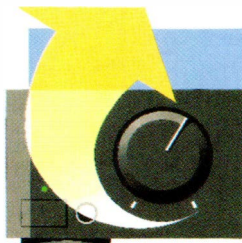
Push-pull/single ended: valve amps usually operate in one of two ways. The more popular is called push-pull, which is similar to the way that transistor amps work and is the more powerful and efficient approach. The alternative is called single-ended which generally uses a single output tube in a simpler circuit, and trades one type of distortion for another. Like triode tubes, often used in SE mode, it's an approach that has a strong following among hardcore tube junkies.

Turning on to valve amplifiers

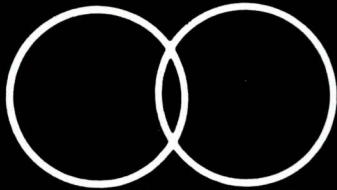
Integrated tube amps are a relatively new phenomenon to the hi-fi world. Their high-end nature and fundamentally high cost, because of the need for output transformers et al, has meant that pre/power combinations have ruled the roost since the valve amp revival in the early eighties. Integrated models have obvious cost advantages in as much they only need one case and one mains transformer, and from the users

point of view they take up less space and don't require expensive interconnects to give of their best.

Just as loudspeakers, turntables and trannie amps vary enormously, so do tube amps. What we are looking at here is entry level tube technology, the A-400s and 8000As of the tube world. They weigh a lot more than those designs and they cost a lot more to build, but that's about where we are in the scheme of valve technology.



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Audio Innovations Classic 25



VERDICT

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- ▲ Great musical insight; totally relaxing sound that you'll want to keep listening to.
- ▼ You have to build it yourself or shell out the extra £300 for a *Series 700*.
- ▶ £699.00

SOUND
QUALITY

■■■■■□

VALUE FOR
MONEY

■■■■■□

temporal information to let you transport yourself into the music. To put it simply, it's almost as though it's not there. This is not an amp for the mind; it's an amp for the soul.

Conclusion

The Audio Innovations *Classic Stereo 25* could be more transparent, dynamic and have a wider bandwidth but I doubt that it could be any more communicative of musical spirit. For that reason alone the 25 deserves a firm Recommendation.

Audio Components Ltd, Albany Court, Albany Rd, Granby Ind Estate, Weymouth, Dorset DT4 9TH.
☎ (0305) 761017

Audio Innovations is one of the brands that help put tube amplification back on the map in this country, with integrated models like the *Series 500* and some of the first triode power amps of the eighties. The *Classic Stereo 25* is based on the *Series 700* line integrated and is sold in kit form in an attempt to bring down the price of owning tube amplification.

Assembling the kit involves approximately eight hours toil, maybe more if you are completely uninitiated, and includes stuffing the circuit board. Innovations supplies a comprehensive manual for the complete beginner, so all you need is a soldering iron and a volt meter.

The *Stereo 25*, which one can't help thinking must have been named after Leak's *Stereo 20* of the sixties, is a neat utilitarian looking amp with five line inputs and a tape output. Its speaker outputs offer tapplings for eight or four ohm speakers.

Sound quality

If there's such a thing as a traditional tube amp sound, the *Stereo 25* comes closer to it than the alternatives in this test. The 25 is slightly soft at the frequency extremes, has a warm but very open midband and makes a good showing on the dynamics front. Unlike many, it's also got a good sense of timing — the boogie factor. This is the one amp that had my foot tapping time and again to tracks that should have been getting bored with.

Although the *Stereo 25* didn't get on that well with the Agathon speakers, it was extremely listenable. It proved a little veiled, perhaps, but this was in a warm, comfortable way that lets you enjoy the music and almost takes the hi-fi out of the equation. Don't get

me wrong though. It does plenty of hi-fi things as well. Depth is appropriately portrayed and despite slightly rolled off high frequencies it provides space with aplomb. The things that count are well handled by the 25; it resolves enough tonal colour, dynamic shading and

LABORATORY REPORT

	20Hz	1kHz	20kHz
Maximum Continuous Power Output, 8ohms	7.7W	24.3W	8.0W
4ohms	7.6W	24.0W	8.0W
Dynamic Headroom (IHF)	+0.62dB (28.0W)		
Peak Current (5msec, 3% THD)	3.4A		
Output Impedance	1.19ohm		
Damping Factor	6.75		
Stereo Separation (1kHz) (20kHz)	57.7dB / 37.5dB		
Channel Balance (1kHz, -20dBV) (-60dBV)	0.35dB / 3.65dB		
Total Harmonic Dist. (0dBW) (2/3 power)	-65.9dB / -59.8dB		
CCIR Intermod. Dist. (0dBW) (2/3 power)	-59.5dB / -48.5dB		
Noise (A wtd, 0dBW) (2/3 power)	-84.1dB / -94.1dB		
Residual Noise (unwtd)	-64.8dBV		
Input Sensitivity (for 0dBW) (for full output)	52.8mV / 302mV		
Line Overload (1kHz) (20kHz) (50kHz)	>16V / >16V / >16V		
Tape Output/Impedance	As source / As source		
Input Loading	52kohm/100pF		
DC Offset, left/right	0mV/0mV		
Serial Number	25116		

CD/Aux

57.7dB (1kHz)
37.5dB (20kHz)

0.35dB (-60dBV)
3.65dB (-60dBV)

-65.9dB (0dBW)
-59.8dB (2/3 power)

-59.5dB (0dBW)
-48.5dB (2/3 power)

-84.1dB (A wtd, 0dBW)
-94.1dB (2/3 power)

-64.8dBV (unwtd)

52.8mV (for full output)

>16V (1kHz)
>16V (20kHz)
>16V (50kHz)

As source / As source

52kohm/100pF

0mV/0mV

25116

Low frequency output extends to a -3dB point of just 2Hz.

Harmless 2nd and 3rd order distortions are left in the audioband.

Primarily sensitive to RF noise around 200MHz (see 700 Series in issue 116).

This is a relatively basic but proven design based upon the older 700 Series (see issue 116). Four EL34 pentodes drive the output to a maximum of some 24W midband but, in common with the 700-series, distortion climbs just as power fades at the frequency extremes. At least the output impedance has improved from 1.5 to 1.2ohm. Otherwise, it's revisions to layout and power supply that influence performance. So the high frequency separation has dropped to just 38dB while the unwanted hum figure has increased to -65dBV (0.6mV). Nevertheless, the basic 'colour' of the amp remains unchanged, as evidenced by the characteristic pattern of IM distortions on the 3D plot.

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SPK 300	7-core blue cable having 13 strands per core (each strand laminated). Requires soldering.

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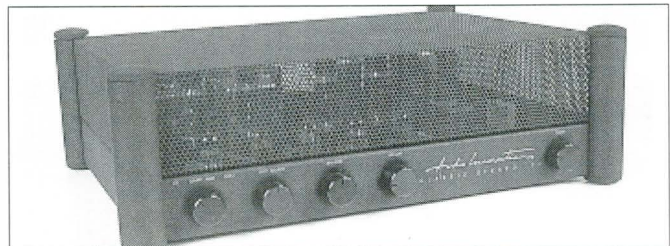
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Audio Note Oto SE



VERDICT

- ▲ Superb transparency and dynamics; a phono stage and the potential for upgrading with a second power amp.
- ▼ Limited power; only three line inputs; occasionally too enthusiastic phono stage; side entry input sockets.
- ▶ £1,499.00

SOUND QUALITY



VALUE FOR MONEY



dark balance of the *Agathons*. This is partly a reflection of the *Oto SE*'s enthusiasm and is a small price to pay for the life that came with it.

Conclusion

The Audio Note *Oto SE* seems to be more committed to the potential of valve technology than the alternatives in this group. It has better clarity and dynamics and, at its best, was the most realistic. It's also the least suited to inefficient speakers and aggressive sources so careful system matching is a must. Recommended.

Audio Note UK, Unit 1, Block C, Hove Business Centre, Fonthill Rd, Brighton BN3 6HA.
☎ (0273) 220511

The Audio Note brand name can be found on loudspeakers, cartridges and valve electronics with price-tags that should carry a health warning. The *Ongaku* for instance, which has won admiration around the world, now costs more than 40 grand. The *Oto SE*, by contrast, doesn't come from the Japanese side of the company. Instead, it is a creation of the British arm and at £1,500 is somewhat more accessible.

The *Oto SE* is unique in this group as it has both a phono stage and a single ended output stage, hence the *SE*. There is a standard *Oto* available, with conventional push-pull output, for £1,250, but the *SE* version has a lot more street cred. Single ended operation means fewer watts and more expensive output transformers but gives a degree of transparency that more than compensates for these inconveniences.

The *Oto SE* is equipped with three line inputs, the aforementioned vinyl disc stage, tape out and pre out (which allows you to add a *P1SE* power amp for bi-amping purposes). The speaker outputs have taps for four and eight ohm speakers which sit at the back of the amp. The input sockets, however, are on its left hand flank which might be inconvenient.

Sound quality

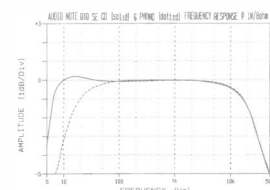
The *Oto SE* is the least powerful and cleanest sounding amplifier in this group. It has a tremendous ability to resolve subtle detail and managed to add nuances that none of the others even hinted at. The insight the *Oto SE* offers is, for me, worth more than sheer power.

What this amp does so well is reveal the shape, level and tonal colour of notes. Other amps appear to have clarity, but it seems to be difficult to beat a well executed single ended design when it comes to dynamic resolution.

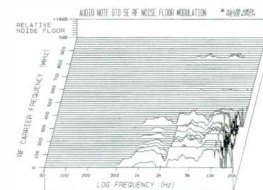
Results with CD were particularly good, the Black Crowes live offering up a wealth of previously undiscovered detail. Phono performance echoed this clarity. Tonally, however, I found the amp a touch lively with the Audio Note speakers. Ironically, it was better suited to the slightly

LABORATORY REPORT

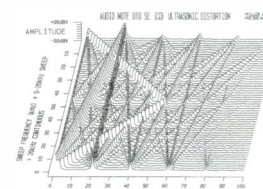
	20Hz	1kHz	20kHz
Maximum Continuous Power Output, 8ohms 4ohms	2.9W 2.9W	9.5W 8.9W	8.8W 8.0W
Dynamic Headroom (IHF)		+1.24dB (12.7W)	
Peak Current (5msec, 3% THD)		0.75A	
Output Impedance		1.74ohm	
Damping Factor		4.61	
		CD/Aux	MC
Stereo Separation (1kHz)		66.2dB	51.0dB
(20kHz)		57.9dB	30.0dB
Channel Balance (1kHz, -20dBV)		0.34dB	0.34dB
(-60dBV)		0.15dB	0.16dB
Total Harmonic Dist. (0dBW)		-49.0dB	-48.2dB
(2/3 power)		-40.5dB	-39.9dB
CCIR Intermod. Dist. (0dBW)		-48.1dB	-40.5dB
(2/3 power)		-43.5dB	-38.2dB
Noise (A wtd, 0dBW)		-76.7dB	-56.1dB
(2/3 power)		-81.6dB	-56.7dB
Residual Noise (unwtd)		-53.9dBV	-53.9dBV
Input Sensitivity (for 0dBW)		12.7mV	85uV
(for full output)		42.0mV	281uV
Disc Overload (1kHz)			206mV
(20kHz)			1065mV
(50kHz)			1255mV
Tape Output/Impedance		9.7V (disc) / 49.9kohm	
Input Loading		49kohm/100pF	47kohm/100pF
DC Offset, leftright		0mV/0mV	
Serial Number			PSE-116



Bass is curtailed on phono input to reduce 'cone-wobble' caused by warped records.



Unpleasant high-level and high-order distortions in the audio range.



Susceptible to RF interference from digital gear like DACs and CD players.

Audio Note has abandoned the push-pull output stage with its attendant phase-splitter in favour of two parallel-wired single-ended output pentodes. This parallel connection helps 'boost' its meagre output to nearly 10W (at 3 per cent THD) yet even this collapses to 3W at 20Hz.

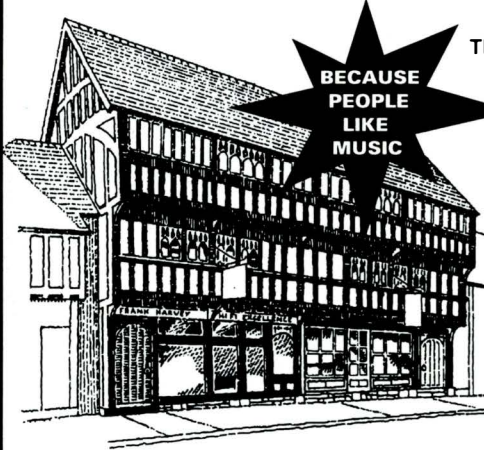
This, plus the non-existent 0.75A reserve of current and high 1.7ohm output impedance, limits the *Oto* to very sensitive, easy-load speakers (preferably 6ohm rather than 8ohm judging by the secondary impedance of the output transformer).

Furthermore, the ridiculously high 42mV (CD) input sensitivity means you'll get virtually no useable range out of the volume control.

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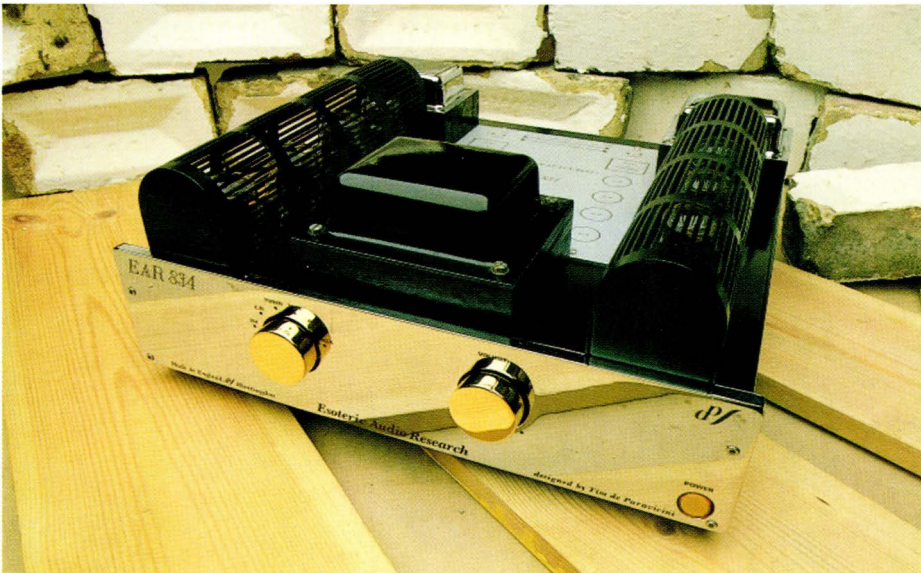
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EAR 834



EAR (Esoteric Audio Research) is run by one of the major figures in British amplifier design, Tim de Paravicini. Tim has designed many successful solid state models for other people but has concentrated on serious tube amplifiers for his own brand.

The 834 is the first EAR integrated amp and is a real treat to behold. It oozes sex appeal and quality. From the chunky chrome plated front panel to the architectural tube covers it inspires confidence. Comparing it with the other three units in this group, one can't help but wonder how Tim has managed to make the 834 look this good without pushing the price higher.

On the facilities front it has six line inputs and a tape out, which is about par for the breed, though the absence of a balance control makes it the least knob strewn beast in the bunch.

Sound quality

Listening to the 834 one initially notices that it's relatively dry sounding with fairly lean bass and a sharp, clean midrange; but the more you listen, the more it begins to sound like a transistor amp. This amp has a sense of energy and electricity that makes records much more gripping to listen to. It pins you to your seat and forces you to listen which can be thrilling, but is fatiguing in the long term.

The tight, tough presentation is tremendously appealing. Bass is given real muscle and there's no shortage of clarity. My live Black Crowes CD has never sounded this much like the venue it was recorded in, and Patrick

O'Heam's bass on *Lobster Girl* has rarely had this sort of texture. I was inclined to play non test tracks just to see what they'd sound like.

However, the 834 has a strong tendency to become fatiguing, and if you listen to something that is itself aggressive you may have to

VERDICT

RECOMMENDED
HI-FI CHOICE
MAGAZINE

- ▲ Maximum rock'n'roll value; attractive looks; electrifying sound.
- ▼ Electrifying and sometimes fatiguing sound; encourages anti-social listening levels.
- ▶ £1,298.00

SOUND
QUALITY

■ ■ ■ ■ □

VALUE FOR
MONEY

■ ■ ■ ■ □

throw in the towel before the end of the disc.

Conclusion

I realise, of course, that some tastes are inclined this way, so if you find most tube amps too laid back, and want a bit more meat with your gravy than many transistor amps offer, then this could be the one for you. Not an amp for the faint-hearted, the EAR 834 requires total commitment and careful speaker selection. Recommended, with the caveat that if you're a tube fan you probably won't like it.

Esoteric Audio Research, Unit 11, Stukely Meadows Industrial Est, Huntingdon, PE18 6ED.
☎ (0480) 453791

LABORATORY REPORT

	20Hz	1kHz	20kHz
Maximum Continuous Power Output, 8ohms	39.0W	43.6W	10.8W
4ohms	27.3W	25.8W	2.7W
Dynamic Headroom (IHF)	+0.39dB (47.8W)		
Peak Current (5msec, 3% THD)	3.2A		
Output Impedance	0.421ohm		
Damping Factor	19.0		
Stereo Separation (1kHz) (20kHz)	81.0dB / 53.8dB		
Channel Balance (1kHz, -20dBV) (-60dBV)	0.03dB / 0.84dB		
Total Harmonic Dist. (0dBW) (2/3 power)	78.5dB / -64.5dB		
CCIR Intermod. Dist. (0dBW) (2/3 power)	77.9dB / -66.1dB		
Noise (A wtd, 0dBW) (2/3 power)	-80.8dB / -90.6dB		
Residual Noise (unwtd)	-65.7dBV		
Input Sensitivity (for 0dBW) (for full output)	22.0mV / 149mV		
Line Overload (1kHz) (20kHz) (50kHz)	>16V / >16V / >16V		
Tape Output/Impedance	As source / 4.5kohm		
Input Loading	54kohm/240pF		
DC Offset, leftright	0mV/0mV		
Serial Number	None		

Output is cut sharply above 40kHz though bass extends to 3.3Hz.

Similar to Audio Innovations but distortion is higher and messier at high frequencies.

The audible effect of RF interference is limited to very high frequencies.

This is the most linear and, arguably, most compatible amplifier of the test, though as its output actually falls from 44W (8ohms) to 26W (4ohms) the 834 could hardly be described as 'load tolerant'. Once again, sensitive 8ohm speakers are the order of the day.

Otherwise, the lower 0.4ohm output impedance and healthy 39W delivery at 20Hz suggests a greater degree of control at low (bass) frequencies. Distortion is also very low indeed at just 0.01-0.06 per cent midband, yet quickly rises to some three per cent at high frequencies where the output is restricted to 11W. All in all, it's a fairly well-judged if unexceptional design.

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Sonic Frontiers SFC-1



All the way from Canada, the slick and purposeful Sonic Frontiers *SFC-1* is the only foreign body in this cosy group. It's easily the biggest amp in this test, but whether that's a good thing is a matter of opinion. Just don't try to stick it onto anything but the most accommodating equipment rack.

Facilities are what really sets the *SFC-1* apart. By British tube standards it has an abundance of them; six line inputs, including one called 'direct' that bypasses the selector, mute/operate and mono/stereo switches as well as balance. It has user adjustable bias, easy style, tape out and tasty PCB mounted phonos. Sonic Frontiers started out selling designer components and the *SFC-1*'s guts are replete with Holco resistors, MIT multcaps and Gold Aero tubes.

Sound quality

I started listening to the *SFC-1* using the CD input and was rewarded with a relaxed, open and polished sound that lacked bite and dynamics. It had a degree of veiling that meant that saxophones, for example, lost their metal. After a while this overly civilising influence became uninspiring and I switched over to the direct input. This made a dramatic difference; the veneer of civility was gone, replaced by clarity and presence — it's just a pity that there's only one such input.

Using the direct input the *SFC-1* displayed a strong and attractive midband that worked well with CD, resolving a good deal of detail and reproducing depth and tone in a convincing manner. There's still a faint notion of veiling but nothing like the gloss encountered on the standard inputs. The latter would be useful, however, if the source or loudspeakers were inclined to over enthusiasm.

Next to the *Oto SE*, the *SFC-1* sounds a little compressed and mid forward. It lacks the expansiveness of that model but has more muscle and represents a good balance of openness and control. It doesn't have the grip of the *EAR* but neither does it have that

VERDICT

- ▲ A wealth of facilities; smooth, controlled sound; good build quality.
- ▼ Could be more involving; might be physically too large for some situations.
- ▶ £1,595.00

SOUND QUALITY



VALUE FOR MONEY



model's stridency, which means that one can listen to it for hours without fatigue setting in.

Conclusion

The Sonic Frontiers *SFC-1* is a large, well built amplifier that has more facilities than one expects from a tube amp and delivers two alternative sonic styles. The standard inputs have a smooth, relaxed and confident sound that will never offend, but if you're a committed music lover the direct input removes some of that sheen and offers a gritty, real world sound.

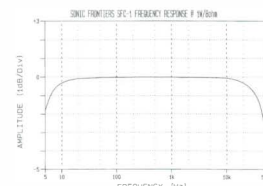
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LABORATORY REPORT

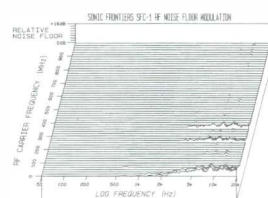
	20Hz	1kHz	20kHz
Maximum Continuous Power Output, 8ohms 4ohms	17.5W 6.7W	53.8W 56.4W	49.8W 8.0W
Dynamic Headroom (IHF)			+0.89dB (66.0W)
Peak Current (5msec, 3% THD)			1.2A
Output Impedance			3.59ohm
Damping Factor			2.23
Stereo Separation (1kHz)			72.3dB
(20kHz)			46.7dB
Channel Balance (1kHz, -20dBV)			0.47dB
(-60dBV)			2.17dB
Total Harmonic Dist. (0dBW) (2/3 power)			-49.2dB
CCIR Intermod. Dist. (0dBW) (2/3 power)			-37.3dB
Noise (A wtd, 0dBW) (2/3 power)			-40.1dB
Residual Noise (unwtd)			-88.8dB
Input Sensitivity (for 0dBW) (for full output)			-92.6dB
Line Overload (1kHz) (20kHz)			-76.5dBV
(50kHz)			73.7mV
Tape Output/Impedance			534mV
Input Loading			>16V
DC Offset, left/right			>16V
Serial Number			>16V
			As Source / As Source
			45kohm/120pF
			0mV/0mV
			F93BA13

At first sight, there seems plenty of power in tow yet, in truth, the *SFC-1* is poorly balanced. Sure enough a full 54W and 50W is impressive stuff at 1kHz and 20kHz respectively yet, possibly as a result of transformer saturation, this plummets to just 18W at 20Hz. The +8.5dB drop off in power at both high and low frequencies is even more dramatic as the amplifier attempts to cope with a 4ohm load.

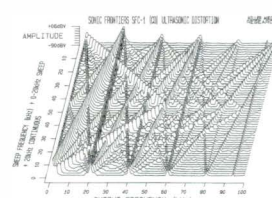
The meagre 1.2A current rating, ridiculously high 3.6ohm output impedance and poor 0.36-1.4 per cent midband total harmonic distortion are further blots on the Sonic Frontier copybook even if its 534mV (CD) input sensitivity is the most practical of the lot.



Frequency response is sensibly limited at extremes of both bass and treble.

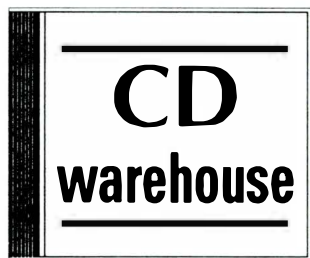


Very high levels of IM distortion are present at just 1W into 4ohm.

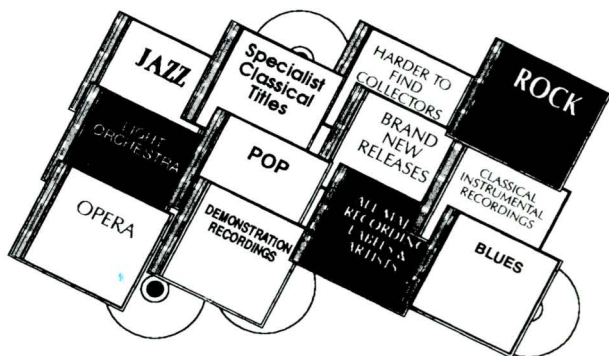


Very little aggravation caused by RF interference.

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Integrated valve amplifiers: conclusions, best buys and recommendations

Jason Kennedy applauds this quartet of integrated valve amplifiers and finds that the quality is so high that choosing a winner is not an easy task.

This proved a most interesting group of amplifiers to review. The sheer diversity stretched way beyond the bounds encountered with transistor amps, and the generally high standard made it hard to decide which were and were not deserving of Recommendation.

Each amp had its own peculiar strengths and weaknesses, and which you prefer will ultimately depend on where your sonic priorities lie.

The amplifier that came closest to embodying all that is excellent in tube sound was Audio Note's *Oto SE* (£1,500). Although this single-ended pentode design has fairly low power, it has the clarity and dynamics to frighten the more expensive models. Pair this with some efficient loudspeakers and you've got a system that will do justice to a decent source.

The *Oto* was the only model in this bunch to feature the extra gain and equalisation necessary for a turntable, albeit one with a moving magnet or high output moving coil cartridge. Its limitations are in bass extension and loudness — this is not a head-banger's amplifier.

Second up, the Audio Innovations *Classic Stereo 25* (£699) was the cheapest in the test, largely as a result of its kit status. It was one of the most forgiving and probably the most easily enjoyed model in this group. I've heard more exciting and more 'hi-fi' amps, but the *Stereo 25* has an easy musicality that allows it to disappear and leave you with the spirit of the recording. However, if the notion of building a valve amp has you breaking out in a cold sweat, try the *Series 700* (£999) which is virtually identical but fully built and warranted.

The sound of the third and last Recommendation, the £1,500 *EAR 834*, was almost the direct opposite of a tube amp. It could never be called

soft and sweet, or even relaxed. The *834* can inject energy into the most lethargic recording. On the plus side, guitar rock fans can revel in the 'edge' that makes such instruments sound more realistic than usual.

However, the same effect can sound distinctly distorted when applied to acoustic instruments and, in the long term, may prove fatiguing. In the final analysis, the fact that the *834* made me want to listen to more music swung the Recommendation, but if you don't like raw energy, give it a wide berth.

The most civilised model in the group was the substantial Sonic Frontiers *SFC-1*. It has a good selection of facilities, including mono and mute switching. The only problem is that all bar one input has a rather smooth, veiled sound that fails to make the most of really good sources.

The direct input cuts through the veneer of civility to reveal some of the life and contrasts within the music, but if you have two serious line level sources (you'll need a separate phono stage to use LPs), one is always going to be

The best of the rest

There are, of course, plenty of alternatives to the four amps in this group — both tube amps and also transistor designs which have a 'kinda toobey' sound.

Copland's £1,420 *CTA501* isn't exactly an integrated amp, but as it has two inputs and a volume pot it's a pretty flexible

power amp for those who are dedicated to CD players. Audio Innovations makes a range of integrated and pre/power amps of the tube persuasion, including the £699 *L2* line and £699 *P2* phono preamps, and £849 *Series 800* power amp. The latter is a power amp version of the *Classic 25* and the two preamps offer exceptional sound quality, but you

have to buy both if you want to play CDs and LPs. There are also two £999 integrations; the *Series 500* which has a phono stage and the *Series 700* (left) which is very similar to the kit tested here.



Recommended listing

Audio Note *Oto SE* £1,500. Transparent, very dynamic and subtle performance with limited power make for a very clean sounding amp.

Audio Innovations *Classic Stereo 25* £699. Warm, cuddly and immensely musical kit amp that almost transcends 'hi-fi' with its sheer listenability.

EAR *834* £1,300. Electrifying sound that pins you to your seat and puts the 'raw' into raw power; tends to be a bit wearing in the long term.



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Recommended products are also very good, but not quite in the same league as Best Buys. Despite being runners up, they are definitely worth considering, as they may prove more compatible in some systems.



The only transistorised alternative in this price range that we've heard lately is Musical Fidelity's £1,399 *A1000*, a fully grown *A1* with a smooth and engaging sound.

Audio Note makes both line only and push-pull versions of the *Oto* that start at £899 and the *M1 phono/P1SE* (£699/£949) pre/power combo that is effectively the *Oto SE* in two boxes.

As most of the established British tube brands seem to be including them in their ranges, there are other tube integrations that we haven't looked at yet. In our original list we had models from Arion, Bill Beard, CR Developments, Croft and Tube Technology, all of which deserve, and will receive, future attention.

Dealer Guide

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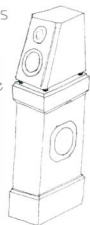
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PAUL GREEN HI-FI LTD, C/O Harper Furnishings, Kensington Showrooms, London Road, Bath BA1 6AD. (0225) 316197. Technics, Denon, Sony, Rotel, AVI, Quad, Rogers, Mission, Tannoy, Aura and many many more. 2 demo rooms, home demos, appointments required, service dept, free install, home trial. Access, Visa, Int free credit, instant credit. Tue-Fri 9-5.30, Sat 9-5, closed Monday.

V' AUDIO, 36 Druid Hill, Stoke Bishop, Bristol B59 1EJ. (0272) 686005. ATC, AVI, Acoustic Energy, Audio Innovations, AMC, Analogue Electronics, Cadence Valve, Chord Amps, Exposure, Jamo, LFD, Pink Triangle, Ruark, Michell, REL, Sansui, SME (inc20A), Sonic Link, Stax, Townshend, Wadia. Demos by appt only, home trial facilities, free installation, service facilities

BERKSHIRE

ARC AUDIO, 9 Dukes Ride, Crowthorne, Berks, RG116L2. (0344) 762201. Denon, Harman Kardon, JPW, Marantz, Monitor Audio, Onix, Rogers, Ruark, Tannoy, Thorens, Yamaha. Demo facilities, no appt necessary, home trial facilities, free install. Access, Visa, Diners. Open Mon-Sat 9-6pm (closed Wed at 1pm)

B&B HI-FI, 11-12 Market Place, Reading, Berkshire, RG1 2EG. (0734) 583730. Aiwa, Denon, Kenwood, Mission, NAD, Panasonic, Pioneer, Rotel, Sony, Technics. Free installation, Service dept. Access, Visa, Credit Facilities including interest free credit subject to status. 9.30-5.30, Sat 9-5.30. Also at: Bracknell, Maidenhead, High Wycombe, Newbury. NEWBURY AUDIO, 2 Weavers Walk, Northbrook Street, Newbury, Berkshire, RG13 1AL. Tel/Fax (0635) 33929. Arcam, Denon, Epos, JPW, Linn, Marantz, Royd, Ruark, Sound Organisation, Tripod. Full demonstration facilities. Home demonstrations trial. Free delivery and installation. Service and parts dept on site. Minimum of 3 years guarantee. Various financial facilities available. Open 10-5.30 Tue-Sat, evening demos by appointment.

READING HI-FI CENTRE, 4 Queen's Walk, Reading RG1 7QF. (0734) 585463. "The best equipment, advice and service from Berkshire's premier Hi-Fi emporium". **BADA**

BUCKINGHAMSHIRE

AUDIO INSIGHT LTD, 53 Wolverton Rd, Stony Stratford, Milton Keynes, Bucks MK11 1ED. (0908) 561551. Alchemist Products, AVI, Arcam, Audiolab, Aura, Heybrook, Meridian, Moth, Rotel, Royd, Ruark, TDL, UKD and more. Records and CDs, record cleaning service. SGL speaker demo room. Access, Visa and Finance. DEJAC HI-FI CONSULTANTS, 21 The Broadway, Old Amersham, Bucks, HP7 OHL. Tel 0494 433173. AMC, Arcam, Bose, Meridian, Quad, Rotel, Denon, NAD, Tannoy, Mission, TDL. 2 Dem Rooms. Appts Necess. Free Installation. Tricity Finance, Instant Credit, Open 9:30-5:30pm including Sat.

D.L. CHITTENDEN LIMITED, 59-61 The Broadway, Chesham, Bucks, HP5 1BX. (Opposite Boots). (0494) 784441 Philips, Mordaunt-Short, Denon, Kenwood, Canon Audio, Koss, Wharfedale. Nicam TV

& Video, Surround Sound, AV Systems. Showroom Demonstrations from expert and friendly staff. No appts nec. Service Department. Credit facilities available. Open 8.30 to 17.30 Mon-Sat.

CAMBRIDGESHIRE

AUDIO FILE, 2 Foundry Walk, Market Hill, St. Ives, Cambridgeshire. (0480) 66123. Naim, Rega, Quad, Yamaha, Mission, Arcam, Denon, Audio Lab, Meredion, JPW. Musical Fidelity. 9.30am-6pm 6 days. 0% Credit. **BADA**

STEVE BOXSHALL AUDIO, 41 Victoria Rd, Cambridge CB4 3BW. (0223) 68305. 10-6 - 6 days. 3 dem rooms, home trial, appts. preferred. Free installation and service dept. Access, Visa & credit. **BADA**

UNIVERSITY AUDIO, 1-2 Peas Hill, Cambridge. (0223) 354237. Mission-Cyrus, Arcam, Rotel, Denon, Meridian, Ruark, ATC, AVI, Quad. 3 dems, 1 single speaker. Home trial, free install, Service Dept. Visa, Access, Amex, Credit. 9-5.30.

CHESHIRE

ASTON AUDIO, 4 West St, Alderley Edge. (0625) 582704. For the very best in hi-fi separates and home cinema. Wide range of specialist audio, interest free credit. Visa, Access. Home trial. **BADA**

DOUG BRADY HI-FI, Kingsway Studios, Kingsway North, Warrington. Padgate (0925) 828009. For the very best in hi-fi separates and home cinema. All credit cards. 3 Dem rooms. Open 6 days. **BADA**

CHRIS BROOKS HI-FI, 29 Gaskell St, Stockton Heath, Warrington. (0925) 261212. Tues-Sat 10-6. 2 dem rooms. Credit facilities. All credit cards. Total absence of bull*** **BADA**

CONGLETON HI-FI, 1/1a Duke St, Congleton, Cheshire, CW12 1AP. (0260) 297544. Acoustic Energy, Arcam, B&W, Denon, Epos, Linn, NAD, Nakamichi, Onix, Royd, Target, etc. Superbly appointed single speaker demo facilities. No appts nec, home trial facilities, free installation. 2 year guarantee on all equipment. Access, Visa. Credit facilities available on request. Open Mon-Sat, closed Weds. **BADA**

HI-FI STEREO, 51 Washway Road, Sale, Cheshire. 061-973 5577. Technics, Marantz, Denon, Rotel, Pioneer, Mission, Tannoy, B&W, Mordaunt-Short, Celestion and many more. The area's leading hi-fi specialist, established for over 25 years. Demo rooms available, including home cinema. No appts required, service dept, free install, home trial facilities. Access, Visa, instant credit. Open Mon-Sat 9-5.30, closed Wed. **BADA**

NORMAN AUDIO, 106 Victoria Str, Crewe. (0270) 211091 Fx (0270) 211795. For full details see our Lancashire entry. **BADA**

PETERS HI-FI, 4 St Michaels Sq, Grosvenor Precinct, Chester. (0244) 322063/319392. Arcam, Technics, Sony, Marantz, Dual, Denon, Tannoy, Wharfedale, Quad. 2 Single speaker Dem rooms, no appts nec, free installation service dept. Access, Visa, Amex. Peters credit chargecard. Mon-Sat 9-5.30.

THE HI-FI SHOWROOMS, 12A West Str, Congleton, Cheshire (0260 280017) 1 Stanley St, Leek (0533 383780), Celestion, Creek, Exposure, Marantz, Musical Fidelity, Pink Triangle, Project, Rotel, Ruark, Systemdek, Tannoy, Technics. 5 Demo Rooms, No appts nec. Home trial, Free install, Service dept. Access, Visa, Lombard Tricity. Open 9-5:30, Closed

Wed

SWIFT HI-FI, St Annes Parade, Wilmslow. (0625) 526213. Aura, B&W, Denon, Kenwood, Marantz, NAD, Pioneer, Rotel, Systemdek, Tannoy, Revolver, JPW. Open 9:30am-6:00pm dem room. No pressure! **BADA**

CLEVELAND

ACTION ACOUSTICS, 155-157 High Street, Redcar, Cleveland TS10 3AN. 0642 480723. Audio Innovations, Denon, Harman-Kardon, JBL, Michell, Musical Fidelity, Pink Triangle, Revox, Rogers, Thorens, etc. Dem Room. Appts nec. Home trial facilities, free installation, service dept. Access, Visa & HP. Open 9.15-5.30

GILSON AUDIO LTD, 172 Borough Road, Middlesbrough. (0642) 248793. Linn, Exposure, Arcam, Mission, Cyrus, Denon, Marantz, Rotel, Pioneer, Audiolab, Tannoy. Demonstration facilities in main shop and 1 dem. room, appt nec, home trial facilities, free install. on request, service department. Access, Visa, HP. 10-5 - 6 days. **BADA**

CORNWALL

RJF Audio Visual, 84 Pendarves Str, Tucking Mill, Camborne, Cornwall TR14 8NJ. (0209) 710777/612260. TDL, Michell, Musical Fidelity, NAD, Nakamichi, Bower & Wilkins, SME, Micromega, Pink Triangle, Pro-jekt, Perception, Harman Kardon, Triangle. Integral Demo room/showroom and special home dems. Appts nec, home trial, free install, service dept. All cards, switch and transax. Open Mon-Sat 9.30-5.30.

CUMBRIA

MISONS SOUND & VISION, 11 Warwick Road, Carlisle CA1 1DH. Tel (0228) 22620. Bang & Olufsen, Arcam, Quad, NAD, Yamaha, Sony. Demo Suite, No appts nec, Home trial facilities, Free Installation, Service Department. 9-5:30 Mon-Fri. Thurs 9-1. Sat 9-5.

PETER TYSON, 6 Abbey St, Carlisle, Cumbria, CA3 8TX. "Cumbria's premiere hi-fi centre". Part exchange welcome. (0228) 46756. Linn, Musical Fidelity, Cyrus, Marantz, Denon, Philips, Nakamichi, Technics, Pioneer, Creek & more. Dem room. Demos without obligation. Home trial, Free install. In-house service dept. Access & Visa. HP 9-5.30pm.

DEVONSHIRE

THE HI-FI ATTIC, 58 New George St, Plymouth, Devon PL1 1RR. (0752) 669511. We stock most leading makes and have an expert enthusiastic staff. Premises include attractive hi-fi and home cinema demonstration rooms. We offer free installation and credit facilities (written details on request) also a fully equipped service department. We can also provide a mail order service for all your LaserDisc requirements. We accept Visa, Access, Amex. STUDIO ACOUSTICS. (0626) 67060. OCM Technology, Shahinian Acoustics, Superplan amplifiers, Nobis loudspeakers & amplifiers, Mirror Image Audio, J.A. Michell, plus other fine equipment. home trial, free install, in-house service dept. Mon-Fri 9-4.30, appointments only.

DORSET

DAWSONS, 23 Seamoor Road, Westbourne,

Bournemouth, Dorset. (0202) 764965. B&O, Castle, Canon, Jamo, JBL, Pioneer, Sony, Target, TDL, Technics. No appts necessary. Free install, Service depart. Various credit facilities available. Open 9-5.30 6 days a week.

H.A.T.V. 131 Barrack Rd, Christchurch, Dorset BH23. (0202) 473901/478621. Quad, Aura, B&W, Monitor Audio, Bose, Yamaha, Rotel, NAD, Denon, Revox etc. Specialised demo room 2 spker/amp comparators. Appts required, service dept, free install, home trial. Access, Amex, Int free credit, Visa, Diners, Instant credit. Mon-Thur 9-6, Fri 9-8, Sat 9-6.

SUTTONS HI-FI, 18 Westover Road, Bournemouth. 0202 555512. Linn, Arcam, Mission, Quad, Audiolab, Rotel, Yamaha, Denon, etc. 2 Single Speaker Listening Rooms, Home Demonstrations, Free Installations. Open Mon-Sat 9-5:30. Call for details. **BADA**

ESSEX

AUDIO T, Gants Hill, 442-444 Cranbrook Rd, Gants Hill, Ilford, Essex IG2 6LL. Tel: 081 518 0915 Fax 081 554 8463. Arcam, Audiolab, Cyrus, Denon, Kef, Meridian, Rotel, Micromega, Yamaha & many more. Mon-Sat 10-6. 3 yr gntee on Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. **BADA**

1ST AND FOREMOST HI-FI CENTRE, 49-55 North Station Road, Colchester, Essex CO1 1RQ. Tel: (0206) 549842. Fax: (0206) 762900. Tlx: 987873 SAIDG. Trio Kenwood, JVC, Akai, Aiwa, Sony, Pioneer, Technics, Nakamichi, Panasonic, Revox, etc. Home trial, free installation. Service dept. Instant credit available + all credit cards accepted. Mon to Sat 9am-6pm.

BRENTWOOD HI-FIDELITY, 2 Ingrave Rd, Brentwood, Essex, CM15 8AT. (0277) 221210. Audio Innovations, Denon, DNM, EAR, Marantz, Micromega, Mission, Pink Triangle, Quad, Tannoy plus many more. Single speaker dem rooms, home trials, evening appts (high end), home installations. Mon-Sat 9.30-5.30. Access: Visa. Service Facilities. Advice second to none.

LYON AUDIO, 16 Peartree Business Centre, Peartree Road, Stanway, Colchester, Essex CO3 5JN. (0206) 560259. Mission, Cyrus, Arcam, Denon, Kef, Rogers, Marantz, NAD, Tannoy. Dem facilities. Mon-Sat 9-6. Installations. Access, Visa, Instant credit. Service dept.

RAYLEIGH HI-FI, 44a High Street, Rayleigh, Essex. (0268) 779762/747571. 216 Moulsham St, On-the-Parkway, Chelmsford. (0245) 265245. 132-134 London Road, Southend-on-Sea. (0702) 435255. A&R, Audiolab, Creek, Cyrus, Denon, Epos, Linn, Meridian, Mission, Naim, Quad, Rega, Roksan, Royd. 0% finance. **BADA**

GLOUCESTERSHIRE

AUDIO EXCELLENCE, 58 Bristol Road, Gloucester. (0452) 300046. Great Hi Fi carefully selected and demonstrated by friendly and enthusiastic staff. Closed Mon. **BADA**

AUDIO T, 40-42 Albion St, Cheltenham, Glos. GL52 2RQ. (0242) 583960. Fax (0242) 226435. Great hi-fi from Arcam, Audiolab, Cyrus, Denon, Linn, Meridian, Mission, Rogers, Rotel, Yamaha and many more. Mon-Fri 10-6pm. Sat 9.30-5.30. 3 yr gntee on Hi-Fi. 30 day upgrade scheme. Home dems. PX. Single speaker dem room Free del. and installation. **BADA**

HUTCHINSONS, 295-297 High Str, Cheltenham, Glos. GL50 3HL. (0242) 573012. Pioneer reference point, Technics, Dual, NAD, JWharfedale, Celestion, Marantz, Aiwa, Kenwood, Sennheiser. No appts necessary, free install, service dept. Instant credit up to £1000. Open Mon-Sat 9.15-5.30.

HAMPSHIRE

AUDIO SOUTH for further details see the Surrey entry.

AUDIO T, 4 Feathers Lane, Basingstoke, Hants. RG21 1AS. (0256) 24311, Fax (0256) 24430. Great hi-fi from Arcam, Audiolab, Cyrus, Denon, Epos, Linn, Meridian, Mission, Naim, Rotel, Yamaha and many more. Mon-Sat 9.30-5.30pm. 3 yr gntee on Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. Single speaker dem room. Free del and instal. **BADA**

HAMPSHIRE AUDIO LTD, 2-12 Hursley Rd, Chandlers Ford, Hants SO5 2FU. (0703) 252827/265232. 3 hi-fi and 2 home cinema/Dolby surround sound demo studios. Thurs late eve, closed Mon (except in Dec) 2-year guarantee, service dept on site, large free car park, junctions 4 (M27/M3), 5(M27), 12(M3), 13(M3) all within 3 miles. Est 1969. **BADA**

JEFFRIES HI-FI (Portsmouth) 29 London Road, Portsmouth PO2 0BHTel: 0705 663604. 2 Dem Rooms, closed Mondays. Late night Wed. Free Parking/Bus route. Credit facilities. **BADA**

HEREFORDSHIRE

ENGLISH AUDIO, 95 Whitecross Road, Hereford HR4 0DG. (0432) 355081 Cyrus Centre, Pink Triangle, Audion, Systemdek, Heybrook, Michi, KEF Reference, Micromega, Nakamichi, Chord, Arcam, Musical Fidelity, Rogers, NAD, Rotel, Denon, Tannoy, Marantz, Mission, Stax, Dual, TDL, Albarry, JPW, Celestion, Ixos, SME, Ruark, Moth, Audio Technica and others. Single Speaker Dem room. Home trial Free install. Service dept. Access, Visa, Credit arranged. Open Mon-Sat 10am-6pm. **BADA**

HERTFORDSHIRE

ACOUSTIC ARTS LTD, 101 St Albans Rd, Watford, Herts. (0923) 245250. Fax (0923) 230798 Absolute Sounds, Acoustic Energy, Audiolab, Chord, Denon, Marantz, Meridian, SME, TDL, Teac, Tues-Sat 9.30-6.00. **BADA**

AUDIO FILE, 27 Hockerill St, Bishops Stortford, Herts CM23 2DW. (0279) 506576. 9.30-5.30 open 6 days. Dealer of the Year 1988/89. Linn, Naim, Quad, Cyrus, Arcam, Roksan, Denon, Epos, Rotel, KEF, ProAc. 0% credit. **BADA**

HERTFORD MUSIC. Music is pleasure. We want you to feel good when choosing your system in our, 3 demonstration rooms (and bar)! Systems from budget to £15,000. CR Developments, Micromega, REL Acoustics, Acoustic Energy, Michell, Magnum, Diamond Acoustics, Beard, Lumley, Renaissance, etc. Access, Visa. Mail Order. (0992) 700 900

RADLETT AUDIO, 141 Watling Street, Radlett, Hertfordshire, WD7 7NQ. (0923) 856497. Mark Levinson, Proceed, PRO AC, AVI & ATC, Martin Logan, Tube Technology, Teac, Roksan, Audiolab, Rotel, Harman Kardon, Michel. Home trial facilities, Free Install, Service Dept. Visa, Access 9.30-5.30 Mon-Fri 10-5.30 Sat

STUDIO 82, 82 High Street, Harpenden, Herts AL5 2SP. (0582) 764246, Fax (0582) 467022. ATC/AVI, Arcam, Aura, Audiolab, Bang & Olufsen, Denon, Epos, Mission Cyrus, Naim Audio, Nakamichi, Quad, Nad etc. Quiet single speaker dem room. Appts nec. Home trial, free install. Service Dept. Visa, Access & finance terms. Open 9-5.30pm (Mon-Sat). Closed Weds. **BADA**

NORTH HUMBERSIDE

JUST AUDIO, 2A Foston Lane, North Frodingham, Driffield. Tel 0262 488700, call for details. SUPERFI, 4 Dock Str, Queens Gardens Hull, HU1 3DL. (0482) 24051. See main entry under Nottinghamshire for full details.

KENT

JOHN MARLEY HI-FI CENTRES, 2 Station Rd, West Canterbury. (0227) 769329. Also at Dover - (0304) 207562. Arcam, Aura, B&W, Heybrook, JPW, Pro-Ac, Pioneer, Rotel, Ruark, Tannoy, Technics. Dem and home trail facilities. Mon-Sat 9-5.30 closed Thurs. Free install. Credit to £1,000. Access, Visa,

Credit charge. Service dept. **KIMBERLEY HI-FI**, 193 Broadway, Bexleyheath, Kent. (081) 304 3272. Pioneer, Technics, Kenwood, Denon, NAD, Aiwa, Tannoy, Mission, Wharfedale, B&W. Separate dem room, no appt nec. Free installation. Service Dept. Instant credit facilities. 9.30-5.30. No early closing.

SOUNDCRAFT HI-FI, 40 High Street, Ashford. Seeking music lovers, male or female any age, to share common interest in, musical Pro-aktiv Hi-Fi Systems, Multi Room or Home Cinema. Attractive unusual equipment in unusual setting, your place or ours, we guarantee lasting pleasure. **BADA**
Open Mon-Sat, Appointment Service or just pop in. Tel: 0233 624441

VOLUME ONE, 41 Upper Wickham Lane, Welling, DA16 3AD. 081 304 4622. Arcam, Dual, Epos, Exposure, Mordaunt Short, Monitor Audio, JPW, Marantz, Micromega, Nakamichi, Pink Triangle, Rotel, Royd, Ruark, Sony, Systemdek. Large demo room, no appt nec. Evening dems in shop by appt. Home trial & demo, free delivery & installation. Access & Visa. 10.00-6.00 Mon-Sat.

V J HI-FI, 29 Guildhall St, Folkestone. (0303) 256860. Mission, Kenwood, Tannoy, Marantz, Sony, Rogers, Denon, Musical Fidelity, Quad, Yamaha. Dem and home trial facilities, free local install. No appts necessary, service dept. Amex, Diners, Visa, Access, Int free credit, instant credit. Mon-Sat 9-6. **BADA**

V J HI-FI, 119 High Street Margate. (0843) 226977. For full details see our above entry. **BADA**

LANCASHIRE

NORMAN AUDIO, 131 Friargate, Preston, Lancs, PR1 2EE. Tel 0772 253057. Fax 0772 562731. Marantz, Pioneer, Yamaha, Audiolab, Arcam, Mission, Cyrus, B&W, KEF, Sendor Catalogue. Home Cinema Dem room. No appt nec, Home trial facilities, free installation. Instant credit subject to status. Open 9.30-5.30, late night Wed till 8.00pm. **BADA**

NORMAN AUDIO, also at 216 Church Str, Blackpool, (0253) 295661, Fax (0253) 295722. **BADA**

JO KOCZUR LTD., 185 Yorkshire Street, Rochdale, Lancashire. (0706) 42107 Harman Kardon, Quad, Revox, Aura, Teac, JBL, Tannoy (including definition) B&W, Canon, Bose and many others. Dolby Pro Logic, A.V. System. Established over 25 years, qualified & experienced staff. Appts nec only after 5.30pm. Home trial, free install, service dept. Open Sat 9-5. Mon, Wed, Thurs, Fri 9-5.30pm. Closed Tues.

ROMERS HI-FI CENTRE, 94-96 High Street, Rishton, Blackburn, Lancs BB1 4LQ. Tel: (0254) 887 799. Stockists of: Sony Esprit Hi-Fi, Technics, Marantz, Musical Fidelity, Pioneer, Kenwood, Rotel, Tannoy, Mission, Ruark, B&W and many more. Demonstration room, Service department. Free delivery and installation (Local area). The area's leading hi-fi specialist.

LEICESTERSHIRE

LEICESTER HI-FI CO 6 Silver Walk, St Martins Square, Leicester LE1 5EW. Tel: (0533) 539753. Fax (0533) 626097. Acoustic Energy, Arcam, Marantz, Micromega, Mission/Cyrus, Musical Fidelity, Nakamichi. Meridian, Rogers, Roksan, "and oodles more". 2 Dem rooms, home trial arranged, free install, service dept, Credit facilities, Access, Visa, Diners, Amex, 6 days 9.30-5.30. **BADA**

LISTEN INN, 6 Hotel Street, Leicester. (0533) 623754 (Fax) 0533 623758. Linn, Arcam, Royd, Heybrook, Creek, Neat, Mission, Cyrus, Audiolab, Quad, Denon, etc. 2 Dem Rooms. **BADA**

SOUND ADVICE, The Factory, Duke St, Loughborough LE11 1ED. (0509) 218254 Shahinian, Rega, Naim, Linn, Royd, Yamaha, Rotel, Arcam, Nakamichi, JPW. 3 demonstration areas, no appts necessary, free installation, service department. Lombard credit charge, Access, Visa. Mon-Fri 9.30-6.00, Sat 9.30-5.30.

STEREO SHACK, 1-3 Guildhall Lane, Leicester. Tel 0533 530330. Aiwa, A.R., Denon, Kenwood, Jamo, Mission, NAD, Phillips, Pioneer, Rotel, A/V Specialty. Free Install Open 9.30 - 5.30 6 days. Credit available.

LINCOLNSHIRE

BOSTON HI FI CENTRE, 65a Wide Bargate, John Adams Way, Boston, Lincs PE21 6SG. (0205) 365477. Quad, Nakamichi, Arcam, Marantz, NAD, Castle, Tannoy, Rogers, etc. Separate demo studio

Home trial. Free installation. Access, Visa. Tues - Sat 9-5 pm.
STAMFORD HI-FI; CENTRE, 9 Red Lion Square, Stamford, Lincs PE9 2AJ. (0780) 62128. Pioneer, Technics, Cyrus-Mission, Rotel, NAD, Yamaha, Kenwood, Quad, plus all major speaker manufacturers. Expert advice, comparator demonstrations, on two floors, part exchange Hi-Fi purchased for cash. No appointments necessary, home trial facilities, free installation, service department. Mastercard, Visa & credit charge, finance available. Mon-Sat 9-5.30pm, closed Thursdays.

SUPERFI, 21A High Str, Lincoln LN2 1JG. (0522) 520265. See main entry under Nottinghamshire for full details.

LONDON

ANALOG AUDIO, 849 High Road, London N12. (081) 445 3267. Cambridge, Denon, Rotel, Yamaha, Marantz, Wharfedale, Teac, Mordaunt-Short, Cerwin Vega, Nad. Free install. Service dept. Instant credit up to £1000. Visa & Access. 9.30-6 6 days.

AUDIO T, 190 West End Lane, West Hampstead, London NW6 1SQ. (071) 794 7848, Fax (071) 431 3570. Great hi-fi from Arcam, Audiolab, Cyrus, Denon, Meridian, Mission, Philips, Rotel, Proac, Micromega, Yamaha, and many more. Mon-Sat 10-6pm. 3 yr gntee on Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. 2 dem rooms. **BADA**

BILLY VEE SOUND SYSTEMS, 248 Lee High Road, London SE13. (081) 318 5755. Arcam, Linn, Naim, Quad, etc. 2 dem rooms. Int. free credit. Access, Visa. Closed Thurs. **BADA**

CORNFLAKE SHOP, 37 Windmill St (just off Tottenham Court Rd), London W1. (071) 631 0472 (domestic). (071) 323 4554 (multiroom). Fax. (071) 323 4554 Fax. (071) 436 7165. Tues -Sat 10-7 Rega, Roksan, Naim, Monitor Audio, Arcam, Nakamichi, Rotel, Epos etc. 3 dem rooms. (incl. home cinema) Friendly, professional service. Home trial facilities. Appointments preferred. Full delivery and repair service. Multiroom specialists. Access & Visa.

COVENT GARDEN RECORDS, 84 Charing Cross Road, London WC2 (071) 379 7635, Fax (071) 836 1345. London's premier digital audio centre. Photo CD, DCC, CD, & 16X9 TV'S. Audiolab, B&O, Marantz, Mission, Cyrus, Philips, Pioneer, Rotel, Rogers, Quad, Sony, Technics, single speaker dem rooms, appointments suggested, installation service available. All major credit cards accepted. Mon-Sat 10am-7.30pm.

DOUG BRADY HI-FI, 14-18 Monmouth St. London WC2H 9HB. (071) 379 4010, for the very best in hi-fi separates and home cinema. Wide range of top specialist hi-fi from Britain, America and Japan. 3 dem rooms. Closed Monday. **BADA**

GRAHAM'S HI-FI, Canonbury Yard, 190a New North Rd, London N1. 071-226 5500. Winner Sony/HFN Greater London Dealer Award 1986/89/90. "One of the 5 best hi-fi shops in the world". Arcam, Linn, Meridian, Naim, Rega, etc. Systems from £500. FREE PARKING, 4 dem rooms, service dept, open Tues-Sat. RING FOR APPOINT **BADA**

HI-FI & COMPONENTS, 84 Battersea Rise, London, SW11 1EH. Tel: 071 2231 110. Denon, Harman Kardon, Tannoy, Kenwood, Rotel, NAD, Wharfedale, Dual, Shure, Ortofon, Celestion, etc. Appts nec, Service Dept. Access, Visa, Diners, Amex, Open 10-6 Closed Wed.

INFIDELITY, 9 High Str, Hampton Wick, Kingston-upon-Thames. (081) 943 3530. For full details see entry under SURREY.

K.J. WEST ONE, 26 New Cavendish St, London, W1M 7LH. (071) 486 8262/63. Fax (071) 487 3452. Most established brands stocked. Two Hi-Fi and one Home Cinema dem' studios. Appts nec Home trial. Free installation. Service dept. Major credit cards. Interest free credit usually available - ask for details. Mon-Sat 10-6pm. (Late night Thurs till 7pm)

MUSICAL IMAGES LTD. 173 Station Road, Edgware & 45 High Street, Hounslow, Middlesex. See under Middlesex & full page ad. in The Directory.

SOUND ORGANISATION LONDON, 4 Pickfords Wharf, Clink Street, London, SE1 9DG. Tel 071 403 2255. Audio Research, Aura, Creek, Epos, Exposure,

Heybrook, Koetsu, LFD, Lyra, Martin Logan, Micromega, Naim, Nakamichi, Rega, Rotel, Roksan, Royd, SME, Sonus Faber. Interesting new equipment always under evaluation. 2xsingle speaker listening rooms. Appts preferred. Free Installation. Service Department. Open Tues -Sat. 10-6. Late dem by appointment.

SOUND SENSE, 350 Edgware Road, London W2 1DX. (071) 402 2100. Alphason, B&W, Kenwood, Nakamichi, Celestion, Denon, Monitor Audio, Marantz, NVA, Sony ES, Yamaha. Appts preferred. Installations available. Access, Visa, Standard credit facilities. Mon-Sat 9.30-6.30

STUDIO 99, 79-81 Fairfax Road, Swiss Cottage, London NW6. 071-624 8855, Fax 071-624 5315. Naim, Meridian, Quad, Mission/Cyrus, Rega, KEF, Arcam, Epos, Acoustic Energy, Yamaha, Nakamichi, NAD, Sonus Faber, B&O etc. Single speaker dem room, AV demos. Multiroom. Service dept. Visa/Access credit facilities. 10-7 Mon-Fri, 10-6 Sat. **BADA**

SUPERFI, 2-4 Camden High Street, Camden, NW1 0JH (071)388 1300. See main entry under Notts for full details.

LUXBRIDGE AUDIO - CHISWICK, 109 Chiswick High Road, Chiswick, W4 2ED (081) 742 3444 Fax (081) 742 3295. 2 Demo Rooms, Installations, 2 Year Guarantee, 7 day exchange. Major credit cards, Tues - Sat 10 - 6. See Middlesex entry for brands stocked. **BADA**

VOLUME ONE, 41 Upper Wickham Lane, Welling. (081) 304 4622. For full details see entry under Kent

ZEBRA, 18-24 Brighton Road, South Croydon CR2 6AA. 081 688 2093. Audio lab, Arcam, KEF Reference, Marantz, Mission, Micromega, Pioneer, Rotel, Sony, Tannoy, and large range of AV equipment. S2 Air Conditioned Demo Rooms. in a more casual environment. Service department. The UK's leading home cinema centre. Mon-Sat 9.30-6.00. Access, Visa, Switch & instant credit up to £1000 subject to status.

GREATER MANCHESTER

CENTRAL RADIO, 30-32 Shudehill, Manchester M4 1EY. Tel 061 834 6700. Technics, Kenwood, Pioneer, Aiwa, Marantz, Mission, B&W, Wharfedale, JBL, Thorens, Panasonic, etc. TV video, surround sound, AV systems, service dept, free delivery. Access, Visa, Switch finance. Mon-Sat 9-5.30.

THE AUDIO COUNSEL, 12 Shaw Road, Oldham, Manchester OL1 3LQ. (061) 633 2602. Linn, Yamaha, Rega, Rotel, Arcam, Micromega, EPOS, Creek, Nakamichi, Denon. 2 dem rooms. Free install. Visa, Access. Licenced credit brokers up to £1000 instant credit. 10.00-5.30 Tues, Weds, Sat; 10.00-7 Thurs & Fri. Closed Mon.

MURRAY HI-FI, 19 Middle Hillgate, Stockport. (061) 429 7666. Linn, Naim, Rega, Arcam, Yamaha, Royd, Epos, Creek, Nakamichi, Rotel. Full demo facilities, free installation & delivery, service dept. Full 2yr guarantee on all products. Access, Visa, Lombard Tricity, licensed credit broker. 10-6 Tue-Sat.

SWIFT OF WILMSLOW, 4-8 St Annes Parade, Wilmslow. (0625) 526213. Aura, B&W, Denon, Kenwood, Marantz, NAD, Pioneer, Rotel, Tannoy, Revolver, JPW. Open 9:30am-6:00pm 2 dem rooms. No pressure! **BADA**

MIDDLESEX

AUDIO T, 159a Chase Side, Enfield, Middx EN2 0PW. (081) 367 3132, Fax (081) 367 1638. Great hi-fi from Arcam, Audiolab, Cyrus, Denon, Meridian, Micromega, Mission, Philips, Rotel, Yamaha and many more. Mon-Fri 10-6pm. Sat 9.30 - 5.30 3 yr gntee on Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. 2 dem rooms. **BADA**

HARROW AUDIO, 27 Springfield Rd, Harrow. (081) 863 0938. Mon-Sat 9.30-5.30. A&R, Audiolab, Cyrus, Denon, Epos, Monitor Audio, Musical Fidelity, Nakamichi, Quad, Rotel, Tannoy, Thorens, Yamaha, etc. **BADA**

MUSICAL IMAGES LTD. 45 High Street, Hounslow, Middlesex TW3 1HR. (081) 569 5802. FAX (081) 569 6353. & 173 Station Road, Edgware HA8 7JX (081) 952 5535. FAX (081) 951 5864. Most brands available - see full page ad in the product directory. Interest free credit, ask for details. Demo Rms, Repairs & Service. Open Sunday and all week. A home cinema specialist. Mail Order. Part exchange.

RIVERSIDE HI-FI LTD. 422 Richmond Road, East Twickenham, Middlesex TW1 2EB. Tel: (081) 892 7613. Fax (081) 892 7749. A.R., Arcam, Audio Innovations, Castle, Dual, Denon, KEF, Luxman, Michell, Musical Fidelity, Micromega, Marantz, Nakamichi, Rotel, Spondor, Systemdek, Tannoy, Yamaha. One demo room, in-car demo for car hi-fi systems. Appts not always necessary. Home trial facilities. Free installation, service dept. Lombard Tricity, Access, Visa, Amex, Diners Club. Mon-Sat 9.30-6, Thurs, Fri 9.30-7. **BADA**

MERSEYSIDE

W.A. BRADY & SON, 401 Smithdown Rd, Liverpool L15 3JL. (051) 733 6859. 'Largest choice of specialist Hi-Fi in N.W. £100-£20K'. All credit cards. 3 dem rooms. Closed Monday. **BADA**
P & A AUDIO (BIRKDALE) LTD 31 Liverpool Road, Birkdale, Southport (0704) 68373. Arcam, Cambridge, Creek, Denon, Michell, Mission/Cyrus, Mordaunt-Short, NAD, Pink Triangle, QED, Revolver, Rogers, Rotel, Royd, Tannoy. 3 Single speaker demo rooms and Nicam surround sound dem room. Free delivery, installation (Merseyside) Service dept, Mon-Sat 9-5.30 Half day Tues, Access, Visa, Lombard.
PETERS HI-FI 11 Werburgh Sq, Grange Precinct, Berkenhead. (051) 647 5626. 9-5.30 closed Thurs. See Cheshire entry for full details.
PETERS HI-FI, 11 St Werburgh Sq, Birkenhead. Also at 8 High St, Bromborough. 051-334 1874/2825. Open 9-5.30 6 days a week. See Cheshire entry for details.

WEST MIDLANDS

AMAEUS SOUND & VISION 10 Boldmere Road, Sutton Coldfield, West Midlands. 021-354 2311. Audio Innovations, aura, B&O, B&W, Castle, Marantz, Micromega, Musical Fidelity, Nakamichi, Harman Kardon, QED. Single speaker demo, appts preferred, service available, installations, B&O link install, home trials. Access, Visa, interest free credit available subject to status, 9.30-6pm, 6 days. **BADA**
FRANK HARVEY HI-FI EXCELLENCE. 163 Spon Street, Coventry CU1 3BB. (0203) 525200. Audioblab, Arcam, Bang & Olufson, Mission-Cyrus, Denon, Marantz, Meridian, Nakamichi, NAD, Quad, Rega, Rotel, Yamaha. 3 floors, 3 demonstration rooms, nice staff, nice coffee. Appts nec, service dept, free install, homertrial facilities. **BADA**
WED TIL 8pm.

GRIFIN AUDIO LTD. 94 Bristol Street, Birmingham. (021) 692 1359/(021) 622 2230. Arcam, Castle, Cyrus, Denon, Linn, Marantz, Naim, Quad, Rega, Rotel. Open Tues-Sat 10-6. **BADA**

MUSICAL APPROACH, 37 High Street, Aldridge, Walsall, W. Mids. (0922) 57926. Linn products, Arcam, Creek, NVA, Revolver, Onix, Epos, Marantz, Rotel, Quad & more. Dem facs. Home trial. Service dept. Credit facs available. Access, Visa. 9.30-5.30 Mon-Sat. 9.30-1 on Thurs.

MUSIC MATTERS, 351 Hagley Road, Edgbaston, Birmingham B17 8DL. (021) 429 2811. Rotel, Denon, Lexicon, Tannoy, Ruark, Alchemist, Exposure, Pioneer, Roksan, Nakamichi, Arcam, Audioblab, Musical Fidelity, Mission/Cyrus, Meridian, KEF, Monitor Audio, Pink Triangle. 2 single speaker luxury demo rooms. Appts nec, home trial facilities, free installation, service dept. Access, Visa, instant credit up to £1000, interest free credit available. Tue-Thur 10.30-6, Fri 10.30-8, Sat 10-6. Branches also at: 93-95 Hobs Moat Road, Solihull, W Midlands B92 8JL. 021-742 0254. 156-157 Lower High St, Stourbridge, W Midlands D18 1TS. (0384) 444184. **BADA**

NORFOLK

AUDIO IMAGES, 7 All Saints Rd, South Lowestoft, Suffolk NR33 0DL. Tel: 0502 582853. For full details

see our main entry under Suffolk.

BASICALLY SOUND, The Old School, School Rd, Bracon Ash, Norwich NR14 8HE. (0508) 70829 Arcam, Linn, Naim, Denon, Spondor, Audioblab, Sound Organisation, Creek, Rega, Epos, etc. 2 comprehensive dem rooms. Home trial. Free installation. Visa, Access, HP facilities. Tues-Sat 9.30-1, 2-5.30.

NORTHAMPTONSHIRE

AUDIO CRAFT 23-25 Derngate, Northampton, NN1 1TY. Tel: 0604 36291/Bang & Olufsen, Kenwood, Technics, Marantz, Celestion, Mordaunt-Short. No appts nec, Free Install, Service Dept. Open Mon-Sat 9-5:30pm

CLASSIC HI-FI + VIDEO, School Lane, Kettering, Northants. (0536) 515766. Rotel, Musical Fidelity, Wharfedale, Yamaha, Onix, Nad, Pioneer, Marantz, Kenwood, Kef, Shearne, Rogers, Metaxas Audio and many more. Home trial, free instal., service dept. Access, Visa, credit facs. 9.30-5.30pm.

LISTEN INN. 32 Gold Street, Northampton. (0604) 37871 (Fax) (0604) 601430. Linn, Naim, Rega, Epos, Royd, Mission, Cyrus, Arcam, Audioblab, Neat, Creek, Quad, Denon etc. 2 Dem Rooms **BADA**

NOTTINGHAMSHIRE

CHANTRY AUDIO, Chantry Walk, 18-18a Eldon Street, Tuxford, Nr Newark, Notts NG22 0LH. (0777) 870372. Pink Triangle, DPA, Rotel/Michell, Micromega, NVA, Alchemist, Michell, Monitor Audio, Lumley, SME and much more! 3 dem rooms. Home trial, free installation, service dept. Access, Visa & credit facilities and mail order. Mon-Sat 9:30-6pm Sun & evenings home dem by appt.

DEFINITIVE AUDIO, (0602) 813562. For a carefully considered approach to building a true hi-fidelity audio system with components derived from the following manufacturers: Audio Innovations, Snell, Wadia, Micromega, Deltec, Voyd, Systemdek, SME, Revox, Ortofon, Pioneer. Demos by appt. Please phone for further details. Installation free of charge. Mon-Sat 10-7, closed Wed am.

NOTTINGHAM HI-FI CENTRE, 120-122 Alfreton Road, Nottingham. (0602) 786919. Over 25 years experience, superb demo rooms, extensive range, free parking. Mon-Sat 9-5.30. **BADA**

PETER ELLIS AUDIO, 29 Kirkgate Newark, Nottingham, NG24 1AD (0636 704571) Quad, Castle, Arcam, QED, Sugden, Tannoy, Thorens, Marantz, Dennon, Teac. Demo Room, Free Install, Service Department.

ACCESS, Visa, Mon-Sat 9-5:30 Close at 1:00pm on Thursday.
SUPERFI, 15 Market Str, Nottingham NG1 6HY. (0602) 412137. Kenwood, Technics, Denon, Aiwa, Rotel, Wharfedale, Mission, Marantz, NAD < Celestion, and many more. 2 single speaker dem rooms. Free install on systems, service dept. Access & Visa, Amex. Open 9-5.30, 6 days.

OXFORDSHIRE

ASTLEY AUDIO LTD. 3 Marketplace, Wallingford. (0491) 839305. Aura, B&W, Technics, Panasonic, Pioneer, Kenwood, Marantz, Sony, Yamaha, Denon, Dual, Mission, Tannoy. Home trial, free installation. Service dept. Access, Visa, Amex, Diners. Instant credit. Tue-Fri 9-5.30, Sat 9-5. Records & CDs stocked.

AUDIO T, 19 Old High St, Headington, Oxford OX3 9HS. (0865) 65961, Fax (0865) 60415. Great hi-fi from Arcam, Audioblab, Cyrus, Denon, KEF, Meridian, Mission, Rotel, Sony, Yamaha and many more. Open Mon Fri 10-6pm, Sat 9.30-5.30. 3 yr gntee on Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. 2 dem rooms. AV Dept. **BADA**

OVERTURE HI-FI, 3 Church Lane, Banbury, Oxfordshire OX16 8LR. (0295) 271158. Arcam, Heybrook, Mission, Quad, Denon, Linn Products, Naim Audio, Epos, Meridian, Nakamichi. For sensible unbiased advice, call Oxfordshire's audio experts. Superb demo facilities. No appts nec, service dept, free install, home trial. Access/Visa, instant credit. Mon-Fri 10-6, Sat 9.30-5.30. **BADA**

OXFORD AUDIO CONSULTANTS LTD, Cantay Hse, Park End Street, Oxford OX1 1JE. (0865) 790879 fax (0865) 791665. NAD, Rotel, Musical Fidelity,

Pioneer, Marantz, Rogers, TDL, Thorens, Audio Research, Proceed. 2 Demo rooms. Service Dept, Home trial and free installation. Instant credit, Access, Amex, Visa. 10-6 Mon-Sat.
WESTWOOD AND MASON, 46 George St, Oxford. Tel: 0865 247783 Arcam, Rotel, Rega, Epos, Tannoy, Royd, JPW, Mission, Nakamichi, Denon, Aiwa, Naim, Quad, Aura, Tannoy, Teac. Open 9:30-5:00pm. Dem room. Closed Thur. **BADA**

SHROPSHIRE

AVON HI-FI, 12 Barker Street, Shrewsbury, Shropshire SY1 1QL. (0743) 55166. NAD, Quad, B&W, Arcam, Kenwood, Aiwa, Bose, Nakamichi, Revolver, Onkyo. Dem room. Home trial. Free install. Service dept. Access, Visa. £1000 instant credit. Mon, Tues, Wed, Fri, Sat 9-5.30.
CREATIVE AUDIO, 9 Dogpole, Shrewsbury. (0743) 241924. Arcam, Audioblab, Celestion, Cyrus, Denon, Epos, Kef, Meridian, Mission, Naim, Quad, Rega, Roksan, Rotel, Ruark, Tripod. Dem room. Home trial and free installation. One of the best ranges of quality hi-fi outside London. Credit to £1000. Access, Visa. Tues-Sat 9.30-5.30. Service dept.

SOMERSET

MIKE MANNING AUDIO, 110 Middle Street, Yeovil, Somerset BA20 1NE. (0935) 79361, Fax (0935) 32923, Mobile(0850) 325965. Naim, Roksan, Pink Triangle, A+R (Arcam), ATC, AVI, NAD, Pioneer, Rotel, Denon, etc. Dedicated listening lounge, for relaxed and unpressured demonstrations. Appts not usually nec. but best to phone first. Home trial facilities on request, free installation, service department. Instant credit, Access & Visa, etc. 9-5.30 closed Mondays.

STAFFORDSHIRE

GRANGE HI-FI LTD, 153 Branston Rd, Burton-on-Trent, Staffordshire DE14 3DQ. (0283) 33655. Albary, Audio Innovations, Audioblab, Arcam, Castle, Denon, Pink Triangle, Marantz, Rotel, Rogers, Systemdek, SME, Tannoy, TDL. Dem fac, appts nec on Sat, Free Install. Service dept Access, Visa. 9.00-5.30pm. Closed Mon all day & Wed afts. Closed for lunch 12.00-12.30.

SUFFOLK

AUDIO IMAGES, 7 All Saints Rd, Pakefield, South Lowestoft, Suffolk NR33 6JL. Tel/Fax: 0502 582853. Quad, Triangle, Arcam, Castle, Rotel, Moth, JPW, Finlux, Audio Innovations, plus the amazing Rothwell range. Separate demo room, no appts nec. 10-6.30 Tue-Thur, 7pm Fri, 6pm Sat.
BURY AUDIO, 47 Churchgate St, Bury St Edmunds, Suffolk, IP 33 1RG. Tel 0284 724337. Arcam, Furukawa, Heybrook, Infinity, Marantz, Meridian, Michell, Pink Triangle, Proac, Rotel, Target, Roksan, Shaniinian, Quad. Etc. Single Speaker Room. No appointments necessary. Home trial fac. Free installation. Service Department. Access, Visa, Switch. Open 6 days a week. Mon/Tues/Sat 9.30-5.30 Thurs/Fri 9.30-7.00. Closed Wed
EASTERN AUDIO, 41 Bramford Rd, Ipswich. (0473) 217217. Quad Audio Lab, Denon, Dual, Marantz, Mission, NAD, Nakamichi, Technics, Arcam. Mon-Sat 9.30-6. **BADA**

SURREY

AUDIO SOUTH, 24 (The Woolmead) East Str, Farnham, Surrey GU9 7TT. (0252) 714555. Audio Note, Deltec, JPW, Marantz, Rotel, Teac, etc. AV specialist. Dem room and evening appointments available. Home trial facilities. Free installation. Access, Visa. 10.30-6 Mon-Sat.
DATASOUND, 23 South St, Dorking, Surrey RH4 2JZ. (0306) 882897. Arcam, Celestion, Denon, Dual, Marantz, Mission, Musical Fidelity, NAD, Rotel, Tannoy. Dedicated listening room. Free install. Service dept. Up to £1000 instant credit subject to status. 9.30-5.30 6 days.

INFIDELITY, 9 High St, Hampton Wick, Kingston Upon Thames, Surrey. Tel: (081) 943 3530. Arcam, Creek, Epos, Heybrook, Micromega, Naim Audio, Roksan, Rega Research, Shaniinian, TEAC. Single

speaker listening room. Appts pref, free installation, service dept. Major credit cards. Closed Mon, Tue-Fri 10.30-7, Sat 10-6.

PJ HI-FI - the Hi-Fi Shop, 3 Bridge St, Guildford, Surrey GU1 4RY. (0483) 504801/304756. 9-6 Mon-Sat. Linn, Meridian, Arcam, Quad, Revox, Rotel, NAD, Nakamichi, Marantz, Yamaha, Deltec, Rega, Audioblab, Mission/Cyrus. **BADA**

RIVERSIDE HI-FI, 422 Richmond Road, East Twickenham, TW1 2EB. Tel: (081) 892 7613. Fax: (081) 892 7749. See main entry under Middlesex.

ROGERS HI-FI, 13 Bridge Street, Guildford, Surrey. (0483) 61049. Aiwa, Creek, Denon, JPW, Marantz, Micromega, Rogers, TEAC, Pioneer, Systemdek, Tannoy. Demonstration facilities available, no appointment necessary. Free installation. Service department. Access/Visa. Instant credit up to £1,000 subject to status. Monday-Saturday 9.30-6pm, later by appointment.

SOUNDS EXCLUSIVE, 1 Kent House, High Str, Cranleigh GU6 8AU. (0483) 268185. Michell (amplification & decks), Marantz, Ariston, Ortofon, AME, Sums, Proac, Jamo, Origin Line, Kiseki. Demo room, appts preferred, home trial facilities, free install, service dept. Access, Visa. Open 9-5.30 Mon-Sat.

SPALDINGS HI-FI, 352-4 Lower Addiscombe Rd, Croydon, Surrey. (081) 654 1231/2040. 3 dem rooms and home dem. Free install, credit. **BADA**

SURBITON PARK RADIO, 48 Surbiton Rd, Kingston-Upon-Thames, Surrey, (081) 546 5549. Quad, Castle, Dual, Denon, Kenwood, Mordaunt-Short, Rotel, Pioneer, QED, B&W, Tannoy. Demo facilities. Access, Visa. 9.30-5.00 Mon-Sat. Service dept.

SURREY HI-FI, 45 High Street, Godstone, Surrey RH9 8LS. (0883) 744755. Parking, easy access - just 2 mins off junction 6, M25. Tube Technologies, Rel Acoustics, Audio Lab, Quad, TDL, Nakamichi, KEF, Thorens, Rotel, Marantz, Denon, Michell, Tannoy, Top Line, Rel Acoustics, Single speaker demo room. Demonstration by appointment, free installation, service dept. Access, Visa, Mastercard. 0% Credit. Open 9-6, closed Wed.

TRU-FI SOUND & VISION, 10 Church Street, Leatherhead, Surrey. (0372) 378780. Sony, Technics, Panasonic, Mitsubishi, Ferguson, Aiwa, Pioneer, Sanyo, B&W, Mission. Free installation. Credit facilities. Access, Visa. 9.15-5.30 Mon-Sat. Closed Wed. Service dept.

ZEBRA 18-24 Brighton Road, South Croydon CR2 6AA. 081 688 2093. See main entry under London.

SUSSEX (EAST)

JEFFRIES HI-FI, 69 London Rd, Brighton, East Sussex, Tel 0273 609431. 2 Dem Rooms, closed Mon. Late night Wed. Free parking. Bus route. Credit Facilities. **BADA**

JEFFRIES HI-FI, 4 Albert Parade, Green Street, Eastbourne, East Sussex. Tel: 0323 31336. 2 Dem Rooms. Closed Mon. Late night Wed. Free Parking. Bus Route. Credit Facilities. **BADA**

THE POWERPLANT, 66 Upper North Street, Brighton BN1 3FL. (0273) 775978. Roksan, Musical Fidelity, Marantz, Rotel, Yamaha, Tannoy, Audioblab, B&W, Micromega, Epos, JPW, etc. Comfortable single speaker facilities. No appts nec. Home trial facilities, free install. Late night dems by request. Service dept. Credit facilities available on request. Tue-Sat 10-6pm. **BADA**

SUSSEX (WEST)

AUDIO DESIGNS, 26 High Street, East Grinstead, W. Sussex RH19 3AS. 0342 314569. Arcam, Audioblab, Cyrus, Epos, Linn, Marantz, NAD, Naim, Rotel, etc. Very comfortable listening room. No appts nec., Home trial facilities, free installation, service dept. Access/Visa. 9.30-6:00 Mon-Sat, late Tue. **BADA**
BOWERS & WILKINS LTD. (Est. 1945) 1 Bicket Buildings, Littlehampton Rd, Worthing. (0903) 2 64141. 1 minute from A24 & A27. Free local parking. Aura, B&W (inc. Matrix), Castle, Denon, Mission, Nakamichi, Philips, Quad, Technics, Thorens, and many more in 3 Dem Rooms.

Systems, Hi-Fi and Home Cinema. Service Dept., Installations. Open 6 days a week. Access, Visa, instant credit to £1000 subject to status. **CHICHESTER HI-FI**, 7 St. Pancras, Chichester, W. Sussex PO19 1SJ. Tel: (0243) 776402. Linn, Naim, Rega, Creek, Nakamichi, A&R, Denon, Roksan etc. Tues-Sat, 10-1, 2-5.15 (closed Mon). **BADA**

TYNE & WEAR

RED RADIO SHOP AND HI-FI CENTRE, 11 Olive Street, (Off Park Lane), Sunderland. Tyne & Wear SR1 3PE (091) 567 2087. Castle, Denon, JVC, Kenwood, Mordaunt-Short, Michell, Pioneer, Teac, Tannoy, Monitor Audio etc. A/V Dem room, large with comparator facility. No appts nec, Free install Service dept. Interest free credit and no deposit 9am-5.30pm daily. <Entries>

WARWICKSHIRE

CASTLE HI-FI, 59 Smith Street, Warwick. CV 34 4HCE. Tel (0926) 499963. A.R. B&W, LPW, Jensen in car, Marantz, Musical Fidelity, NAD, Pioneer, Rogers, TDL, Yamaha, Dolby Pro Logic. Dem Room No appt nec, Home trial facilities, Free Installation, Service Department. Interest free credit, Access, Visa, Chartered Trust. Open 10-6 6days a week.

FRANK HARVEY HI-FI 163 Spon Street, Coventry, Warwickshire, CV1 3BD. Tel 0203 525200. Arcam, Mission, Cyrus, Musical Fidelity, Marantz, Rotel, NAD, Tannoy, Yamaha, KEF. Open 9:30-5:30 closed Thursday. **BADA**

HOUSE OF MUSIC, 44 Park Street, Leamington Spa, Warwickshire CV32 4QN. (0926) 881500. Linn, B&O, Meridian, Mission, Celestion, Arcam, Rotel, Sony Esprit, Denon, Aura. Two separate rooms. No appts required, service dept, free install, home trial. Access, Amex, Visa, Diners, Int free credit, instant credit. Open 9.30-5.30 6 days.

STRATFORD HI-FI, 25 Henley Street, Stratford, Warwickshire CV30W. (0789) 414533. Arcam, Yamaha, Denon, NAD, Mission, Rotel, Marantz, Pioneer, Monitor Audio, B&W, Tannoy, Laserdisc. Dem room, wide range of home cinema equipment. No appts required, service dept, free install, home trial. Access, Visa, Int free credit, instant credit. Open 9.30-5.30 6 days, open late Wed by appt

WILTSHIRE

THE AUDIO EXCHANGE, 52 Morse Str, Swindon, Wiltshire SN1 5QP. (0793) 539008. Acoustic Energy, Audio Innovations, Cerwin Vega, CR Developments, Heybrook, Impulse, Micromega, Michell, REL, Sequence, Sugden. AV and single speaker demo room. Home trial facilities, free installation, service dept. 10-6 Mon-Sat.

AUDIO T, 60 Fleet St, Swindon, Wiltshire. SN1 1RA. (0793) 538222, Fax (0793) 487260. Great hi-fi from Arcam, Audioblab, Cyrus, Denon, Linn, Meridian, Mission, Rotel, Sony, Yamaha, and many more. Mon-Sat 9.30-5.30. 3 yr gntee on Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. 2 dem rooms. A/V Dept. **BADA**

PR SOUNDS, 58 Castle Street, Trowbridge, BA14 8AU. Tel 0225 777799. Also at Melksham & Devizes. Pioneer, Technics, Kenwood, Denon, Marantz, B&W, Tannoy, J&W, Dual. Where music is a pleasure, personal service, no appointments necessary. Installations & much much more. Access/Visa £1000 instant credit. Open 9-6, 6 days.

WORCESTERSHIRE

SPAINS HI-FI, 2&2a New Road, Bromsgrove, Worcestershire. Tel: (0527) 72460. B&W, Denon, Kenwood, Marantz, Mission, Nad, Pioneer, Rotel, Sony, Tannoy and more. Integral demo room/showroom for instant comparisons on hi-fi and AV equipment. Free installation, service dept & credit facilities, Access & Visa.

WEST MIDLANDS AUDIO, 158 Ombersley Road, Worcester WR3 7HA. (0905) 58046. Audioblab, Nakamichi, Naim, Rega, Absolute Sounds, Meridian, Arcam, Ion Systems, Roksan, 4 demo rooms for budget & high-end audio. Full DSP. Appointments necessary. Free install. Service dept. Access, Visa, Amex, Diners, Lombard/Hitachi. Mon-Fri 9.30-8.30 by appt Sat 9-5.30.

YORKSHIRE (NORTH)

AUDIOVISION (BRIGHOUSE) LTD, 5 Bethel Street, Brighouse, W Yorks HD6 1JR. (1 mile from junction 25, M62) (0484) 713996. Yorkshire's experts for the entire range of Technics hi-fi separates and systems, Panasonic Nivcam TV, satellite, audio, VCRs and camcorders, Philips widescreen TV, CDi and Laserdisc players and Yamaha cinema DSP separates. Also, Castle Acoustics, Mordaunt-Short, Bose, TDL, Cerwin Vega and Aiwa hi-fi separates. Hi-fi, home cinema and Dolby ProLogic surround sound systems on continuous demonstration. Free specialist advice and expert installation. In store service dept, Access, Visa, Credit charge. Mon-Sat 9-5.30.

THE AUDIO CLINIC, 22 Lord Mayors Walk, York, Yorkshire YO3 7HA. (0904) 646309. Mission, Revox, Yamaha, JVC, Audio Innovations, Celestion, NAD, Musical Fidelity, Allison, Thorens. No appts nec. Home trial facilities, free installation, service dept. Access/Visa, credit. Open 10-5.30 Mon-Sat, Wed 11-5.30.

SCARBOROUGH HI-FI CENTRE, 14 Northway, Scarborough, N. Yorks YO11 1JL. (0723) 374547. Aura, Albary, B&W Matrix, Cyrus, Denon, Pioneer, Marantz, Cabasse, Tannoy, Laser vision and wide screen TV. Dem room, appointment preferred. Home trial facilities. Free installation. Service dept. Access/Visa/Creditcharge/£1,000 instant credit/Amex/Diners. 10-6 Mon to Sat.

SOUND ORGANISATION YORK, 2b Gillygate, York YO3 7EQ. Tel: (0904) 627108. Closed Mondays. Linn, Naim, Rega, Creek, Meridian, Arcam, Denon, Royd, Rotel and other well chosen makes. "You can't go wrong — we wouldn't let you" **BADA**

VICKERS HI-FI, 24 Gillygate, York. (0904) 629659. Audioblab, Harman-Kardon, Marantz, Musical Fidelity, Pink Triangle, Quad, Systemdek, Tannoy, Technics, & lots more. 3 demonstration studios (2 by appointment) superb showrooms, 2 year guarantee on all hi-fi products. Appts as above, home trial facilities, free installation, service department. Qualified and experienced staff, over 25 years experience. 12 months interest free credit. 10.30-5.30 Mon-Sat.

YORKSHIRE (SOUTH)

BARNSELY HI-FI CENTRE, 40-42 Sheffield Road, Barnsley, S. Yorks S70 1HP. (0226) 205549 Fax (0742) 467207. Arcam, Quad, Audioblab, Mission Cyrus, Technics, Denon, Tannoy, Nakamichi, Dual, Rotel. Purpose built demo room, no appts necessary, free install, service dept, Access, Visa, varying finance packages. Open 9.30-5.30, 5 days (closed Thurs).

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ZEUS AUDIO, 6 Hope Street, Belfast, (0232) 332522 Audio Innovations, Pink Triangle, Roksan, Marantz, Celestion, Linn, Meridian, Mission Cyrus, Ortofon, etc. Open Mon-Sat 10.00-5.30. Late night Thursday. **BADA**

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ELECTRO TRADER, 19 Colwyn Crescent, Rhos On Sea, Colwyn Bay, Clwyd, North Wales LL26 4RN. (0492) 548932. Rotel, Yamaha, NAD, Harman Kardon, Teac, Sugdens, Tannoy, TDL, KEF, Infinity, Jamo, JBL, Heybrook, Heco, Ruark, Alphason, AR, Target Stands, etc. Dem room. Appts preferred. Home trial. Free install. Access, Visa. Open 9.30-1.00, 2.00-5.30 Mon-Sat.

ACTON GATE AUDIO, 4 Ruabon Rd, Wrexham, North Wales, Tel: 0978 364 500, Arcam, B&W, Marantz, Mission, NAD, Quad, Rega, Rotel, Tannoy, Yamaha, etc, Dem Facilities, A.V. on dem, Mail Order. No appts nec, home trial fac, Free install, Service Dept. Access, Visa. 9.30-5.30 closed Weds PM

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AUDIO EXCELLENCE, 134 Crwys Road, Cardiff. (0222) 228565. Great Hi Fi carefully selected and demonstrated by friendly, enthusiastic staff. Closed Mon. **BADA**

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AUDIO EXCELLENCE, 9 High St, Swansea. (0792) 474608. Great Hi-Fi carefully selected and demonstrated by friendly, enthusiastic staff. Closed Mon. **BADA**

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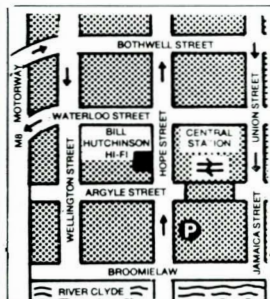
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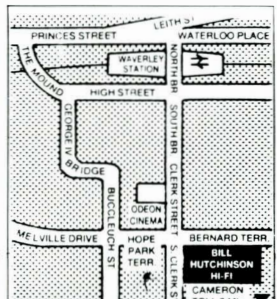
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How to make Pavarotti more rounded and Freddie Kruger even sharper. Home Entertainment magazine.



If you enjoy razor-sharp pictures and glass-shattering sound, a real home entertainment system should have your sensory organs sitting on their hind legs and begging for more.

Whether your system input is wax cylinder or CD-i, a cash output of just £2.25 a month is guaranteed to give your system a surge.

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And we're not just talking woofers and tweeters here. We're talking serious, fun stuff. Stuff like surround sound, which brings cinema sound into your living room. Or CD-i, the interactive system which lets you join in the games and movies.

TV, hi-fi, LaserDiscs, CD-ROM, camcorders, Nicam, satellite TV, films and widescreen - if you can see it or hear it, we've got it covered. Software or hardware, it's all there.

We'll explain all the latest technologies and keep you in touch with the latest developments. But we also have non-technical reviews, so you don't have to wear an anorak to understand it all. There's even a comprehensive buyers' guide to help you avoid expensive mistakes.

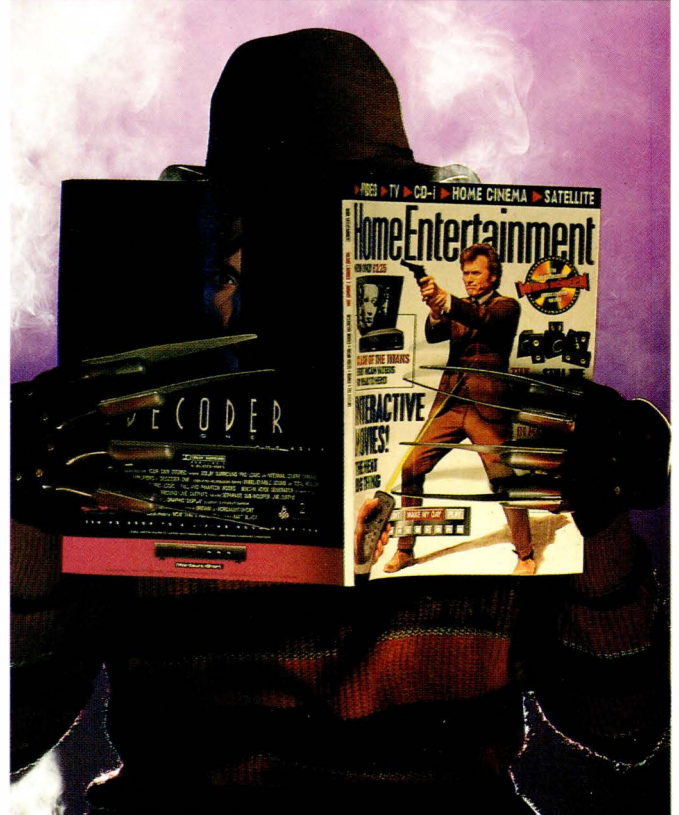
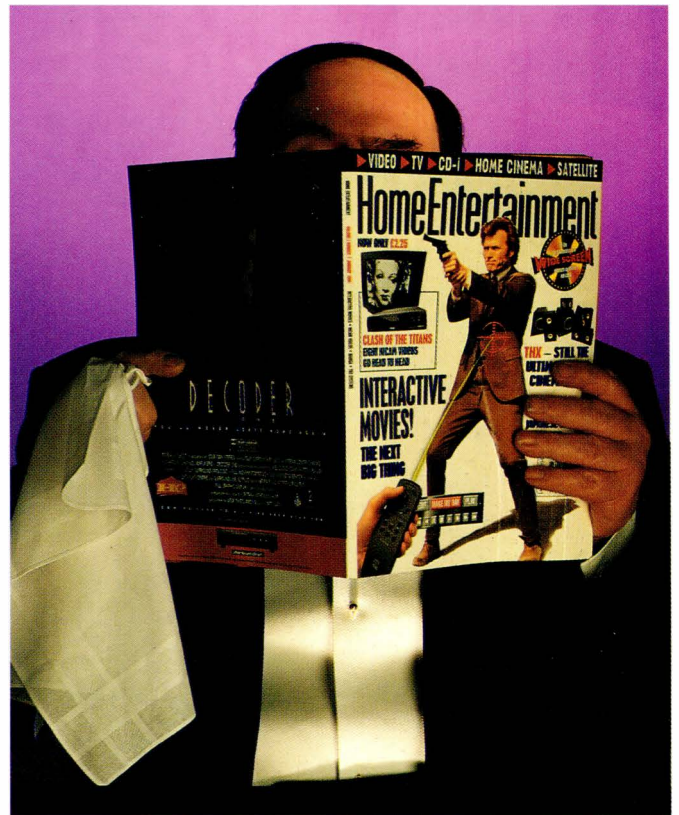
January's issue is pre-loaded with articles on video boxed sets, an X-rated peek at Japanese Manga cartoons - plus features on THX, digital video films and much more.

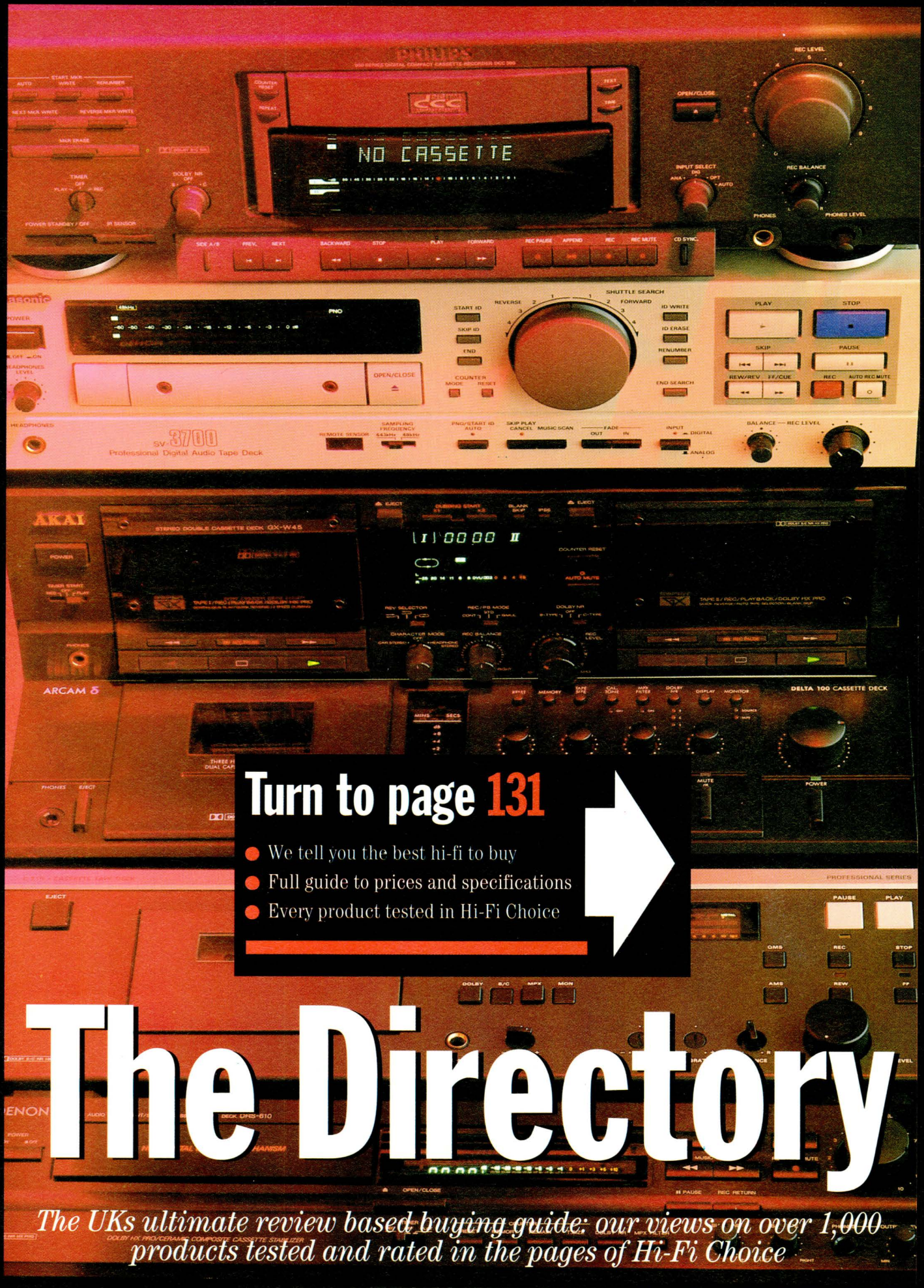
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Turn to page **131**

- We tell you the best hi-fi to buy
- Full guide to prices and specifications
- Every product tested in Hi-Fi Choice



The Directory

The UK's ultimate review based buying guide: our views on over 1,000 products tested and rated in the pages of Hi-Fi Choice

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AMPLIFIERS

TECHNICS

SUVZ 220 NEW, 30 watts per ch.
SUVZ 320 NEW, 40 watts per ch.
SU A800K NEW, 40 watts per ch. MOS, Class AA
SU A700K NEW, 45 watts per ch. MOS, Class AA.

Remote

SU A800K NEW, 55 watts per ch. MOS, Class AA. Remote
SU A900K NEW, 80 watts per ch. MOS, Class AA. Remote

KENWOOD

KA 1030 65 watts per ch.
KA 3020 45 watts per ch. British sound
KA 3050R NEW, 45 watts per ch. Remote
KA 4020 60 watts per ch. British sound
KA 404DR 70 watts per ch. Remote
KA 5020 80 watts per ch.
KA 5050R 90 watts per ch. Remote. NEW
KA7050R 100 watts per ch. Remote. NEW
KAV 8500 HOME CINEMA "What Hi-Fi?" Award Winner

SONY

TAF 211B 30 watts per ch. NEW
TAF 242B 60 watts per ch. NEW
TAF 442E 80 watts per ch. UK sound. NEW
TAF 542E 90 watts per ch. UK sound. NEW
TAAV 570B Dolby Pro-logic Home Cinema Amp. NEW

CD PLAYERS

TECHNICS

SLXP 150, SLXP 330, SLXP 440, SLXP 550,
SLXPS 900, Portables
SLPG 340A Budget MASH Player
SLPG 440K NEW, Remote MASH Player
SLPG 620A NEW, MASH with digital output
SLPG 740K NEW, MASH digital servo
SLPG 940K NEW, advanced MASH

KENWOOD

DP 2050 NEW model with CCRS
DP 3050 NEW, 1 bit model
DP 5050 NEW, 1 bit model
DP 7050 NEW, 1 BIT Model
DPM 6650 NEW, multi play model
SONY
CDPM 201 Midi size. NEW
CDPM 301 Midi size, remote control. NEW
CDPC 325M Midi size, 5 disc multi-player
CDP 311 Full size, remote control. NEW
CDP 411 Full size, remote control. NEW
CDP 711E Full size, UK Sound. NEW
CDP 911E Full size, UK Sound. NEW
CDPX 303 ES Full size. UK Sound. NEW ES
CDPC 335 Full size, 5 disc multi-player. NEW
D33, D121, D220, D321
DT115 & D122CK portable players all in stock

CASSETTE DECKS

TECHNICS

RSBX 404K NEW Dolby B/C + HX Pro
RSBX 646K — NEW, 3 Head Deck with HX-PRO
RSBX 747K NEW, 3 Head Deck with HX-PRO
Class AA
RSTR 232 NEW, A.R. twin deck
RSTR 333 NEW, A.R. twin deck with Bias adjustment
RSTR 515K NEW, twin deck with HX Pro

KENWOOD

KX 3050 Dolby B/C, power loading
KX 5050 Dolby B/C, 3 motor, power loading
KX 7030 Dolby B/C, HX Pro, 3 head, 3 motor
KXW 4050 NEW, twin deck, Dolby B + C
KXW 6050 NEW, twin deck — Double record
KXW 8050 NEW, twin deck with HX-Pro

SONY

Single decks
TCFX 211B Dolby B and C, NEW
TCK 311B With auto calibration. NEW
TCK 411B 3 head deck, auto monitor, NEW
TCK 511S 3 head deck with Dolby S. NEW
TCK 611S 3 head/3 motor deck with Dolby S. NEW
Double decks
TCWV 435B Dolby B+C + Hx-Pro. NEW
TCWR 535B with record-reverse. NEW
TCWR 635S With Dolby S. NEW

SPEAKERS

SONY

SS 85E UK design
SS 125E UK design
SAW-90 — Sub Woofer
WHARFEDALE
Diamond 5 — NEW
415 Performance
425 Performance
CRS-3, CRS-5, CRS-7, CRS-9 — New Range
2130 CS — Centre Speaker

MORDAUNT-SHORT

New series MS-10, MS-20, MS-30, MS-40, MS-50 now in stock
CS-1 + SW1 — Home Entertainment Series in stock in dialogue, stereo and Pro-logic packs
Dolby pro-logic DECODER ONE (NEW!)

CANON

S-30
SC-10 — Centre Speaker
VSB-100 — Sub. Bass Corner Unit
VT-100 Corner units

TANNOY

803 Mk II 120 watts power handling
805 Mk II 150 watts power handling
607 Mk II 175 watts power handling
609 Mk II 200 watts power handling
611 Mk II 250 watts power handling
613 Mk II 250 watts power handling
615 Mk II 300 watts power handling

HI-FI SYSTEMS

TECHNICS

All systems in speakers and CD
CDX 520E 60 watts per ch. inc equaliser
CDX 320 50 watts per ch.
CDX 120 40 watts per ch.
SCCH 404 NEW Budget Minisystem
SCCH 550 NEW, budget minisystem
SCCH 650 NEW, 50 watts mini system
SCCH 655 NEW, MULTI-PLAY mini system

SCCH 750 NEW, 50 watts system with D.S.P.
SCCH 950 NEW, Pro-logic mini system
SHE 51 Equaliser for CDX 120 & CDX 320 systems
KENWOOD All systems with CD & speakers & remote control

M27 CDS — 40 watts per ch.
M47 G — NEW 45 watts per ch.
MS6 PX, 45 watts per ch.
M57 MG — NEW 45 watts per ch., Multiplay system
M76 G, 60 watts per ch, inc. equaliser
M77 MG NEW 80 watts per ch., Multiplay system
M97 G NEW 85 watts per ch. Pro-logic system with multiplay CD option

NEW KENWOOD mini systems all with multi-play CD option

UD301/351 M, 25 watts per ch.
UD 501/551 M 32 watts per ch.
UD 701/751 M 32 watts per ch., — Dolby surround
UD 901/951 M 42 watts per ch., — Dolby Pro-logic
MS-A7 NEW Micro system

EXTRAS AVAILABLE

P 100 record deck for mini-hi-fi systems
CS-6 Centre speaker
CM 7ES Rear surround speakers, 70 watts
CM 5ES Rear surround speakers, 40 watts
SW900 Super woofer for midi systems
SW 700 Super woofer for mini systems
OMNI 7 Top Speaker
SONY All systems inc speakers & remote control
NEW systems in now in stock
Compact 109CD 25 watts per ch.
Compact 159CD 25 watts per ch., Multiplay
Compact 209CD 30 watts per ch.
Compact 259CD 30 watts per ch., Multiplay
Compact 359CD 50 watts per ch., Multiplay
Compact 559CD Separate components, Multiplay
Compact 759CD Dolby Pro-logic

SONY MINI HI-FI inc speakers & remote control & CD

MHC 510CD, NEW, 25 watts per ch.
MHC — C 50 CD NEW MULTIPLAY SYSTEM
MHC 710CD, NEW, 40 watts per ch.
MHC — C 70 CD NEW MULTIPLAY SYSTEM
MHC 2800CD, NEW, 40 watts per ch.
MHC 3800CD, NEW, 50 watts per ch, with D.S.P.

MINI-DISC

MZ1 + MZ2 Portables in stock
MDS 101 For Mini Systems

DAT RECORDERS

SONY

TC DD3 portable
TC DD7 NEW, Budget portabin
DTC 690 NEW, Full size deck

TUNERS

TECHNICS

ST 610 24 Presets
STG 60 Twin Tuner
ST GT550K with RDS
ST GT650K with RDS

KENWOOD

KT 1050 NEW model
KT 2050 With Timer
KT 2050 NEW model
KT 3050 NEW model with R.D.S.
KT 6050 Remote compatible

SONY

STS 211B NEW, with 30 presets
STS 311B NEW, with R.D.S. — EON
STS 505ES with R.D.S.

RECEIVERS

TECHNICS

SAGX 130K 60 watts, 30 presets
SAGX 230K 80 watts VCR input
SAGX 350K NEW Pro-logic
SAGX 550K — New Pro-logic

KENWOOD

KR-A4050 WITH R.D.S.
KRV 6050 NEW model with Dolby Pro-logic and R.D.S.
KRV 7050 NEW model with Dolby Pro-logic R.D.S. + D.S.P.

SONY

STRD 311B — New
STRD 511B New Pro-logic model
STRD 611B — New Pro-logic model

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The Directory

This is the legendary Hi-Fi Choice Directory, the only buying guide that is entirely based on comprehensive technical and subjective reviews. Each and every entry carries the weight of our exhaustive test procedures with regularly updated prices and specifications.



The Hi-Fi Choice Directory was conceived as a reference guide to all the audio products reviewed by *Choice* that are currently available. The products are split into categories, each with its own introduction containing information about the product type and its applications. They are particularly relevant to the uninitiated first time buyer and help sort out the order of priorities when buying a piece of equipment.

Each product along with its current retail price is placed in its respective category in alphabetical order. The prices of the products are updated on a regular basis, although it should be noted that our value ratings are based on the product's price at the time of review.

Sound quality

This column contains the ratings for the standard achieved in our listening tests. The sound quality ratings range from Poor to Excellent. Their meaning and order are as follows:

P	Poor
A-	Average-
A	Average
A+	Average+
G-	Good-
G	Good
G+	Good+
VG	Very Good
E	Excellent

With P being the worst and E the best rating within a section.

One important point to remember is that these cannot be used to compare products from different categories. For example, a cassette deck rated Excellent in sound quality will not usually offer the same standard of fidelity as a similarly rated turntable or CD player.

How to use this guide

Perhaps the most influential symbols in the *Directory* are the little red triangles ▲ found in the value column at the beginning of each entry where appropriate.

Products that make the grade are awarded the Best Buy or Recommended accolade.

▲▲ A product carrying the Best Buy swingtag is of excellent quality and good value for money in its price category.

▲ Recommended products are runners up, but still definitely worth considering within their price bands.

Please note however, that an expensive Recommended product will nearly always sound better than an inexpensive Best Buy. An ideal situation would be to choose suitably priced ▲▲ Best Buy or ▲ Recommended products from relevant categories and create a Best Buy system. But, due to the variety in tonal balance that exists in much audio equipment, and differences in taste, system building is unfortunately not that simple. These ratings make a useful guideline for shortlisting components, but only experiencing the actual combination will tell you whether it works for you.

Finding that component

Before you shop, follow our top eight tips for better buying:

1. Check out the components' recommended retail prices in the *Directory*.
2. Find out as much as you can about the products you want by reading *Hi-Fi Choice's* reviews and lab tests.
3. Visit local dealers that stock some of the brands you want to hear and try to find one that seems sympathetic to your needs.
4. Don't discount a dealer's suggestions just because the products don't have rave reviews.
5. Take your own software (records, CDs, tapes) along for a demonstration of the equipment that the dealer recommends.
6. Listen at the sort of volume you would normally use at home — systems often sound more impressive when played loud.
7. If you are unsure about something or want to hear an alternative, just ask.
8. Audition a system for a reasonable amount of time, say three quarters of an hour or so, before making a decision.

Unless you have first generation masters of course.

Comments

The Comments column contains a potted summary based on the original review, emphasising

the salient points of a product's character and sonic performance. The space available doesn't allow for great detail but we have attempted to put across the essence of the review. Obviously, important

information on compatibility or auxiliary equipment used in the test cannot be included, and we would advise you to refer to the original review for this.

Please note that these comments are those of our own reviewers and not, as is the case with some magazines, those of the manufacturer.

Features

Product features are shown with a combination of figures and blob charts, with headings at the top of each column indicating the appropriate category, a blob indicating the existence of a particular feature.

There are different headings for each section and the more complicated categories are explained in the individual introductions. Where figures are used the unit of measurement is shown in the heading.

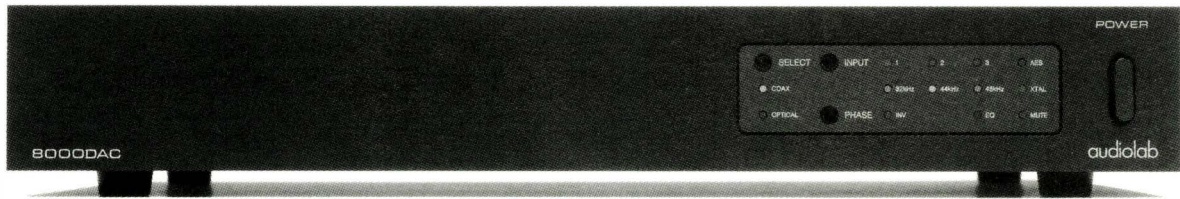
Back issues

The final column contains a reference to the issue of *Hi-Fi Choice* which featured the complete review.

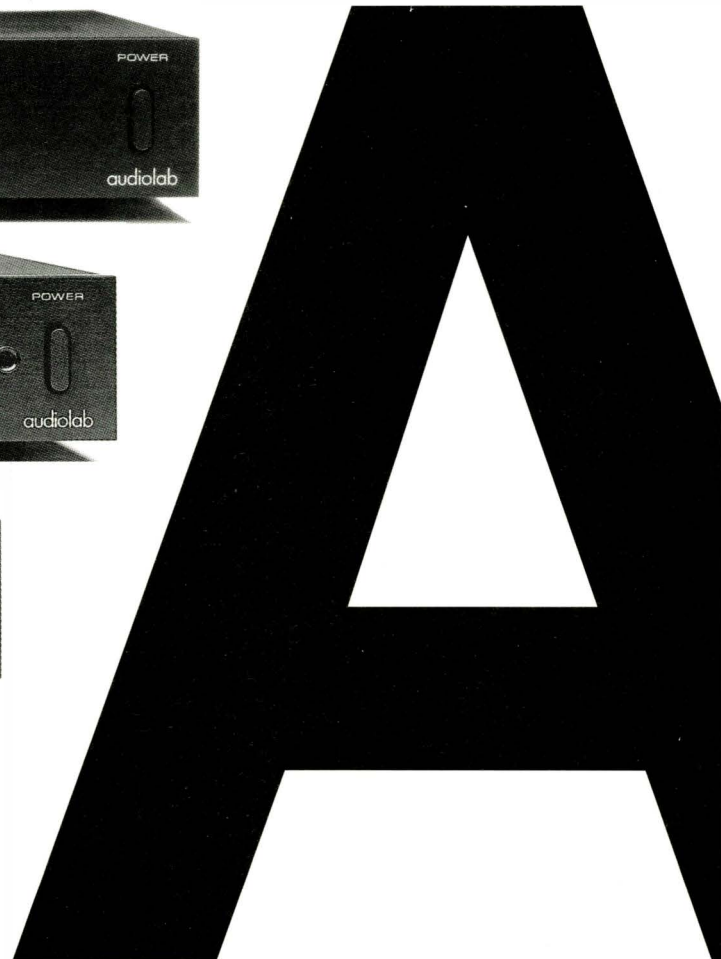
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The *new* Audiolab *Digital-Analogue* convertor



The Audiolab product range:
 8000A Integrated amplifier
 8000C Pre-amplifier
 8000P Stereo power amplifier
 8000T FM/AM tuner
 8000M Monobloc power amplifier
 8000DAC digital-analogue convertor



Winners
 FBA AWARDS 1993
 Audiolab 8000A
 Best Integrated Amplifier
 Audiolab 8000T Best Tuner
 Audiolab 8000DAC
 Best Digital Component
 Audiolab 8000C & 8000P
 Best Hi-Fi Separates

AUDIOLAB

Amplifiers

The amplifier sits at the heart of the system, processing the outputs from all 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; separated pre- and power amplifiers, even separate power supplies, become increasingly common as one moves upmarket. At the upper end of the specialist market, valve amplifiers provide a popular alternative to the transistor types amongst enthusiasts.

There is a substantial difference between specialist (sound quality oriented) amplifiers and the consumer electronics style models. The former

are bleakly simple, avoiding all unnecessary features to provide the most direct signal path in the interests of best sound quality. The latter range from models with just basic tone controls and tape recorder switching, to those with elaborate facilities such as graphic equalisers, remote control (including volume), surround sound options etc. etc.

We include our measured power output (RMS, 8ohm load, 1 channel driven) – but again, paradoxically, this doesn't necessarily correspond to the loudness capability of the amplifier, which has as much to do with the elegance of the overload characteristics within a given system (valve

amplifiers invariably sound more powerful than their rating would suggest).

Apart from output the facilities listing shows how many line (that is inputs besides those for phono cartridges) inputs a product has and includes tape inputs. The MM and MC blobs indicate which types of cartridge can be accommodated. Integrated, preamp and power amp indicate the type of amplifier reviewed, and in some instances that a pre/power combination has been tested. In such instances the price given is for both components. The remote control and headphone socket blobs indicate the existence of these facilities.

Amplifiers

Product	£Price	Comments	Output W/8Ω	Line inputs	MM	MC	Integrated Preamp	Power amp	Headphone socket	Remote control	Issue No.
Adcom GCA-510	349	G American power amp with line inputs and passive pot, highly detailed midrange but rather high price.	81	5							121
Adcom GFP-555II/GFA-535II	850	A+ Technically proficient pre/power saddled with a slightly hard and unsympathetic sound.	94	6							124
AMC CVT3030	460	A A well meaning and affordable attempt to mix transistors with valves, albeit one that only really shines with simple musical styles.	35	5							116
▲ Akai AM-47	230	G+ Plenty of widgets and an unexpectedly sharp, open and detailed sound. Looks ghastly but sounds strain free.	104	4							104
Akai AM-95	630	A- A revamped version of the older AM-93 with newer onboard bitstream DACs. Its sound is just too eager, however	110	6							109
Albarry AP4/S508	850	A- A disappointing sound from a pre/power amp that's hamstrung by a variety of technical oversights. Albarry has done better.	46	4							116
▲ Albarry PP1	400	G+ Available with or without various MM/MC options, the 'basic' PP1 has an attractively warm, earthy sound.	48	4							104
Alchemist Kraken	444	A Class-A objet d'art that's far too sensitive to RF interference. Can sound cold and fierce as a result.	54	5							116
▲ Alchemist Kraken APD7/APD8	775	G A quirky Class A number with an equally warm and colourful sound. Hardly accurate but entertaining nonetheless.	49	4							124
▲ Arcam Delta 110S/120.2	1070	VG Now in mkII guise this established combination has matured into a very articulate, powerful if dry-sounding amplifier.	109	4							124
▲ Arcam Delta 290	450	VG Combines the dryness and restraint of Arcam's older models with a refreshing sense of detail, dynamics and musical colour.	99	5							116
▲ Art Audio Quintet	988	VG Switchable triode/ultralinear output stage. In triode mode these are 15 of the sweetest watts around. Surprisingly gutsy	15/25								109
Audio Innovations Series 200	850	G Turns in a fuller and more substantial performance via MM rather than CD. Otherwise its sound can seem slightly bleached.	10	5							109
▲ Audio Innovations Series 300II	500	G+ Under-powered and over-distorted yet capable of realising an open and captivatingly expressive sound. Sensitive speakers are a must	9	4							97
▲ Audio Innovations Classic 25	699	G+ Warm, cuddly and immensely musical kit amp that almost transcends 'hi-fi' with its sheer listenability	24	5							126
▲ Audio Innovations Series 700	999	G+ Valve amp that can turn the roughest of digital sounds into music, both understated and graceful. Sensitive speakers are a must	24	5							116
▲ Audio Note Oto SE	1500	VG Transparent, very dynamic, excellent clarity and subtlety with limited power make for a very clean sounding amp	9.5	3							126
▲ Audio Note Ongaku	43125	E A single ended, zero negative feedback, triode, line level integrated amp and a half. Probably the best amplifier in the world!	27	6							Col
▲ Audiogram MB1	500	G+ It'll successfully tackle the most difficult of speakers and still provide a very warm, rich and euphonic sound.	46								116
▲ Audiolab 8000A	450	VG Recent mods have cured the slightly glassy treble, replacing it with a smoother and more solid style of music making	81	7							97
Audiolab 8000C/8000P	1100	G Very distinctive, almost stark neutrality that will not appeal to all listeners. Good value engineering, nevertheless	157	7							97
▲ Aura VA-100 Evolution	300	G+ Might overheat when driving insensitive, low-impedance speakers but was applauded for its sense of scale and drama via CD	81	5							109
▲ Aura VA-50	250	VG Superficially similar to the cheaper VA-40 but with much more of the old MA-80's magic! Great sound from a slimline package	65	5							97
▲ Beard Audio CA35/P35mkII	1790	VG Good build quality and finish and a characteristic valve sound make a first class amplifier capable of great musical enjoyment	35	4							63
Beard CA506	1295	G+ A versatile valve preamp, the bass sounded lively if a touch softened, while the treble was detailed but lacked a little sparkle	4								50
Beard M70	1995	G+ A substantial British monoblok power amplifier, but not a great deal more impressive than the P35	70								50
▲ Concordant Excelsior	1040	E Styling might not inspire confidence, but sonically this preamp is tremendously vivid and detailed. Real high-end performance	3								77
▲ Conrad-Johnson PV-10	1250	E Fabulous preamplifier. Beautiful imaging, superb detail, plenty of gain on the phono stage; classy build quality too.	4								78
▲ Conrad-Johnson Premier 7	11000	E The 'Seven is designed without compromise, and is clearly one of the finest (valve) preamplifiers money can buy.	4								Col
▲ Creek CAS 4040 S3	220	G Now in mk3 guise the '4040 offers a dry but tidy sound via disc and one that's slightly leaner and better focussed on CD.	41	3							92
Creek CAS 4140 S2	250	A+ Running production changes inspired us to re-review this amp which now sounds thicker and 'blurred' compared to the original	41	3							109
Creek CAS 6060	500	G Looks like the old '5050 but employs the sort of big, meaty-sounding electronics used in the earlier '4040. Dynamic and impressive.	81	5							104
▲ Cyclone Catalyst	1995	VG Exceptionally load tolerant and very refined in delivery. Extra options available in future	74								80
▲ Denon PMA-250III	160	A- Pretty high resolution for the price, occasionally loses its grip but is generally engaging and enjoyable	55	3							121
▲ Denon PMA-450	250	G+ Denon's latest integrated amp swept the board with its big, brassy if somewhat extravagant sound.	99	5							116
▲ DPA Digital DSP-200S/DPA-200S	1245	E The very dramatic but exceptionally detailed and transparent sound of this combination belies its modest power rating.	48	5							124
▲ Dual CV600RC	160	G A very lively, open and vibrant sound. Slightly sanitised via CD perhaps, but still damn good for a features-first integrated amp!	63	5							104
▲ EAR 834	1,300	G+ Electrifying, pin you to your seat sound that puts the raw into raw power and brings electric guitars to life, but can be a bit wearing	44	6							126
EAR 549	5400	VG Valves imitating trannies give exceptional power delivery but not the delicacy and transparency one expects	200								60
▲ EAR 802/509mkII	4200	VG Extremely well made and combining the sonic strengths of both transistors and valves this EAR combo warrants attention	100	6							63
EMF Audio Sequel	349	G+ A fresh start for Mike Creek has resulted in the Sequel, a minimalist amp with a very refined but mildly restrained sound	47	4							109
Exposure XX	625	A Line only integrated with good sense of timing but limited hf extension. Likely to be very system dependent.	43	4							121
▲ Exposure XI/XII/VIII Super	1650	VG New preamp and improved power amp led to a smooth and refined sound, MM/MC less transparent than CD	61	5							80
▲ Grant G60AAMS	1300	G+ Neat and compact valve monoblok gave good sound on the 8ohm tap, better still on 4ohms. The midrange was particularly natural	60								57
▲ Harman Kardon HK6150	200	G+ Based on the older HK6100 but with a more solid, punchy and expressive performance that attracted considerable praise	44	5							109
▲ Harman Kardon HK6250	280	G+ Heavily based on the cheaper HK6150, this version offers slightly more power with a similarly gutsy and expressive sound	51	5							116
Harman Kardon HK6550	430	A- Follow up to 6500 is disappointing with grainy hf and limited depth. Quite powerful but ultimately not up to the mark	69	6							121

Amplifiers continued

Product	£Price	Comments	Output W(RL ₂)	Line inputs	MM	MC	Integrated	Power amp	Headphone socket	Remote control	Issue No.
Harman Kardon HK6850	900	G This monster is derived from the HK6800 with a similarly deep and powerful sound but a rather steep price tag	101	6	•	•	•	•	•	•	109
Heybrook C3/P3	1379	A Heybrook has improved the manufacture of its power amp though flaws in the preamp's disc input remain	146	4	•	•	•	•	•	•	104
▲ Heybrook Signature	2014	G+ A stunningly powerful and vivid-sounding combination which is equally impressive via vinyl or CD	148	4	•	•	•	•	•	•	109
JVC AX-A342	170	A A value-conscious budget amp offering plenty of power but a slightly untidy and inconsistent sound	77	5	•	•	•	•	•	•	109
JVC AX-R562	250	A- More fuss and bluster than detail and dynamics was how one listener concisely described this less than wonderful model	90	5	•	•	•	•	•	•	121
▲ JVC AX-Z1010	650	G+ One of the best behemoths: a big amp with a big, boppy and unmuddled sound and a couple of ancient 16-bit DACs for good measure!	124	6	•	•	•	•	•	•	109
▲ Jadis JP30/JA30	10750	E French tubes. Beautiful build, nostalgic styling and delightful sounding midrange transcend limitations at frequency extremes	30	4	•	•	•	•	•	•	60
Kelvin AZI	700	A This latest Absolute Zero still sounds animated but also rather more synthetic and crude. It's also rather more expensive.	100	6	•	•	•	•	•	•	116
▲ Kenwood KA-3020	170	G+ An unassuming little amplifier that turns in a remarkably balanced and entertaining sound. Lively, detailed and engaging	66	5	•	•	•	•	•	•	97
Kenwood KA-4050R	280	A- Respectable but ultimately uninspiring model whose remote control is its main asset.	85	5	•	•	•	•	•	•	121
▲ Lecson Quattra	420	G Underpowered but with the flexibility of four independent power amps. Very deep, captivating sound with 3D soundstaging.	40	5	•	•	•	•	•	•	92
Magnum Quartet A	329	A- An integrated model that incorporates four monoblocks optimised for bi-wiring, but sound is sandy in the treble.	72	5	•	•	•	•	•	•	121
▲ Magnum A-Class	599	G+ Lashings of rich and compelling music, trading a hint of lushness for stark accuracy. An unexpected find. Phono stage option	55	7	•	•	•	•	•	•	116
▲ Marantz PM-52SE	430	G+ The SE premium pays for a degree of fluency that draws you into the music and keeps you there. Rather nice	95	6	•	•	•	•	•	•	121
▲ Meridian 201/205	1285	G+ A fine preamp with option of full system remote, plus competent monoblock power amplifiers with generally good performance	100	6	•	•	•	•	•	•	62
▲ Moth Series 30	587	G+ A modular system capable of cracking results. The passive preamp and power amp combination warrant a Best Buy in their own right.	35	4	•	•	•	•	•	•	109
▲ Musical Fidelity Preamp/Typhoon	500	G+ A combination that plays everything close to its chest but bridge the power amp and you'll witness an explosion of detail.	62	6	•	•	•	•	•	•	116
Musical Fidelity Tempest	200	P+ Basic but lusty amp has a disturbingly bright and forward sound, accentuating strings and percussive detail above all else.	62	6	•	•	•	•	•	•	116
▲▲ NAD 302	170	G+ A spritely and uplifting performance. Sounds loud but never intrusive or fatiguing.	39	5	•	•	•	•	•	•	116
▲▲ NAD 304	230	G+ Equally effective with CD and vinyl this is another successful and entertaining NAD amplifier for your shortlist	50	6	•	•	•	•	•	•	121
NAD 1000S/208	1120	A+ One of the beefiest amplifiers we've ever tested. Unfortunately it sounds too restrained and lightweight.	314	5	•	•	•	•	•	•	124
▲ Nakamichi IA-3	350	G A minimalist outing for the cassette heroes that's very confident if a tad restrained.	62	3	•	•	•	•	•	•	121
▲ NVA AP20	260	G+ Utilitarian amplifier sounds gentle and restrained but is euphonic and utterly engaging. Optional phono stage	35	4	•	•	•	•	•	•	109
Onix OA-21S/SOAP	730	G- Via MM disc this amp comes alive with a fresh and vibrant sound though its CD input sounds utterly dead by comparison.	60	4	•	•	•	•	•	•	97
Onix OA22L	300	A+ Nothing genuinely unpleasant about this amplifier, simply that its hurried and lacklustre sound fails to spark the imagination.	39	5	•	•	•	•	•	•	116
Orelle SA-020.2	419	A Potentially system dependent this split the panel but ultimately elicited only limited enthusiasm	86	6	•	•	•	•	•	•	121
▲ Philips FA-930	200	A+ Radical styling hides a digital switching facility plus full remote control over what is Philips' best effort to date	99	5	•	•	•	•	•	•	109
Pioneer A-300X	230	A+ This revamped version of the A-300 was also more confident sounding via CD than MM, yet our panel were still left unmoved.	55	5	•	•	•	•	•	•	116
▲▲ Pioneer A-400	280	VG Pioneer's design concept snaps into focus with an amp that seems to bubble with musical detail. A budget bench-mark	71	5	•	•	•	•	•	•	92
▲ QED A270CD/PA	370	G+ Recent updates have bolstered the output of the A270 without adding to its colorations. The PA phono option is a touch expensive	61	5	•	•	•	•	•	•	97
▲ QED C300/P300	630	G A cost-effective combo, limited in its resolution but less beguiling as a result. Disc stage is sweeter but samey	58	3	•	•	•	•	•	•	85
Quad 34	388	A Well-built durable preamp, filtering and above average tone controls but was found lacking in sound quality (viz: detail/dynamics)	4	•	•	•	•	•	•	•	44
Quad 66/606	1515	G Amplifiers with a classic lineage but compromised by an equally dated, soft and undynamic sound.	138	6	•	•	•	•	•	•	124
Rational Audio	175	A+ Wacky Czechoslovakian amp offers a very open and fluid sound via CD but its MM performance depends on cartridge load impedance.	129	3	•	•	•	•	•	•	92
Ray Lumley Model 75	1995	G+ Valve monoblocks represent good value. What they lack in musical subtlety they make up for in sheer muscle.	75	•	•	•	•	•	•	•	78
Rega Elex	298	A Minimalist amplifier that sounds too forward, hard and unforgiving for its own good. Shows plenty of promise, however.	51	4	•	•	•	•	•	•	116
▲ Rose RV-23	425	G+ Beautifully built British 'hybrid'. You can spend more to get a more transparent sound but it's hard to criticise at the price	3	•	•	•	•	•	•	•	77
▲ Rotel RA-930AX	170	G+ This budget wonder captivated our listeners with its clean, vibrant and thoroughly involving sound	53	3	•	•	•	•	•	•	104
▲ Rotel RA-935BX	200	G A line only winner that lets a lot of music through and never lets things get out of hand. Could be a touch more enthusiastic	58	5	•	•	•	•	•	•	121
▲ Rotel RA-940BX	250	G Rotel's cheapest 'BX' amp prompted a mixed reaction, some finding it muddled while others thought it 'exceedingly musical'	53	5	•	•	•	•	•	•	109
▲ Rotel RA-960BX	300	G+ If you like music to harbour a latent rather than blatant sense of power this amp's confident restraint could be just the ticket.	88	5	•	•	•	•	•	•	116
Rotel RC-980BX/RB-980BX	800	A Plenty of watts per pound, sound is expansive but lacks a sense of poise, of control and fine detail - a disappointment	143	5	•	•	•	•	•	•	109
▲▲ Sansui AUX-417R	310	G+ Unusually clean and precise with more subtlety than is usually attributed to remote control amps.	53	5	•	•	•	•	•	•	121
▲ Sansui AU-X911DG	800	G+ At its best when used with the on-board MASH/PWM DAC where it sounds technically neutral but still emotionally charged	112	7	•	•	•	•	•	•	85
Sherwood AI-2210	80	P Lightweight in all respects this is better than you'd find on a midi and at least its reasonably painless.	47	4	•	•	•	•	•	•	121
Sonic Frontiers SFC-1	1500	G+ Smooth, sophisticated Canadian valve amp with a decent direct input and more features than average	54	6	•	•	•	•	•	•	126
Sugden A21a	469	G The modern-day relative of Sugden's original Class A amp and one that offers a smooth, easy-going sound.	25	•	•	•	•	•	•	•	92
TEAC AX-1000	180	A- Initially entertaining but ultimately unsatisfactory and rather short on high frequencies	62	5	•	•	•	•	•	•	121
TEAC A-X5000	260	A- This amplifier is compromised by a grey and muddled sound that taxed the concentration of our listeners. Better via MM disc	107	6	•	•	•	•	•	•	97
Technics SU-VZ220	130	A- Cheap, cheerful and pretty flexible to boot the SU-VZ220 quickly sounds thin, splashy and relentless when the going gets tough	50	4	•	•	•	•	•	•	109
Threshold FET 10e/SA-4	11852	G+ Almost valve-like limpidity and excellent soundstaging are star qualities of the Threshold amps	100	7	•	•	•	•	•	•	Col
Wharfedale 2050A	250	A- Loud and potentially aggressive amp that is reasonably detailed and clear. but ultimately a bit much like hard work	70	5	•	•	•	•	•	•	121
Woodside ISA230	900	A Smooth and inoffensive valve amplifier if one that lacks the sparkle and euphony required for a truly entertaining sound.	27	5	•	•	•	•	•	•	116
Woodside SC26/STA35	2743	G+ Synergistic pairing with a cool, controlled sound, good focus and transparency. More about poise than grunt	35	5	•	•	•	•	•	•	100
YBA Integre	1199	G+ Audiophile spec French integrated with good resolution and nice phono stage.	57	4	•	•	•	•	•	•	121
▲ YBA 1 pre/power amp	7649	E Well finished pre/power amp offers front rank stereo staging and transparency, and is capable of driving the most difficult loads	85	5	•	•	•	•	•	•	62
▲ YBA 2 pre/power amp	3624	G+ Superbly finished with very good space and transparency, slightly softened bass. Needs transformer for MC cartridges	70	5	•	•	•	•	•	•	56
YBA 3 pre/power amp	2350	G This duo produced see-through, ethereal stereo images that were more convincing towards the centre of the soundstage	56	4	•	•	•	•	•	•	72

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SEVENOAKS SUPERFI

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SPEAKERS	AMPS	CD Players	Turntables
JPW Sonata (V) Celestion I JPW Minim	Marantz PM42 226.95	Alwa XC300 Denon DCD595 Denon DCD695 Goodmans GCD360 Goodmans GCD650II	Dual CS503.2 Dual CS505.4 Nad 533 Project 0.5 Technics SLBD22K Thorens TD280 IV
Celestion 3 MK II JPW Sonata (W) Mission 760I	265.95	Add £49 Add £79 Add £99 Add £0 Add £19	Add £79 Add £119 Add £99 Add £69
Tannoy 603 MK II Mission 760I SE Nad 800	280.95	Kenwood DP3050 Kenwood DP7050 Marantz CD52II Marantz CD53	NAD 501 NAD 502 Teac CDP3500 Technics SLPG440AK
Tannoy 605 MK II Celestion 5 MK II B&W DM600 Mission 761I Mon Audio 1	304.95		
Tannoy 607 MK II Celestion 7 MK II Nad 802	335.95		
Rogers LS2A-2 B&W DM610 Mon Audio 7	351.95		
Castle Durham II Haybrook HB1/3	366.95		
Rogers LS4A-2 Tannoy 609 MK II	397.95		
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	475.95		
	491.95		
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Amplifiers

- Alchemist Kraken £499.95
- Arcam Alpha 5 £229.95
- Arcam Alpha 6 £329.95
- Aura Delta 290 £449.95
- Aura VAS100 Black £449.95
- Audiolab 8000C/II £649.95
- Audiolab 8000C/III £649.95
- Audiolab 8000P/III £159.95
- Cyrus (7/Oaks branch only) £219.95
- Denon PMA250 III £219.95
- Denon PMA350 II £249.95
- Denon PMA450 £624.95
- Denon PMA450R £724.95
- Denon PMA450 £774.95
- Exposure EXP20 £749.95
- Exposure EXP15 MM £279.95
- Exposure EXP18 £199.95
- Harman Kardon HK6250 £169.95
- Harman Kardon HK6150 £139.95
- Kenwood KA3050R £249.95
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- Marantz PM32 £139.95
- Marantz PM53 £329.95
- Marantz PM4ASE £219.95
- Marantz PM54SE £349.95
- Musical Fidelity A1 Mk III £349.95
- Musical Fidelity Pre 6 £499.95
- Musical Fidelity Typhoon £199.95
- Musical Fidelity M465 (Pair) £169.95
- Musical Fidelity Tempest £329.95
- Nad 302 £229.95
- Nad 304 £299.95
- Nad 306 £299.95
- Pioneer A300Q £386.95
- Pioneer A400 £341.95
- Pioneer A400X £673.95
- Quad 66 inc R1 £169.95
- Quad 306 £199.95
- Quad 606 £149.95
- Rotel RA950AX £249.95
- Rotel RA955BX £239.95
- Rotel RB970BX £129.95
- Rotel RC970BX £169.95
- Sony TAF442 £139.95
- Sony TAF542 £399.95
- Sony TAF542 £239.95
- Technics SUVZ20K £289.95
- Technics SU320K £249.95
- Technics SUA600K £399.95
- Technics SUA700K £239.95
- Technics SUA900 £289.95
- Yamaha AX470 £289.95
- Yamaha AX570

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- Aiwa ADF410 £119.95
 - Aiwa ADF810 £229.95
 - Aiwa ADW828 £199.95
 - Aiwa ADW929 £159.95
 - Denon DRM540 £259.95
 - Denon DRM710 £199.95
 - Denon DRM510 £249.95
 - Denon DRM510 £249.95
 - Denon DRW760 £799.95
 - Harman Kardon TD4200 £229.95
 - Marantz DD62 - DCC £229.95
 - Marantz DD92 - DCC £199.95
 - Marantz SD55 £349.95
 - Marantz SD63 £599.95
 - NAD 602 £399.95
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 - Nakamichi DR3 £199.95
 - Pioneer £199.95
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 - Sony TCX611S £379.95
 - Sony TCNR635S £179.95
 - Teac V2020S £229.95
 - Technics RSXB404K £179.95
 - Technics RSXB464K £199.95
 - Technics RSTR232K £159.95
 - Technics RSTR333K £199.95
 - Yamaha KK360 £479.95

Speakers

- Present this Ad to claim Free 007 Stands & Cable with these models (FS) (ex S/Sytems)
- Arcam Delta 2 Black (Vinyl) £299.95
 - B & W DM600 £179.95
 - B & W DM610 £229.95
 - B & W DM620 £399.95
 - B & W 804 £845.95
 - B & W Team Solid £129.95
 - Castle Chester £189.95
 - Castle Durham II £349.95
 - Castle Trent II £79.95
 - Castle York £129.95
 - Celestion 1 £169.95
 - Celestion 2 £129.95
 - Celestion 3 Mk II £129.95
 - Celestion 5 Mk II £129.95
 - Celestion 7 Mk II £139.95
 - Cheerbrook HB1/3 £359.95
 - Heybrook Prima £555.95
 - Heybrook Trio £699.95
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 - P.O.A. £199.95
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 - Rogers LS4A-2 £449.95
 - Rogers LS6A-2 £149.95
 - Rogers Studio 3 £299.95
 - Ruark Crusader II £479.95
 - Ruark Swordsman Plus £139.95
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- Technics SL1200 II £169.95
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It's Sale Time at Sevenoaks Superfi.

Just a few of the reductions we're making! They are all brand new and boxed.

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Nakamichi DR3
Sound quality with ambience and presence
was £399.95
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Sony TCK611S
Excellent value for money, even before we reduced it
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Yamaha KX260
A high performance deck worth listening to
was £159.95
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CASSETTE DECKS
Aiwa ADF410
Great sound from an awards recommendation
was £119.95
£99.95

CASSETTE DECKS
Technics RSBX404K
Excellent sound excellent value for money
was £179.95
£149.95

CASSETTE DECKS Free tape offers do not apply on these products

CASSETTE DECKS
Aiwa ADF810
What HiFi? Awards recommendation
was £229.95
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AMPLIFIERS
Arcam Delta 60
A serious contender
was £299.95
£199.95

AMPLIFIERS
Marantz PM42
Quite simply a bargain
was £209.95
£99.95

AMPLIFIERS
NAD 302
As good as its predecessor the 3020
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£149.95

AMPLIFIERS
Audiolab 8000A
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AMPLIFIERS
Arcam Alpha 5
Great delivery and vivacity
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Warm sound for cold evenings
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TUNERS
Audiolab 8000T
Excels in every sense
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TUNERS
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A digital tuner that puts sound quality first
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Project 6 inc cart
A superb looker that puts life and energy into tracks
was £399.95
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NAD 5120 inc cart
Seriously good sound at a super low price
was £109.95
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TURNTABLES
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The professional DJs turntable
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TURNTABLES
Project 0.5
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Great presence for the price
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Confident effortless performance
was £1,149.95
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CD PLAYERS
Arcam Delta 70.3
Precise, stable stereo imaging
was £699.95
£499.95

CD PLAYERS
Marantz CD52IIE
The sound simply bubbles with energy and vitality
was £299.95
£269.95

CD PLAYERS
Arcam Alpha 5 CD
Even at £450 it was the CD to beat
was £449.95
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CD PLAYERS Free CD offers do not apply on these products

CD PLAYERS
Teac VRDS10
This player sounds big and beefy
was £769.95
£729.95

CD PLAYERS
NAD 502
Smooth and system friendly
was £219.95
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SPEAKERS
Mission 760i
What HiFi? Award Winner
was £129.95
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SPEAKERS
Tannoy 603II
Good Bass and boogies along nicely with rock
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Mission 761i
Deep sound stage and a full bass
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£144.95

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SPEAKERS
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SPEAKERS
TDL NFM
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A/V amplifiers

In practice an A/V amplifier provides all the standard CD, tuner, tape, aux and phono inputs offered by a standard stereo amplifier. In addition many also incorporate an AM/FM tuner section which, strictly speaking, makes them A/V receivers.

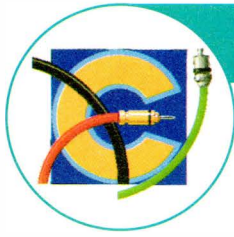
More importantly a modern A/V amplifier includes a Dolby Pro Logic decoding chip along with extra circuitry to effect the rear channel delay. Naturally there's at least four channel's worth of amplification under the bonnet to feed the five loudspeaker outputs (Front L and R,

Centre and Rear mono L+R). Most also include a line-level subwoofer output to enhance the rib-shaking impact of 'action' movies for example. Some A/V amps offer other surround modes like simulated stereo, Hall surround (L+R is fed to the rear) and Matrix surround (L-R is fed to the rear). Others use an element of Digital Signal Processing (DSP) to steer the Dolby Pro-Logic or permit a variable rear channel delay. This also opens up including options like Jazz, Church, Hall and Stadium Surround modes which use different delay and steering levels to generate different

'sound fields'. From left to right the headings below indicate how many watts per channel each amp has for its front, centre and surround outputs. Surround modes indicates how many different surround effects are available and includes DSP. The audio inputs are for both hi-fi and AV components. S-type and phono video inputs are for VCRs, Laserdisc players and CTVs, S-type being the better of the two. Subwoofer outputs are of the phono socket variety for active subs, and AM/FM tuner denotes if the unit is effectively a receiver.

A/V amplifiers

Product	Price	Comments	Front output W/R/L	Surround output W/R/L	Surround modes	Video inputs	Audio inputs	Subwoofer output	AM/FM tuner	Issue No.
Denon AVC-3530	999	VG A true heavyweight with a richly detailed sound and flexible features to match	142	141	46	10	9	5	5	• • 125
Harman Kardon AVR30	999	G+ Limited surround options are offset by a very secure sound with excellent control over effects.	74	75	30	7	10	6	0	• • 125
Kenwood KA-V8500	699	G- Can sound a tad forced and immediate but is remarkably well-equipped with digital soundfield options	62	63	37	10	11	6	5	• 125
Marantz PM-700AV	450	A+ Sounds just great through front and centre channels but surround is very weak.	69	52	51	3	7	6	3	• 125
Philips FR940	450	A- Perhaps as a result of the mismatch between front/centre channels, the FR940 proved a great disappointment on dem.	180	24	24	6	8	4	0	• 125
Pioneer VSA-D802S	600	A- The disappointingly grey sound lacks attack and confidence, undermining the tension of movie soundtracks.	53	55	32	9	9	5	3	• 125
Sherwood RV-6010R	350	A- Another A/V amp with mismatched channels, creating a soft and ineffectual soundfield.	99	31	25	4	7	3	0	• • 125
Technics SA-GX550	450	VG A surprisingly gutsy and involving performance from a modestly-priced package.	48	48	49	2	5	2	0	• 125
Yamaha DSP-A2070	1100	G+ The ultimate in A/V flexibility with full manual control over ever conceivable soundfield.	101	99	35	24	10	6	6	• 125



Cables

Cables are not accessories but an integral part of your system. You can make do without accessories but no conventional system will function without cables. Inevitably some cables are greater than others. The best cable for your system will only be found through trial and error, but hopefully by combining our recommendations with those of a dealer you will end up with something that suits both your pocket and your system. 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. Symmetrical indicates where a twisted pair of conductors are used. Coaxial means that there is a central 'hot' conductor and a shield that carries the negative signal. Stranded cables have multiple strands and solid core use individually insulated strand(s). Copper and silver indicates whether these metals are used as conductors.

Digital interconnects connect CD transports

to DACs, and are traditionally coaxial with a 75ohm impedance. They come in optical and electrical varieties, the former being made of plastic or glass and the latter in coaxial or alternative configurations. The prices shown are for a terminated linear metre

Speaker cables are used between the amplifier and speaker. Our prices are for a terminated 5metre pair. Resistance and capacitance are indicated as low (L), medium (M) or high (H). Neither high resistance nor high capacitance cables are suitable for long runs.

Analogue interconnects

Product	Price	Comments	Symmetrical	Coaxial	Stranded	Solid core	Copper	Silver	Issue No.
Audio Note AN-A	29.50	A- A well-rounded and cuddly sound from a high-ish resistance interconnect. Lacks a sense of scale and dynamics	•			•	•	•	108
Audioquest Ruby Hyperlitz	70	A+ A crisp, fast and articulate-sounding cable if one that's a little too pointed for our listeners	•				•	•	108
▲ Audioquest Lapis Hyperlitz	329	E An expensive cable that justifies its tag with a beautifully poised sound - natural, relaxed and very compatible.	•				•	•	108
Audio Technica AT620	28	A Plenty of cable for the money but its performance is distinctly lightweight, lacking depth and subtlety			•			•	108
Chord Chameleon	59	A+ An unpredictable cable with an 'anomalous treble' that can sound harsh one moment and oddly recessed the next!			•			•	108
▲ Chord Solid	115	VG What looks like a military RF cable actually provides a slightly forward but incisive and intimately detailed performance			•			•	108
▲ Cogan-Hall Intermezzo Ref	185	E A user-hostile cable with a tight, convincing bass allied to a very relaxed and involving mid/treble.			•			•	108
Cogan Hall Intermezzo E-M	320	G+ This bigger, thicker and thoroughly unwieldy 3-core version of the Intermezzo Reference actually sounds a little coarser			•			•	108
▲ DNM Interconnect	40	VG Fresh, transparent and packed full of detail, this slither of a cable scored a direct hit with our listeners			•			•	108
Goldring 'Studio Quality'	20	A- A bog-standard OFC coaxial cable that might otherwise be given away with a new amp or CD player. Cheap but nothing special.			•			•	108
▲ Isoda Electric HA-08-PSR	199	G+ This odd-ball cables utilises a mix of copper, brass and aluminium strands to achieve a very distinct sound			•			•	108
▲ Madrigal HPC	215	VG A very unusual cable design with a business-like approach to music-making that barely conceals its underlying 'fizz'.			•			•	108
Magnan Type Vi	595	A+ With a series resistance some 500-1000 times higher than average, the furry sound of the Type Vi will alter from system to system.			•			•	108
▲ Monster Interlink 500	60	G+ Plenty of hype to keep the marketing bandwagon rolling plus a lively and lucid balance to cheer up the enthusiast			•			•	108
▲ Moth Ley Line Black	100	G+ The cheapest of Moth's Ley Line series uses just two twisted conductors to achieve a very solid and confident sound.			•			•	108
Moth Ley Line Grey	200	G+ The four twisted conductors of this cable actually mark a downturn in audio quality			•			•	108
▲ Panasonic RP-CA910	50	G This conventional coax employs plenty of hi-tech materials which encourage an even-handed balance. A good upgrade.			•			•	108
▲ Silver Sounds 12/2 and 12/3	99/150	VG Both these cables share a similarly open, transparent and dynamic sound though the latter is arguably the better integrated			•			•	108
Sonic Link Yellow	60	A An interesting non-copper cable with an up-front sounded described as 'heavy-handed and pushy'			•			•	108

Analogue interconnects continued

Product	£Price	Comments	Symmetrical	Coaxial	Stranded	Solid core	Copper	Silver	Issue No.
▲ Sonic Link Violet	99	G+ Another nickel-based cable but with a very much better-balanced sound than Sonic Link Yellow	•			•			108
Straight Wire Laser Link	50	A+ Thanks to its high parallel capacitance this interconnect helps remove ultrasonic noise. Unfortunately it still sounds very odd!	•			•		•	108
Straight Wire LSI-Encore	90	A+ A solid-sounding cable with a strong mid and bass but a disappointingly sat-upon treble	•			•		•	108
▲ Tara Labs Prism	36	G 6N-purity copper, aero-grade insulation and spaced solid-core conductors all add-up to a slightly bright but frisky sound	•				•	•	108
▲▲ Tara Labs Quantum CD	63	G+ Praised by our panel for its lack of obvious vices, Quantum CD encourages a sweet and positive sound.	•				•	•	108
Tara Labs Quantum II	99	G Bass power and extension is the key to the sound of this unusual and hi-tech cable	•				•	•	108
▲ Van den Hul The Source	70	G+ Accurately reflects the life of the music without detail forcibly from the speakers		•		•		•	108
Van den Hul MC D-102mkIII S	80	A+ A rather coloured sound thanks to its full and resonant bass but spoiled overall by a dirty treble	•			•		•	108

Digital interconnects

Product	£Price	Comments	Type	Plastic	Glass	Non-coaxial	Coaxial	75-Ω	Silver	Issue No.
▲▲ Audioquest Video Z	50	E The very best available with an expressive sound but generous price to sweeten the pill	Electrical				•		•	108
Audioquest Digital PRO	90	A+ A silver cable with all the drive of Video Z but lacking its clean-cut transparency	Electrical				•		•	108
Audioquest Optilink Z	100	A Good level of midband detail but frequency extremes lack depth and extension	Optical			•				108
Bandridge AL560	20	P The disappointingly heavy and muddled sound of this basic fibre thwarts any recommendation	Optical		•					108
Chord Codac	34	A A connection with a stranded inner core and a sound that lacks integration	Electrical				•		•	108
▲▲ DPA Digi-link	27.50	VG Can seem slightly impassive but there's no avoiding its exceptionally detailed sound	Electrical				•		•	108
DPA Opti-link	20	P Very similar to Bandridge AL560 with an equally naff sound	Optical		•					108
Kimber PSB DigiLink	24	A- An analogue interconnect inappropriately pressed into digital service. A visible deterioration in the digital signal results.	Electrical						•	108
Kimber KC-1 DigiLink	52	A This cable adopts a woven construction with the addition of a conductive screen. Music lacks detail and spirit.	Electrical						•	108
Kimber KC-AG DigiLink	222	A- An asymmetric cable using silver conductors that deviates from the 75ohm standard. Not ideal for digital applications.	Electrical						•	108
▲ Kimber Opti-Link	70	G Hardly cheap for what appears to be a bog-standard PMMA fibre, yet it sounds a little brighter and livelier than most.	Optical		•					108
▲ Monster Cable Datalink 100	45	G+ A colourful coaxial interconnect with an equally colourful and up-beat sound. Very compatible.	Electrical				•		•	108
▲ Monster Cable Interlink LS100	45	G Well constructed stepped-index fibre with polished ends and rugged connectors. Slightly lean, fuzzy but engaging performance	Optical		•					108
Moth Leyline Datalink	140	A- A thin, coaxial version of Leyline Black with a rather hard and unforgiving character. Too expensive.	Electrical				•		•	108
▲▲ QED DigiFlex	19	VG A top performance, low-loss 75ohm coax with a very open, almost liquid quality that allows its music to ease naturally across.	Electrical				•		•	108
Sonic Link Brown Digital	35	A- A solid-core, twisted-pair interconnect that deviates from the 75ohm standard and provides an equally unbalanced sound	Electrical						•	108
Straight Wire Silver link	60	G+ A genuine attempt to get things right with a silver-plated, multi-strand coax. Yet it still sounds too dry and mechanical	Electrical				•		•	108
▲ van den Hul MC Videolink 75	30	VG An AV-cum-digital cable that comes very close to besting QED's DigiFlex. Still some emphasis of vocal sibilants, however	Electrical				•		•	108

Speaker cables

Product	£Price	Comments	Resistance	Capacitance	Stranded	Solid core	Copper	Silver	Issue No.
▲ Audio Note AN-B	165	G+ A very high capacitance Litz-style cable whose sound may well act as a taming influence in many systems	M	H			•	•	109
Audio Note AN-D	100	A Supplied in linear, non-polarised lengths that should be twisted into stereo pairs. Sounds rather gritty and forward	L	L		•		•	109
▲ Audio Note AN-SP	1270	VG Some 15 individually-insulated silver strands go to make up this very civilised but exceptionally detailed-sounding cable	H	L			•	•	109
▲ Audioquest F-14	44.50	A+ Ideal for laying flat under carpets, F-14 encourages a slightly warm and vibrant sound	M	L			•	•	109
Audioquest Type 4	75	A+ Four 18-gauge OFHC copper conductors wound in a Litz-fashion increases capacitance but restrain the cable's 'bite'	M	H			•	•	109
Audioquest Midnight Hyperlitz	260	G Very similar to Type 4 but with a delicate smoothness that contrasts with the brighter sound of cheap cables	L	H			•	•	109
▲ Bandridge LC7259 & LC7401	20/30	A Two very traditional figure-of-eight cables. The thinner version (LC7259) sounds lighter and coarser than LC7401	L	L		•		•	109
Bandridge LC8258 & LC8408	30/50	A- Two versions of the Silverflex series that, sadly, encourage very little sense of poise or decorum in their music	L	L		•		•	109
▲ Cogan-Hall Intermezzo Full-Range	465	VG Extra care must be taken to prevent shorting this user-hostile cable. Nevertheless it sounds superb!	L	L			•	•	109
▲ DPA IS19	275	G+ Shares the clear, neutral and transparent sound of the older 8S without the tremendous clarity of Gortex Black-16	L	L			•	•	109
DNM Rainbow	84	A+ The high impedance of this simple ribbon cable has an influence on the treble response of some speakers. Lacks 'oomph'	H	L			•	•	109



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Speaker cables continued

Product	£Price	Comments	Resistance	Capacitance	Stranded	Solid core	Copper	Silver	Issue No.
Heybrook Heywire	66	A This well-meaning facsimile of earlier ribbon-style cables ends up sounding lumpy and uneven		H	L		•	•	109
Isoda Electric HA-20	400	A+ This unorthodox cable employs a combination of copper, brass and aluminium strands. It sounds 'oddly impure'!		M	L	•		•	109
▲▲ Mission Stranded	20	G+ This Swedish-made cable proved a real hit with our listeners - a slick performer and Best Buy upgrade		L	M	•		•	109
Monitor PC KC27/KC34	40/60	A Two heavyweight multi-strand cables with a thick and chesty (10027) or light and wispy (10034) balance. Take your pick		L	L	•		•	109
Monster Powerline 3 Plus	75	A- The archetypal 'old-style Monster Cable' that labours under a soggy bass and untidy treble		L	M	•		•	109
Naim NAC A5	44	A- Described as a 'dinosaur of a cable' by our listening panel, this stiff rod of wire has little application outside of a Naim system		L	L	•		•	109
QED Bi-wire 79-Strand	35	A Reminiscent of curtain track, this bi-wire version of 79-strand is unfortunately saddled with a 'loud, hard and untidy' balance		L	L	•		•	109
▲ Silver Sounds 12/2	300	E Tonally accurate and exquisitely detailed, this cable opens a very transparent window on the music		L	H		•	•	109
▲ Silver Sounds 16/4	200	VG A prime choice for bi-wire systems even if this cable does lack the full finesse of its sister 12/2		M	H		•	•	109
▲ Sonic Link Grey	80	G- A spaghetti-thin cable composed of silver-plated OF-copper and PTFE insulation. Lacks bass impact and treble 'air'.		H	M		•	•	109
▲ Straight Wire Waveguide 1.5	20	G A conventional multi-stranded cable with a refreshingly up-beat, crisp but slightly lean-sounding balance		M	M	•		•	109
▲ Straight Wire Flex-4	50	G+ Another very quick and dynamic-sounding cable from Straight Wire. A little short on subtlety but very engaging nonetheless.		L	H	•		•	109
Tara Labs Quantum III	238	G An imaginatively-named cable that encourages an equally colourful sound. Described as 'dark and fruity' by our panel!		L	H		•	•	109
van den Hul MC The Clearwater	50	A Despite its evocative title, the Clearwater turns out to be a disappointingly 'murky sounding' cable		M	L	•		•	109
van den Hul MC The Magnum	265	A Touted as vdH's most prestigious twinlead speaker cable, the Magnum sounds surprisingly soft and old-fashioned		L	L	•		•	109
▲ van den Hul MC The Wind	330	VG Blown-in from the continent, vdH's 'Wind' kicks up a storm with its lush midrange and bone-crunching bass!		L	M	•		•	109



Cassette decks

The bad odour of copyright theft hangs around the compact cassette, but there is no doubt it is the world's most versatile and ubiquitous music storage medium. Buffs may wrinkle their noses, but are happy to use cassette decks to make up tapes for the car or personal.

There is no problem 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. (Tnal and error is one effective technique, but many decks have manual bias adjustment and some match up to the tape auto-

matically.) Lab performance and sound quality often go hand in hand, and are frequently somewhat dependent upon factory alignment. The mechanical integrity of the mechanism is another crucial factor, that is reflected in the price.

The columns on the right indicate when the facilities shown in the headings are available on a deck. Dolby B and C offer varying degrees of noise reduction and the HX Pro system gives significant treble improvements with ferric (Type I) tapes. Dolby S increases the level of noise reduction with less signal degradation than B or C.

Three-head recorders allow you to listen to a recording as it's being made, a useful quality control function. Bias adjustment allows you to fine tune the deck to suit different types of tape when recording. Auto calibration is an automatic system for setting bias and Dolby levels. Twin deck offers the option to dub tapes or to play two cassettes simultaneously. Autoreverse is a useful convenience feature, but usually with some mechanical compromise. In the case of twin decks a blob is inserted in this column even if only one transport autoreverses.

Cassette decks

Product	£Price	Comments	Dolby B	Dolby C	Dolby HX Pro	Dolby S	Auto calibration	Bias adjust	Twin deck	Autoreverse	Issue No.
▲▲ Aiwa AD-F410	120	A Comparable to AD-F500 but cheaper: Good all round performance, well adjusted, useful basic and not so basic features	•	•	•	•					99
▲▲ Aiwa AD-F810	230	G First class budget 3-head machine with a dual capstan transport that really works at reducing the 'fudge' factor	•	•	•	•					99
▲▲ Aiwa AD-WX828	200	G- Equipment levels strong, and sound is both vivid and presentable, but control system daunting.	•	•	•	•				•	123
▲▲ Aiwa AD-WX929	230	A Superbly equipped twin deck that works and works well - remote control	•	•	•	•				•	117
▲ Aiwa XK-S9000	700	G+ Fabulous build, clunky transport and sharp, refined sound quality with Dolby S or B and metal tapes	•	•	•	•	•	•	•	•	105
Akai DX-57	220	G Eschews fancy gadgets for a good transport and decent electronics. Sound quality is firm and tidy but avoid Dolby C.	•	•	•	•	•	•	•	•	105
Akai GX-65	300	A Fine ungimmicky middle ranking deck with simple, purposeful controls, works best with metal tapes. Performance fair to good	•	•	•	•	•	•	•	•	87
▲ Akai GX-95II	440	G+ Sharp, clear and articulate sounding deck, with superb performance extending to frequency extremes	•	•	•	•	•	•	•	•	99
Akai GX-R35	220	A Middling sound quality at best with Dolby B; deteriorates with Dolby C	•	•	•	•	•	•	•	•	99
▲ Akai GX-W45	320	A Costly but musical high-spec dual deck, doesn't like modern high energy Type IIs and IVs. Good stability and clarity	•	•	•	•	•	•	•	•	111
▲ Arcam Delta 100	850	E Superb transport and a ripe, spacious sound. The Dolby S installation more successful than most. Some replay incompatibility	•	•	•	•	•	•	•	•	111
Denon DRM-710	260	A Although this is a fair performing model, the design has lost some of the competitive edge of its predecessor, the DRM-700.	•	•	•	•	•	•	•	•	105
▲ Denon DRS-610	200	G Unique loading mechanism provides stability, and the deck has a crisp, clean quality. Occasionally anaemic bass.	•	•	•	•	•	•	•	•	111
Denon DRS-810	300	A Basically good deck with non-stressful material let down by an inability to deal with high energy tapes properly. .	•	•	•	•	•	•	•	•	105
Dual CC800RS	170	A- Low(ish) cost auto-reverse deck. Delivers a punchy but ultimately rather crude impersonation of source material, thin, lightweight bass.	•	•	•	•	•	•	•	•	105
Harman Kardon DC5500	600	A Workmanlike sound quality offset by high price and inexplicable shortcomings like 'forgetful' Dolby switching and no timer support	•	•	•	•	•	•	•	•	117
▲▲ Harman Kardon TD4200	250	G+ This is a very basically equipped deck built to a high standard which sounds solid and refined.	•	•	•	•	•	•	•	•	123
Harman Kardon TD4600	700	A Original Dolby S deck has improved over the years and now sounds very acceptable. A strong, solid sounding deck - but expensive.	•	•	•	•	•	•	•	•	117
Goodmans Delta 700W	140	P Compact and ultra-basic twin deck which is rough and bass shy, with less than stable tape path.	•	•	•	•	•	•	•	•	123
JVC TD-R452	180	A- Tidy, stable but ultimately rather soul-less experience. Auto-reverse is useful though.	•	•	•	•	•	•	•	•	117
JVC TD-X352	150	A- Disappointingly amorphous sound despite decent measured results.	•	•	•	•	•	•	•	•	117
▲ JVC TD-V562	200	G+ Ultra-sophisticated transport at a silly price; sound quality is stable but slightly opaque.	•	•	•	•	•	•	•	•	123
▲ Kenwood KX-3050	170	A Acceptable sound quality marred only by a loss of midband analysis and slightly edgy treble.	•	•	•	•	•	•	•	•	117
Kenwood KX-5530	220	A- Neat looking, well equipped deck, adequately engineered but somewhat lacking musically. Worth considering if auto-reverse is a must	•	•	•	•	•	•	•	•	105
▲ Marantz CP230	400	A This is a competitively priced portable recorder though not suited to replay of musicassettes	•	•	•	•	•	•	•	•	52
▲ Marantz CP430	500	A Uniquely flexible and compact package for outside work which at a pinch can double as a domestic cassette deck	•	•	•	•	•	•	•	•	87
Memorex SCT-5	150	P Poor example of a twin cassette deck where everything has been sacrificed on the altar of flexibility	•	•	•	•	•	•	•	•	87
▲ Nakamichi DR-3	400	VG Refined, exquisitely detailed and solid sounding 'budget' Nakamichi 2-header	•	•	•	•	•	•	•	•	123

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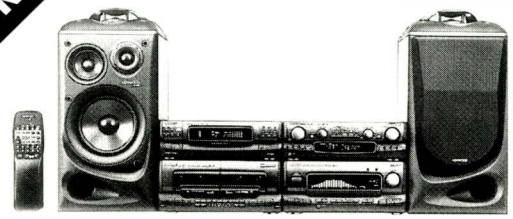
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Cassette decks continued

Product	£Price	Comments	Dolby B	Dolby C	Dolby HX Pro	Dolby S	3 Head	Bias adjust	Auto calibration	Twin deck	Autoreverse	Issue No.
▲ Nakamichi DR-1	850	VG Typically idiosyncratic Nakamichi with manual everything, Good azimuth adjustment and dynamic, authoritative sound.	•	•								117
▲ Nakamichi RX-202E	600	G+ Fine, clear and articulate sounding player. Excellent with prerecorded material, but idiosyncratic and sometimes obstructive control	•	•						•		63
Philips DCC600	500	A+ Simplified circuit and mechanism, but the Philips badly needs a D/A converter transplant	•	•								123
▲ Pioneer CT-S520	280	G Decent if slightly coloured middle ranker with FLEX to revitalise old or soggy sounding tapes.	•	•	•					•		123
▲ Revox B215	1322	G+ Fine, consistent and solid sound, excellent under the skin engineering and many useful features — but you're also paying for it	•	•	•					•		87
▲ Revox B215-S	1697	G+ This is a superbly engineered deck with a classically fine performance that almost transcends the stereotypes.	•	•	•					•		75
Revox Professional Series C115	1083	G Not for the numbers freaks, it's unobtrusively musical, with a slightly wayward top and a very clean, extended bass	•	•	•					•		111
Sansui D-790WR	200	P Modestly poor sounding but simple to use twin deck. Type II tapes show large response errors.	•								•	123
Sansui D-X117WR	240	P Bass is thin and coloured, and the sound lacks dynamics, pitch accuracy and overall stability - the sound is neither stable nor solid.	•	•	•							111
Sherwood DD-3010C	160	P Good range of features, let down by poor transport and iffy electronics.	•	•	•						•	117
Sherwood DS-5010C	160	P+ Mediocre performance from well priced deck with some useful secondary features.	•	•	•					•		123
▲ Sony (WMD6C) Pro Walkman	290	G+ One of the finest sounding cassette decks on the market today. A mandatory Best Buy, which also fits in your pocket	•	•								60
TEAC R-9000	700	G Much better than average auto-reverse deck, well worth considering. Nicely engineered too.	•	•	•	•	•	•	•	•		105
▲ TEAC V-8000S	500	G Superb stability and real subtlety, this must be the best TEAC yet. The only disappointment was the Dolby C	•	•	•	•	•	•	•	•		105
▲ Technics RS-BX626 II	180	G First rate deck at a bargain price. Losses when recording are low and mostly benign, an all-round achiever	•	•	•	•	•	•	•	•		111
Technics RS-BX828 II	300	G Fine deck, with explicit detail and stability, but in the final analysis it doesn't go much further musically than the cheaper RS-BX626	•	•	•	•	•	•	•	•		111
▲ Yamaha KX-260	160	A Lively, entertaining deck that trades gadgets for a convincing performance at an attractive price point	•	•	•	•	•	•	•	•		111
Yamaha KX-360	200	A Performance has both dryness and precision. Good - but doesn't 'breathe,' and occasionally sounds unstable	•	•	•	•	•	•	•	•		111
▲ Yamaha KX-650	260	G Fine audio manners, especially in the midband and treble, mark this high class deck out from the crowd	•	•	•	•	•	•	•	•		99
Yamaha KX-W362	250	A- Almost a good deck, it is let down by audible levels of wow & flutter, apparent even with prerecorded material, audio circuits are good	•	•	•	•	•	•	•	•	•	111



CD players

Now over a decade old, this all digital music source is well established despite high disc prices and the opposition of some hi-fi enthusiasts. Compact Disc's strengths over conventional vinyl are complete freedom from surface noise, ease of use, and more robust software.

However, many vinyl enthusiasts still find CDs sound less involving than top quality vinyl. But, with the dominance of CD in the high street, even vinyl die-hards need a CD player today.

The columns on the right indicate when the features shown in the headings are available on a CD player: DAC type indicates the type of converter chip used in each player. 16, 18 and 20-bit are multi-bit types, all the others are bitstream variants. In much the same way that an amp's output is not indicative of its sound quality, the chip used in a DAC isn't the only determining factor in a CD player's sound, but it is an important one. Remote control is not yet universal, and we have included a tick box, more to show which

machines don't have one than which do. The existence of electrical and/or optical digital outputs is important for future upgrading with an outboard DAC, as a rule electrical outputs are the most desirable. Phase inversion in the digital domain is rare on one box players but can make quite a big difference if you've got golden ears. Headphone sockets are useful but beware of those without volume controls. Track entry keypads are those with calculator style buttons which makes track access much quicker.

CD players

Product	£Price	Comments	DAC type	Optical digital output	Electrical digital output	Remote control	Headphone socket	Track entry keypad	Issue No.
▲ Aiwa XC-300	150	A+ Cheap, cheerfully and gratifyingly free of digital 'nasties', well-equipped but safe rather than thrilling on the sonic front.	Toshiba BS	•	•	•	•	•	107
Aiwa XC-750	200	A A refined version of the XC-700, sadly it has lost the magic of the original	SAA7350	•	•	•	•	•	119
▲ Adcom GCD-600	699	G Equipped with a 5-disc carousel loader, this bright and breathtaking player sounds similar to Adcom's amps.	16-bit	•	•	•	•	•	124
AMC CD6	349	VG Based on the same 1-Bit circuit as Rotel's RCD-965BX but with a raunchier, beefier but less transparent sound.	PDM BS	•	•	•	•	•	124
Arcam Delta 270	800	G+ The dry but tightly-focussed and supremely detailed sound of this player will either beguile or aggravate, depending on taste!	Hybrid	•	•	•	•	•	124
Aura CD-50	400	G- Based on an older Philips board with new CDM9 transport, this is a slim player with an innocuous sound	SAA7321	•	•	•	•	•	119
AVI S2000MC	999	G+ A stylish, mid-width player with an exceptionally refined and comfortable sound. Lacks passion	20-bit	•	•	•	•	•	119
Creek CD60	500	G A big and confident sound from a player that's 'into' green. So it looks ghastly even if the internal design is very thoughtful.	16-bit	•	•	•	•	•	107
▲ Denon DCD-695	200	G A rough diamond with a raunchy sound to match. Pitch feature will be of interest to budding musicians.	18-bit	•	•	•	•	•	124
Denon DCD-890	270	G- Similar to the DCD-1290 in its execution, sounds lively and powerful but lacks subtlety.	18-bit	•	•	•	•	•	112
Denon DCD-1290	330	G- Looks the business but sound is a real five-minute wonder. Its compelling fizz lasts about as long as a firework.	18-bit	•	•	•	•	•	107
Dual CD1080RC	200	A- Strange-sounding player with a top-heavy treble that does little to redress its lack of vibrancy and emotion	MASH/PWM	•	•	•	•	•	107
▲ Genexxa CD-4900	129	A A little thin on detail, build quality and dynamics but thin on price too!	MASH/PWM	•	•	•	•	•	124
▲ Goodmans GCD-650II	110	A+ For all its technical foibles this player has a fresh-faced honesty that's very refreshing.	MASH/PWM	•	•	•	•	•	124
Goodmans GCD-658	170	A- A 6+1 magazine-loading autochanger with an exaggerated and often aggressive sound	Hybrid	•	•	•	•	•	117
Harman Kardon TL8500	600	A This 5-disc carousel player sounds civilised enough but lacks the detail and finesse of its peers	MASH/PWM	•	•	•	•	•	117
▲ Harman Kardon HK7725	800	VG This flagship implementation of RLS sounds impressively bold and dynamic - a genuine rock 'n roller!	18-bit RLS	•	•	•	•	•	124
▲ JVC XL-Z464	200	G+ This latest variation on a traditional 200 theme is no less impressive than JVC's past generations.	PEM bitstrm	•	•	•	•	•	124
JVC XL-Z1050	500	A Technically advanced and luxuriously equipped, this player remains rather bland and unsatisfying on audition	PEM bitstrm	•	•	•	•	•	119
Kenwood DP-3050	200	A+ A slightly over-cooked version of the DP-3040 with a highly civilised but uninteresting sound.	NPC bitstrm	•	•	•	•	•	124
Kenwood DP-7050	350	A Kenwood's first sowing of Philips' Bit Stream technology has fallen on stony ground judging by its dry and awkward sound	SAA7350	•	•	•	•	•	119
Kenwood L-1000D	830	G A beautifully constructed and very stylish player that really only gives off its best when used in balanced	16-bit	•	•	•	•	•	100
▲ Linn Karik	1497	VG Based on Linn's original CD transport, this player sounds dry but very positive, detailed and engrossing	Crystal BS	•	•	•	•	•	119
▲ Marantz CD-52II	230	G Launched to usurp the position of its own CD-52SE, the '52II is less colourful but equally appealing	SAA7350	•	•	•	•	•	119
▲ Marantz CD-52IISE	300	G A new mains transformer plus the full complement of internal mods has recaptured the frothy if startling sound of the original '52	SAA7350	•	•	•	•	•	119

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071 636 4611

CD players continued

Product	£Price	Comments	DAC type	Electrical digital output	Optical digital output	Track entry keypad	Headphone socket	Variable output	Remote control	Issue No.
Marantz CD-72	450	G+ A heavily-constructed player. This implementation sounds astonishingly solid and immediate but also rather too 'clean'	bitstream	•	•	•	•	•	•	107
Marantz CD-72SE	600	G+ A recommendation just eluded the grasp of this superbly built player thanks to its very polished but restrained sound.	bitstream	•	•	•	•	•	•	112
▲ Meridian 206ΔΣ	995	E A new variation on the 206 theme with the most liquid and captivating sound to date	Crystal BS	•	•	•	•	•	•	119
▲ Meridian 208	1550	E State of the art CD sound combined with a decent preamp and full remote control	bitstream	•	•	•	•	•	•	83
Micromega Logic	300	G A version of Philips CD624 with new op-amps and CD tray. Still, it sounds rather meatier, better integrated and more purposeful	SAA7321	•	•	•	•	•	•	100
Mission DAD5	300	A+ Similar to Philips' 600-series: lively, plenty of space and full of 'bounce' but a little too eager to impress in the short term	bitstream	•	•	•	•	•	•	107
▲ Musical Fidelity CDT	500	G+ Oddball player with a cheap top-loading transport and appalling digital gubbins yet saved by the euphony of its valves!	hybrid	•	•	•	•	•	•	112
▲ NAD 502	220	G This updated version of the 5425 has traded the spontaneity of its forebear for a more precise but mechanical style of music	MASH/PWM	•	•	•	•	•	•	119
Nakamichi CD-4	380	A- This looks new enough but sounds little better than the older CD Player 4 upon which it is firmly based.	18-bit	•	•	•	•	•	•	124
Orelle CD-160.2	750	A- Based on Philips traditional 16-bit technology but suffering an unusually disjointed and undynamic sound.	16-bit	•	•	•	•	•	•	124
▲ Philips CD690	130	G+ The remote-less version of Philips CD692 but with a colourful performance that's all its own.	PDM BS	•	•	•	•	•	•	124
▲ Philips CD920	160	A+ A new budget player with an appalling technical record but a surprisingly clean if understated sound	SAA7341	•	•	•	•	•	•	119
Philips CD930	200	G- Featuring digital circuitry similar to Marantz's players but a sound that's a little too ripe and soft	bitstream	•	•	•	•	•	•	112
▲ Philips CD950	350	G+ Philips' top 900-series player is the first to employ its advanced DAC7 chipset. Sounds very crisp, clear and confident.	DAC7	•	•	•	•	•	•	112
Pioneer PD-S802	350	G Once again Pioneer's LLC topology only served to split and confuse the listening panel. It's good, but quirky!	PFM BS	•	•	•	•	•	•	124
▲ Pioneer PD-M701	330	G+ A 6-disc multichanger from the originators of the breed. A little untidy perhaps, but still sounds fresh, dynamic and exciting	PDM	•	•	•	•	•	•	117
Pioneer PD-M901	450	A Another 6-disc multichanger based on the PD-M701 but with the addition of various 'Sound Field' options. Listening is hard work	PDM	•	•	•	•	•	•	117
▲ Pioneer PD-S901	500	G+ The very refined but confident, crisp and powerful sound of the '901 snatches Pioneer's LLC concept from the jaws of defeat	PFM bitstrm	•	•	•	•	•	•	119
▲ Quad 67	790	E Deceptively sleek in appearance but with a powerful, fluid and captivating sound reminiscent of Meridian's 206.	Crystal BS	•	•	•	•	•	•	124
Revox B226S	840	A Top quality build and finish for the Revox system enthusiast. For high value sound look elsewhere	16-bit	•	•	•	•	•	•	76
▲ Rotel RCD-945AX	230	G Based on the same CD-player-on-a-chip as Philips CD690 but with improved execution and build.	PDM BS	•	•	•	•	•	•	124
▲ Rotel RCD-965BX	300	E An exceptionally refined bitstreamer: transparent, exquisitely detailed and powerfully emotive. A landmark player	SAA7323	•	•	•	•	•	•	100
▲ Sansui CD-X217	240	G- Sansui has returned to its roots judging by the balmy and very comfortable sound that pours from this player	MASH/PWM	•	•	•	•	•	•	119
Sansui CD-X317	280	A Not in the same class as older CD-X311mkII. Same technology but the sound is neither as responsive or engaging	MASH	•	•	•	•	•	•	107
Sansui CD-X617	350	A This 'double-DAC' version of the CD-X317 is more impressive, sounding light and tizzy with pop but dull with classical CD's	MASH	•	•	•	•	•	•	112
Sansui CD-Alpha 717DR	1560	G+ A beautifully constructed if rather dated flagship player with an equally sedate and unadventurous sound.	MASH/PWM	•	•	•	•	•	•	124
▲ Sherwood CD-3020R	120	G Although this budget wonder has little respect for musical convention, what emerges is still remarkably entertaining	NPC bitstrm	•	•	•	•	•	•	119
▲ Sherwood CD-5010R	160	G+ A warm, detailed and enjoyable performance from a solidly built but affordable package.	PDM BS	•	•	•	•	•	•	124
▲ Sherwood CDC-5010R	200	G+ This highly affordable 5-disc carousel player sounds unexpectedly deep, spacious and involving - a rare find	PDM	•	•	•	•	•	•	117
Sony CDP-X303ES	550	A+ A disappointingly lean and inconsistent result from a player that puts the 'high' in technology if not fidelity	PLM bitstrm	•	•	•	•	•	•	124
Sugden SDT-1	850	A Bearing in mind Sugden's SDA-1 converter lies at the heart of this player, its unpredictable performance is disappointing	16-bit	•	•	•	•	•	•	119
TEAC CD-P3500	200	A A well-meaning attempt to pare-down the CD-P4500 results in a similar looking player with a thoroughly uninspiring sound	bitstream	•	•	•	•	•	•	112
▲ TEAC CD-P4500	280	G TEAC's first genuine 1-bit player its sound described as having a certain 'organic warmth', very composed and easy-going.	SAA7350	•	•	•	•	•	•	107
TEAC VRDS-10	770	A+ A basic analogue stage compromises the potential of TEAC's superb engineering and digital electronics. Lacks bass energy	DAC7	•	•	•	•	•	•	119
▲ Technics SL-PG440A	170	G This mix of the SL-PG520 and '420 fails to benefit from the strengths of either and only just achieves recommendation.	MASH/PWM	•	•	•	•	•	•	124
▲ Technics SL-PG520A	180	G+ A cracking player. Superb clarity and dynamics, thrilling but musically involving too	MASH	•	•	•	•	•	•	107
▲ Technics SL-PS620A	200	G+ A costlier, tarted-up version of the SL-PG520A that loses very little in the way of clarity, sparkle or in compelling dynamics	MASH	•	•	•	•	•	•	112
▲ Technics SL-PS840	420	A A very refined but highly detailed and engrossing performance from just about the fastest, slickest player on the planet	MASH/PWM	•	•	•	•	•	•	119
Technics SL-PS900	350	G- Just about the quietest transport in existence and a sound that is equally unobtrusive, polite and refined	MASH	•	•	•	•	•	•	100
Woodside WS2	1095	G+ Responded well to our jazz and classical selection but sounding bright and grainy with the pop CD's	16-bit	•	•	•	•	•	•	95
Yamaha CDX-670	290	G- Yamaha has retained the CDX-660 casework but cut costs with a new multi-task IC that's not entirely de-bugged.	PDM Bit Stream	•	•	•	•	•	•	124



CD transports and DACs

A CD player can be split into two basic components, the mechanism which reads the information from the disc, called the transport, and an electronic 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 at the lower end of the market both of these are contained in a single box, the best CD players are usually two box affairs.

Although many of these units will be purchased as matching pairs, a DAC can also be

used to upgrade an existing CD player. For instance an early machine with a satisfactory transport but a dated convertor can be rejuvenated by adding an outboard DAC.

The columns on the right indicate the facilities available on a transport or DAC. Remote control is self explanatory. The existence of electrical and/or optical digital in and outputs is pretty fundamental to transports and DACs, as a rule electrical outputs are the most desirable. Class 1 transports are those with an output whose crystal clock accuracy is better than ± 50ppm (parts

per million), certain DACs won't lock onto (and thus can't be used with) transports with a lower clock accuracy. DAC type shows the specific convertor chip employed. In much the same way that an amp's output is not indicative of its sound quality, the chip used in a DAC isn't the only determining factor in a CD player's sound. Phase inversion in the digital domain can make quite a big difference if you've got a high resolution system and golden ears to go with it.

Entries for one make transport/DAC combinations are listed in the CD players section.

CD transports

Product	£Price	Comments	Electrical digital output	Optical digital output	Track entry keypad	Headphone socket	Variable output	Remote control	Issue No.
▲ Meridian 200	895	G+ Broadly compatible and offering a light, fresh and very bubbly sound that is both natural, engaging and unfatiguing	•	•	•	•	•	•	96
TEAC P-2	3500	G Beautifully styled and constructed but sound is bleached and generally less inspiring than that of the P-10	•	•	•	•	•	•	96
Technics SL-PA10	470	G Has the unusual limitation of only optical output. Reassuringly solid and more immune to vibration than most	•	•	•	•	•	•	88



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KENWOOD	
MZ-A7	£379.00
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YAMAHA NS-E100	£139	£109
YAMAHA YTS-SE10	£100	£79
YAMAHA KS-A102	£139	£109
SYSTEMS		
AKAI MX-950CD	£799	£679
HITACHI OPUS 2	£699	£599
KENWOOD M-74CD	£599	£399
KENWOOD VD-9	£699	£399
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DACs

Product	£Price	Comments	Electrical digital input DAC type	Optical digital input	Phase invert	Issue No.
Arcam Black Box 5	450	G Equipped with Sync Lock for D170.3. It gives off its best with a standard 75ohm transport like the TEAC P-10.	hybrid	•	•	113
▲ Audio Alchemy DDE v1.0	420	VG A very sweet and seductive sounding unit that gives good results with a wide range of CD players/transports	Bitstream	•	•	101
Audio Synthesis DSM-M	1234	G+ A weighty but neutral and highly calculated performer, best suited to transports like the P-10, despite Sync Lock facility.	20-bit	•	•	113
Beard DAP-1	975	A- Clad in a wooden case this marriage of digital technology and valves has hit the rocks, a disappointingly flat sound	16-bit	•	•	113
▲ DPA Digital Bigger Bit	695	G With either P-10 or Meridian 200 transports it delivers a very taut and dynamic sound, bathed in an open acoustic	DAC7	•	•	103
DPA Digital PDM1 Series 3	1280	G+ Bears technical comparison with both PDM2 and Bigger Bit but - in terms of sound quality - is great advance on the latter	DAC7	•	•	103
▲ ds/d Decode-1	495	G Elegantly designed bitstreamer with plenty of inputs, can sound too bright, immediate or artificial for its own good.	Bitstream	•	•	113
▲ Forte Audio Model 50	950	VG A typically big and full-blooded sound, infiltrated by a slightly euphonic quality but never hard or gritty.	DAC7	•	•	103
Meridian 606 DAC7	1350	G By refining the 203's sound further Meridian have also tempered its vibrancy and 'life', Fickle with other transports	DAC7	•	•	101
Micromega Duo BSII	550	G Has a tendency to sound light, airy and 'fast' but it can also become a little hard or - fatiguing with some digital outputs	SAA7321	•	•	101
Micromega Microdac	300	A+ Described as a modest but entertaining performer, achieving its sweetest balance with Arcam's D170.3 transport.	SAA7321	•	•	113
▲ Mission DAC5	300	G+ Another modest DAC but one capable of a lean but clean and detailed sound that's typical of the DAC7 breed.	DAC7	•	•	113
▲ NVA DAC-ON	730	G+ DAC-ON actually turns out to be a QED Digit linked to substantial external supplies. A ruse that undoubtedly improves its sound	SAA7323	•	•	113
PS Audio Superlink	1498	G- Does the business with Meridian's 200 but can sound bloated, smeared and even vaguely electronic other transports	18-bit	•	•	103
▲ QED Digit	139	G Bearing in mind its expressive but very forgiving performance the Digit is almost embarrassing cheap	SAA7323	•	•	113
Roksan ROK-DA1/ROK-DS4	995	G+ A creditable affair, both expansive and expressive in character but rather also lean in balance.	Crystal	•	•	113
Stax DAC-Talent	1400	G+ Natural, refined and never over-zealous, its also capable of sounding very spicy and dynamic. Can be a maturing influence	20-bit	•	•	101
▲ Sugden SDA-1	749	G+ A pleasant surprise from the fuddy-duddies of audio, judging by its 'masses of high resolution detail and tremendous dynamics'	TDA1541it	•	•	113
Sugden Stemfoot PDA-10	1200	G+ Unfortunately this 'upgraded' SDA-1 is less impressive than the original, losing out on dynamics, airiness and subtle detailing	16-bit	•	•	113
Threshold DAC 1/e	3150	G+ Can sound beautifully detailed with a marvellous sense of scale and sharp, solid images. Compatibility is unpredictable	MASH	•	•	103
Woodside DAC1	909	G Fine but slightly dated and costly package in performance terms - but flexible, musical and t well built	16-bit	•	•	87
▲ Woodside DAC2	510	G+ Offering a sharp and dynamic sound, all the more captivating for its lack of graininess and 'tizz'. A reliable upgrade	16-bit	•	•	101

Transport/DAC combos

Product	£Price	Comments	DAC type	Electrical digital input Remote control	Optical digital input Variable output	Track entry keypad Headphone socket	Issue No.
Audio Alchemy DDS/DTI/XDP/P52	2047	A+ A multi-box combination with a Bit Stream DAC that is fundamentally more inspiring than its partnering transport.	DAC7	•	•	•	120
DPA Digital T-I/PDM2mkII	3245	G An ingenious combination that includes a clock-feed from the DAC to CD transport. Capable of astonishing results	DAC7	•	•	•	120
▲ EAD T-1000/DSP-1000	2195	VG A two-box player based on Pioneer's Stable Platter CD transport. Its music always sounds fast, furious and fascinating.	20-bit	•	•	•	120
Linn Karik/Numerik	2495	G+ Partnering Linn's Numerik DAC with its Karik CD player (as transport) provides a dry, dynamic but also slightly dirty sound.	20-bit	•	•	•	120
Meridian 200/263	1390	G Now updated with Crystal Bit Stream technology, this popular duet has unfortunately lost much of the charm and poise of the original.	Bit Stream	•	•	•	120
▲ Meridian 602/606	3100	VG Meridian's top-of-the-range two-box player looks and sounds both distinctive and elegant, the perfect partner for a cultured system!	DAC7	•	•	•	120
Proceed PDT3/PDP3	4598	G+ The third in a series of unusual transport/DAC combinations and a pairing that retains a powerful, confident and rugged sound	20-bit	•	•	•	120
▲ TEAC P-700/D-700	1500	VG They may lack the resolution of high-end colleagues but still sound warm, bubbly and perpetually entertaining	20-bit	•	•	•	120



DAT players

DAT, or digital audio tape, has been on the market for quite some time now but has never really 'made it' as a consumer medium, probably due to the fact that very little prerecorded software has been made available.

In the last year or so it has begun to carve itself a niche at the top end of the market replacing reel to reel tape recorders as the audiophile's

tape based medium.

The DAT standard specifies a 48kHz sampling rate, which is higher than CD, so direct copying in the digital domain is only possible on those machines with dual sampling frequencies, ie 48kHz and 44.1kHz. Some machines also record at 32kHz to give a longer recording time for a given length of tape, this is shown in the LP

mode column.

The optical and electrical in/outputs in the column headings are for digital signals, analogue in/outputs are universal. The AES/EBU and S/PDIF socketry is for connection to professional components and typically DAT machines with this facility have been made for the pro and semi-pro markets.

DAT players

Product	£Price	Comments	LP mode	Electrical in/outputs Remote control	AES/EBU in/outputs	S/PDIF in/outputs	Issue No.
JVC XD-21010TN	1050	A+ Ambitious but ultimately disappointing deck with an opaque musical delivery and more features than you can shake a stick at	•	•	•	•	111
▲ JVC XD-2505	620	G Competent middle market DAT with uncomplicated (but still flawed) user interface, but good basic sound quality	•	•	•	•	105
Kenwood DX-7	500	A Sound quality is pretty fair, but a little rougher than the best of the breed. Controls are good, the display however is poor	•	•	•	•	94
Kenwood DX-7030	700	A- Bland sounding deck that lacks low level clarity and imaging. Build quality is good however and ease of use ranks highly	•	•	•	•	99
Panasonic SV-3700	1111	A Slick, powerfully equipped, this pro DAT has a clear, quick and colourful sound somewhat lacking in weight and substance	•	•	•	•	111
▲ Sony DTC-55ES	550	G Broadly comparable to a middle ranking CD player sonically, the Sony is particularly well equipped and well priced.	•	•	•	•	93
Sony DTC-77ES	1000	A Superb engineering, many nice features (including off tape monitoring) but perceptibly slowed, thickened sound	•	•	•	•	105
▲ Sony TCD-D3	500	G+ At the time of writing, this model represents the state of the art, and beats all comers.	•	•	•	•	94
Tascam DA-30	1199	A+ Interesting pro DAT deck with solid, tangible sound quality which is nevertheless lacking in analysis	•	•	•	•	111

They deserve their awards.

CD PLAYERS

Rotel RCD-945AX
Marantz CD52MkII SE
Kenwood DP-7050
Arcam Alpha 5
Marantz CD 10

AMPLIFIERS

Denon PMA-250/III
Marantz PM44SE
Aura VA-100 Evolution
Audiolab 8000A
Audiolab 8000C/P

LOUDSPEAKERS

Mission 760ISE
NAD 802
Mission 751
Mission 753

TURNTABLES

Systemdek IIX
Thorens TD166 MkVI

RECORDING DECKS

Aiwa AD-F410
Aiwa AD-F810
Sony TCK-611S
Marantz DD-82
Nakamichi DR1
Aiwa AD-WX828

CD UPGRADES

QED Digit
Audiolab 8000DAC

TUNERS

Denon TU-260L
Sony STS-311
Audiolab 8000T

SYSTEMS

Sharp C5300
Denon D-110
Technics SC-CH950

HEADPHONES

Audio Technica ATH-L1a
Beyer Dynamic DT-311
Beyer Dynamic DT-511
Sennheiser HD480 II
Sony MDR CD750

AV AMPS/PROCESSORS

Kenwood KAV-8500
Kenwood KRV-6050
Denon AVC-3020

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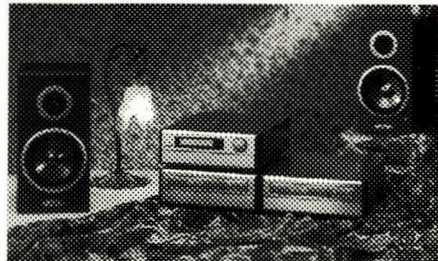
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Headphones

There are a variety of different approaches to headphone design. Amongst the more expensive models, electrostatic drivers are used in open-backed phones. The majority of these come with some form of transformer which usually takes the signal from the speaker terminals on the amplifier, but some can run from a pair of tape out sockets.

The more down to earth (see affordable) models feature dynamic, or moving coil, drivers in circular open or closed backed designs. The advantage of open backs seems to be a correspondingly open sound, but one can also of course hear external noises. Closed-back designs are useful in situations where it is necessary to block out background noise, but they aren't gen-

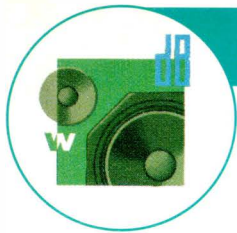
erally as good sonically.

Another means of distinguishing different types is the way they sit on your head. There are three styles: circumaural models enclose the ear and rest on the side of the head; supra-aural designs feature a flat pad which presses on the outer ear (pinna); and intra-aurals rest inside the ear itself, and are popular with personal stereos.

Headphones

Product	Price	Comments	Type	Open back	Closed back	Dynamic	Electrostatic	Issue No.
▲ AKG K1000	500	E One of the best dynamics on the market, hooks directly to speaker outputs and makes much of the competition sound lame	Extra-aural	•	•	•	•	99
AKG K135	33	A The K135s don't live up to the usual AKG standards, though they do have the ability to reproduce rhythm well	Supra-aural	•			•	63
▲ AKG K240 Monitor	60	G Something of a classic, these AKGs are very user friendly in all respects; sonically on the warm side of neutral	Circumaural	•			•	63
▲ AKG K280 Parabolic	90	G+ A very revealing and unusual twin driver design that uses the same principle as a satellite dish to beam sound into the ear	Circumaural	•			•	63
▲ AKG K340	140	E Heavyweight cans in most respects, the K340 with its electrostatic tweeter is a very revealing headphone	Circumaural			•	•	75
AKG K44	40	A Good quality personal oriented phone, could have a better sense of space but is musically quite communicative	Supra-aural	•			•	99
▲ AKG K400	100	VG Comfortable over long sessions. Sound is exquisitely detailed, dynamic and uncoloured	Supra-aural	•			•	121
▲ AKG K500	119	G+ Open and clear, they reproduced music with impressive definition, balance is on the light side but transparency is high	Circumaural	•			•	111
Aiwa HP-X30	26	G- A flashy personal stereo phone which alternatively could be used at home. A slight LF tonal preference colours the response	Supra-aural			•	•	75
▲ Audio-Technica ATH-308	26	A- Small cans with a fairly forward balance which helps perceived clarity but can become wearing over time, good for personals	Supra-aural	•			•	111
▲ Audio-Technica ATH-609	31	A- Warm feeling and sounding with impressive physical substance for the price, could be more relaxed and open	Circumaural	•			•	99
Audio-Technica ATH-611	51	G Same basic design as 609 but bigger thinner diaphragm makes this a more relaxed and informative headphone	Circumaural	•			•	99
Audio-Technica ATH-9000	246	G Electrets which connect to the amps speaker outputs, it sounds a little too smooth but would suit aggressive amps	Circumaural	•			•	111
▲ Audio-Technica ATH-910	70	G The closed-back 910s are an improvement on the 909s with a nice rhythmic quality rarely found with headphones	Circumaural			•	•	55
▲ Audio-Technica ATH-911	80	VG Nicely finished dynamic headphones with all the trimmings, plus a very clean and subtle sound	Circumaural	•			•	63
Bandridge EH910DD	50	A- Modestly successful mid/top, but dreadfully cloying, ploddy bass makes this model essentially unlistenable	Circumaural			•	•	121
▲ Beyer DT-211	25	A Good value compact, couth and enjoyable, esp in midband. Earpads not removable for cleaning	Supra-aural	•			•	121
Beyer DT411	49	G A reasonable but not very thrilling headphone that doesn't really offer enough at the price	Supra-aural	•			•	111
▲ Beyer DT911	179	VG Probably too revealing for many headphone amps these are very subtle and fine if expensive cans	Circumaural	•			•	111
▲ Beyer DT990	102	VG A significant pair of dynamic headphones; they have a smooth and yet revealing neutral sound that is hard to criticise	Circumaural	•			•	55
▲ Beyer IRS690	203	VG High quality infra-red headphones with soft comfy earpads and mellow but informative sound quality which is hard to dislike	Circumaural	•			•	75
JVC HA-D690	40	A Competent but rather undistinctive cans, a bit middle of the road and well suited to aggressive sources	Supra-aural			•	•	111
JVC HA-D910	60	A Broadly acceptable if unexciting design with low level losses and some colourations	Circumaural			•	•	121
▲ Jecklin Float Electrostatic	399	E These electrostatics have an openness of sound rarely found in the breed, with good dynamic range to boot	Circumaural	•			•	55
▲▲ Jecklin Float Model One	79	G+ Whilst very unusual in appearance, the Floats give remarkable sound quality and openness at a reasonable price	Circumaural	•			•	55
▲ Jecklin Float Model Two	99	G+ Helmet shaped and pretty unflattering but open sounding and comfortable in the long term. The lack of adjustment	Circumaural	•			•	63
Kenwood KH-1000	20	A- First step up from a true mini: a near miniature which is cheap, comfortable and inoffensive	Supra-aural	•			•	121
Philips SBC3390	60	A Up front but rather aggressive headphone with lightweight, coloured sound. Not very comfortable.	Supra-aural			•	•	121
Quart Phone 75X	70	A Unusually comfortable sealed headphone, though sound isolation poor. Hard, edgy sound quality.	Circumaural			•	•	121
▲ Sennheiser HD440 II	35	A+ Still the one by which others at the price are measured, though now slightly leaden sounding, cold treble	Supra-aural	•			•	121
Sennheiser HD 540II	120	G+ A good but not great headphone that due to its high impedance and efficiency should work well with most sources	Circumaural	•			•	111
▲▲ Sennheiser HD560 Ovation II	140	VG Characteristic slightly heavy sound, but still the benchmark at this price level. High class sound and comfort	Circumaural	•			•	121
▲ Sony MDR-CD1000	170	G+ A fine sounding and comfortable headphone that's likely to work well with most sources	Circumaural			•	•	111
▲ Sony MDR-CD3000	350	G+ Better than most of the headphone outputs around so hard to make the most of, potentially up there with the electrostatics	Circumaural			•	•	99
▲▲ Sony MDR-CD350	30	G Very impressive, possibly the most open sounding cheap closed back can around, lightweight in balance but transparent	Circumaural			•	•	99
▲▲ Sony MDR-CD550	60	G+ A very competent headphone, creates a remarkable sense of space for a closed back design and sounds natural to boot	Circumaural			•	•	99
▲ Sony MDR-CD750	90	G+ Reasonably comfortable and eminently listenable these Sonys have characteristically good bass power and relaxed hf	Circumaural			•	•	111
Sony MDR-CD850	100	A+ Very comfortable, and reasonable sound - better than most sealed designs - though hardness intrudes	Circumaural			•	•	121
▲ Stax Gamma pro/SRD-X pro	678	E The Gamma pros are like a stethoscope for your hi-fi, revealing subtleties that many loudspeakers fail to resolve	Circumaural	•			•	63
▲ Stax Lambda Signature/SRM-T1	1644	E The Signature when combined with the SRM-T1 valve driver must be the most transparent headphone available	Circumaural	•			•	72
▲ Stax SR Gamma	239	G+ The next model down the Stax range from the Lambda, the Gamma is an excellent headphone with little to criticise but the price	Circumaural	•			•	55
▲ Stax SR Lambda Pro/SRD-7SB	674	G+ An industry reference, frighteningly revealing, bringing across more information than loudspeakers costing twice as much	Circumaural	•			•	55
▲ Stax SR Lambda Pro/SRM-1	1239	E Extracts layers of information that other headphones only hint at. The SRM-1 has more edge than the SRM-T1	Circumaural	•			•	75
Technics RP-F10	100	A Another very comfortable sealed model, modest sound isolation and uneven sound favouring bass	Circumaural			•	•	121
▲▲ Vivanco SR808 Classic	55	G A new mid price reference from a new and interesting source. Good all round, no obvious shortcomings	Supra-aural	•			•	121
Yamaha YHD-1	46	G Stylish semi-folding design with a slightly forward balance that very nearly scraped a recommendation	Supra-aural	•			•	111

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Loudspeakers

Last item in the hi-fi chain, to some extent the loudspeaker is merely the slave of what has gone before, capable only of reproducing a signal as good as it is fed. Nevertheless the distortions (colorations and stereo effects) introduced by loudspeakers (and rooms) tend to be more immediately obvious than those anywhere else in the chain, so careful choosing according to taste is very important.

The average loudspeaker consists of a small-

ish enclosure, much of which may have begun life as part of a tree, plus a couple of drive units hidden 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. Variations on the above formula are specifically identified in the entries. 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 does it go), shown as 'bass from', for the given box size. After that such subtleties as coloration (or lack of it) and dispersion come into the equation.

Careful placement of the loudspeakers within the room is as important as the initial choice of model. See siting columns for guidance. For good stereo they need to be more or less the same distance from nearby walls. Models not ticked as 'floorstanding' will require rigid stands.

Loudspeakers

Product	Price	Comments	Size: HxWxD (cm)	Site close to wall Bass from (Hz)	Site in free space Sensitivity (dB)	Floorstanding	Issue No.
ATC SCM20	1461	G+ Massively built, invariably informative but the rather forward presentation can be uncomfortable	44x24x31	28	82	•	86
▲ Acoustic Energy Aegis 1	452	G Rich and slightly heavy balance doesn't mask fine mid/treble coherence and transparency. Entry level for all-metal drivers	39x21x26	28	84	•	118
Acoustic Energy AE1	764	G Amongst the best miniatures around, shows exceptional mid focus and coherence, but is pricey and could be more agile.	29.5x18x25	48	84	•	102
▲ Acoustic Energy AE3	1650	G+ Solid, authoritative and impressively accurate — if a shade ponderous and slow	63x26.5x37	23	85	•	86
Acoustic Research Pi 5	219	A Lively good value box has extra bass driver to give plenty of thump, but lacks refinement and extension	51.5x21x23	50	88	•	110
Acoustic Research AR M.5	129	A- Pretty enough but a bit too tiny for its own good, it's better suited to auxiliary surround sound duties	22x16x23	50	88	•	114
▲▲ Acoustic Research AR M1	199	G Cutely shaped miniature delivers splendidly unboxy bass and midrange, but a little narrowed by a rather bright treble	27x20x26	30	85	•	110
Acoustic Research AR M2	269	A Not necessarily as agile or well balanced as the cute little M1, M2 is larger, louder and still attractively unboxy	41x24x36	28	89	•	118
▲▲ Allison AL100	100	A Loud and lively budget wall-mount is bigger and beefier than most of the competition, if lacking some subtlety and refinement	33.5x24x21.5	30	87	•	94
Allison AL105	170	A- Pretty enough in appearance, sonically the AL105 doesn't really make the grade at the £150 asking price	37x24x21	45	87	•	78
▲ Allison AL110	220	G- Compact bookshelf model is a little dry and mid forward, but bass is extended and solid	40x24.5x22.5	28	86	•	102
Allison AL120	420	A Pretty well balanced if slightly mid forward, but sound quality is a little disappointing for the price	63x28x27	30	88	•	98
Allison MS 200	220	A- Small and solid as a brick, this micro-miniature has limited bass and bright balance, but sounds agile and communicative	25.5x14.5x15	50	85	•	106
▲ Apogee Caliper Signature	3998	G+ Power hungry full range ribbon panels have remarkable transparency and delicacy, loudness and 'grunt' are a bit lacking	122x70x6.5	30	81	•	81
▲ Arcam Delta 2	300	G Pretty luxury compact sounds a shade forward and coloured but has dynamic and lively bass for its size	37.5x22.5x27.5	40	87	•	94
▲ Audio Note AN-E	1300	G+ Lovely coherence, great midband dynamics and transparency, extended bass and high sensitivity — pity it's so darn ugly!	80x36x28	20	91	•	106
▲ Audio Note AN-J	799	G+ Light damping and local unevenness adds some coloration, but doesn't spoil the very lively, dynamic and coherent sound	58.5x33x24.5	25	90	•	110
▲ Audioplan Kontrapunkt	899	G+ Sounds as sweet as it looks, dressed expensively in real wood with matching stands. not for bass or loudness freaks	31x24x13	48	83	•	86
Aura SP-50	399	A Two very tasty drivers rather outclass the cabinetwork; a capable but slightly dull compact stand mount	40x22x25	30	87	•	126
▲ B&W 2001	120	A Cunningly concealing its (very real) limitations, this is just about the smoothest and best balanced miniature around	29x18x21	48	87	•	118
B&W 2003	190	A- Flashy and assertive ghetto blaster styling is not reflected in the rather bland, if well balanced sound	43x21x25	30	88	•	122
B&W 610	240	A Bass extension and impressive loudness credentials, but rather indifferent integration and coherence	49x23.5x30	25	89	•	102
▲ B&W DM620i	399	A+ Good material value, this compact floorstander has a beautifully voiced midband, less happy bass tuning	77x24x32	40	89	•	126
▲ B&W DM600	180	A+ An impressively smooth overall balance, but sound is a touch bland with it	35x20.5x25	30	85	•	98
▲ B&W Matrix 801	3495	G+ Lacks the transparency of the best panels, and the drama of the best dynamics, but is something of an acoustic tour de force	77/99x56x43	<20	86	•	81
B&W Matrix 805	845	G Stylish, with remarkable imaging properties, good balance and low coloration, though less successful at musical communication	42x26x22.5	30	87	•	98
▲ Bose 305	390	G- A bit of an oddball, fine dynamic liveliness and a good room match more than make up for the strange stereo imaging and treble	28x45x23	40	88	•	78
Bose 401	456	A Cheaply built but distinctively styled semi-omni floorstander suffers from heavy midbass but still sounds lively and open	78.5x30x28.5	28	89	•	110
Bose 901 MK6	1496	A The pre-equalised multi-driver 901 is cleverly engineered to deliver exceptional loudness	33x54x32	28	89	•	86
Bose Interaudio 3000XL	170	A- Lots of perceived value and well enough balanced, but low cost engineering results in a crude and unsubtle sound	46.5x29x23	45	89	•	71
Boston HD5	130	A Tiny and prettily shaped miniature has an attractive lack of boxiness, but is a little short of drama and dynamic drive	25x16x18.5	30	86	•	110
Brinkmann Endymion	795	A+ Omnidirectional design with rococo styled urn-shaped ceramic enclosure. Distinctly bass light, but impressively coherent	48x29 (diam)	50	85	•	106
▲ Cabasse Bisquine	1000	G+ Class, French large bookshelf speaker has great coherence and dynamic grip, but a rather mid-forward overall character	48x26x30.5	30	91	•	110
▲ Cabasse Skiff	1500	G+ Large floorstanding three-way gives great sensitivity and bass extension with fine dynamic grip	100x30x36	25	92	•	122
▲ Canon S-30	150	A+ Clever and unusual moulded design has attractive lively coherence, along with 'wide imaging stereo' effect	27x22.5x23.5	50	88	•	114
▲ Canon S-50	350	A+ Only a small cone miniature at heart, the fascinating styling and extended sweet spot feature make it utterly original.	30x24(diam)	48	84	•	102
▲▲ Castle Chester	650	G+ A brilliant throwback, using horn-type approach to provide startling midrange dynamics and coherence.	94x23x27	45	87	•	98
Castle Durham	250	A Like the slightly larger York, the very pretty presentation is not reflected in a similarly sweet sound	40x22x24	48	88	•	118
▲ Castle Pembroke	400	A+ Comfortably recommended, a sweet smooth sound with good overall balance of engineering-based performance	55x37.5x30.5	46	88	•	31
▲ Castle Trent II	190	A Very classy finish for the price, plus a sound that passes muster without setting anything much alight	33.5x18x20	50	88	•	122
▲ Castle Winchester	1499	G+ Unconventional and beautifully crafted, large for its bass extension but engagingly agile and attractively open and airy	114x24x47	25	87	•	90
Castle York	340	A+ Pretty little real wood compact has an engaging transparency, good balance and fine timing, could do with more authority	43x22x26	30	86	•	110
▲▲ Celestion 1	109	A Pretty basic performance but at a very basic price — it all sounds a bit scrappy and untidy, but its heart's in the right place	27.5x16x21	50	87	•	114
▲ Celestion 15	389	G Big box and bang for your bucks, short on subtlety and control, but long on both enthusiasm and perceived vinyl wood grain	103x20.5x25.5	28	90	•	114
Celestion 9	269	A Nicely presented and fair material value, with impressively flat bass-to-mid balance	49.5x20.5x24	30	89	•	102
Celestion SL12Si	629	A Elements of fine sound quality, but this 'grown up' SL6 variation has a lumpy response alongside its improved power handling	53x20x27	50	85	•	66
Celestion SL600Si	820	G Has certain remarkable qualities that some will find irresistible, but needs careful system and room matching	27x20x23	52	82	•	68
Celestion SL6Si	429	A+ This stereotype luxury compact can sound a bit dull and congested, but really opens up on Slate Audio stands; favours CD	37.5x20x25	30	86	•	94
Celestion 300	1099	G Splendid bass extension and fine panel-like openness and transparency, but dynamics and timing are suspect, balance very laid back.	100x21x31	<20	86	•	118
Creek CLS 10	119	A Almost identical to the Goodmans Maxim 3, this neat miniature is very competently engineered, but not desperately exciting	26x17x21	50	85	•	114
Dali 102	230	A Attractive bookshelf model has fine midband focus and bass extension, but treble's a bit restrained and bass a bit detached	37x21x25	30	86	•	114

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Loudspeakers continued

Product	Price	Comments	Size: HxWxD (cm)	Site close to wall Sensitivity (dB)	Site in free space Sensitivity (dB)	Floorstanding	Issue No.
Dawn Chorus FS	698	G Compact floorstander with superb coherence but rather forward midband. Would suit smaller rooms best	91x26x21	30	86	• •	114
▲ Diamond Acoustics Reference III	895	G+ Lovely free stander suffers from indifferent bass alignment, but is fast, coherent, solid and very informative indeed.	87x27.5x28	30	90	•	106
Dynaudio Contour1.3	1199	G Heavyweight luxury finish bookshelf model has good scale and weight but is pricey and a bit ponderous	38x20.5x29	28	86	•	122
▲▲ Epos ES11	350	G+ Integral baffle/driver to give a remarkable combination of low coloration, transparency and speed; bass is a bit shy	37.5x20x25	45	86	•	94
▲ Epos ES14	515	G+ Substantial stand mount delivers delightful midrange focus and delicacy with good bass control. System sensitive	49x22.5x29	25	85	•	98
▲ Faraday FS1	225	A+ Concrete box on a budget, works surprisingly well despite cheap drivers, wood veneers here Direct sale only	47x27x28	45	86	•	114
Faraday FS5	589	G Pricey and ugly, but with its own sonic charm, thanks to substantial influence of the concrete enclosure has upon the sound	46x27x26	28	90	•	102
Faraday Siren	330	A- Interesting if ugly high mass concrete cabinet is let down by imbalance of ageing driver combination	46x27x27	48	87	•	94
Genexa SE100	150	A Tandy-stocked miniature is attractively lively, coherent and communicative, could do with more grunt and lower coloration	28x15.5x19	50	84	•	110
▲ Goodmans Maxim	120	A Budget miniature offers well balanced strengths and few weaknesses at a very realistic price; a bit feeble	26x17x20	30	85	•	122
Harbeth HL Compact	584	A Clean, neutral sound lacks resolution and gives rather unobtrusive though well differentiated stereo.	52x27.2x28.1	65	87	•	59
Harbeth LS3/5A	379	A Still a classic miniature, though not to every taste, and none the better for the recent update under our listening conditions	30.5x19x16	60	81	•	66
▲ Harbeth HL-P3	400	G Very limited loudness but impressive full-range scale from uncoloured and very well balanced but time-smeared sub-miniature	31x19x17	23	82	•	118
Heco Presto Superior 750	650	A Tall slim and attractive floorstander delivers a fine, even in-room balance but lacks transparency, coherence and dynamic drive	95x24x27	22	87	•	106
Heco Reflex 10	160	A Nicely balanced small bookshelf is a competent rather than exceptional package for the price, thanks to indifferent build	32x21x23	30	90	•	102
▲▲ Heybrook HB1 S3	250	G Latest version of long established favourite delivers good liveliness and fine coherence for the price	47x29x24	30	88	•	98
▲ Heybrook Prima	120	A+ Neat and discreet miniature delivers fine coherence, pace and timing, though balance is a trifle forward and bass a bit light	29x19.5x18	50	86	•	110
▲ Heybrook Quartet	555	G Beautifully presented and built large bookshelf model with good sensitivity and a lively, forward sound	41x24x23	48	89	•	122
▲ Heybrook Sextet	1079	G+ Engagingly coherent and a highly analytical, partly due to distinct and t always comfortable upper-mid forwardness	96x27x20	25	85	•	102
▲ Heybrook Solo	170	A+ Discreetly styled, sounds a little untidy in both bass and treble but handles complex rhythmic material much better than most	36x23x22	28	87	•	90
▲ Heybrook Trio	349	G Same drivers as HBS1 in prettier real wood enclosure give a sweeter and more forgiving if less committed sound	47x24x25	45	89	•	118
Infinity Modulus	795	A+ Carefully conceived and beautifully built. Undeniably attractive in the mid and treble, it failed to handle the bass as well	30x18x26	45	84	•	86
▲ Infinity Reference 10	180	A An engaging and lively sound from a prettily finished and substantial small bookshelf size model	36x23x23	50	87	•	98
Infinity Reference 20	230	A Well presented and balanced with good bass control, but somehow lacks convincing cohesion and agility.	46x27x24	27	88	•	102
▲ Infinity Reference 30	400	G Budget price floorstander has good overall balance and bass extension, but is rather coloured and uneven	86x27x24	25	89	•	122
Infinity Reference 50	550	A- Despite hi-tech drivers, good bass extension and sensitivity, this three-way suffers from a forward, coloured sound	86x26.5x25	25	89	•	98
Jamo 307	300	A- Beautifully styled bookshelf baby places more emphasis on presentation than basic engineering	32x18x27	48	86	•	122
JBL Control 1 Plus	250	A Sub-miniature with forward midrange and real bass; highish price partly justified by near-indestructible Pro build	23x15.5x14	50	89	•	90
JBL L1	450	G Good power handling, decent transparency and deep but current hungry bass from a compact and solid enclosure	40x21x25.4	47	87	•	121
JBL ti1000	1500	G Ultra-engineered, beautifully crafted bookshelf model. Performance compromised by over enthusiastic midbass output from port	44x30x28	45	89	•	118
▲ JPW AP2	180	A Offers real wood veneer at a bargain price; performance is cleaner but broadly comparable to P1 Vinyl overall	43.5x25.5x26	45	86	•	106
▲ JPW AP3	225	A+ Pretty good stereo and well balanced overall it had its own character which is well suited to vinyl replay	52x25x29.5	57	90	•	46
▲ JPW Minim	79	A- Very civilised but dynamically limited, the Minim is well suited to the smaller room and where limited loudness is acceptable	27.5x18x19.5	28	85	•	82
▲▲ JPW Mini Monitor	£60	A- Ultra cheap Richer Sounds special is lightweight and short of welly, but a snip for surround sound use	27x18x17	50	85	•	122
▲ JPW P1	155	A+ Honest and basically articulate if not very sophisticated, resolution is good but can sound a little wearing in bright systems	44x25.9x26.1	60	89	•	59
▲▲ JPW P1 Vinyl	135	A A lot of highly competent loudspeaker for the price, with a safe sound that's unlikely to disappoint.	43.5x25.5x26	32	87	•	102
▲▲ JPW Sonata	115	A+ Well balanced and integrated, offers fine sound if limited bass and dynamic range, plus real tree wood at a nearly silly price	32x23x20	55	86	•	71
JPW Sonata Plus	135	A- This luxury variation on the redoubtable Sonata theme features a metal dome tweeter, and isn't the better for it	32x23x21	30	87	•	90
▲ JRT AD1	500	G+ A fair share of cosmetic deficiencies do little to spoil the impressive coherence and timing	59.5x28x36	28	86	•	86
▲ JRT AD1 Micro	389	G Delightful life and coherence, gives surprising impression of scale; some aggressive tendencies but very open to system tuning	28x17x21	50	87	•	94
Jamo Concert II	330	A- A respectable 'bookshelf' performer that needs free space siting but includes attractive cabinetwork and a neat grille	41x24x25	48	85	•	66
Jamo Concert V	500	A Compact, solid, nicely finished delivers unusually extended bass at the expense of lowish sensitivity; midband is laid back.	86x24x28	20	85	•	102
Jamo Concert VII	800	A Beautifully built, uses unusual double reflex bass system, unsuccessfully as far as low frequency resolution is concerned	96x28x31.5	25	87	•	94
▲ Jamo Cornet 50	150	A+ Good value bookshelf size speaker has a rough and ready sound but good heart, engaging liveliness and fair timing	42x23x22.5	28	87	•	110
Jamo Silhouette	400	A+ Tall, slim and rather elegant in its way, doesn't sound bad for a styling exercise, just a bit rich and polite	122x24.7x17	45	88	•	114
▲ Jordan JH400	504	A+ Piano finish hexagon has single full range driver and controversial sound, with uneven balance but delightful mid coherence	33x24x30.5	50	83	•	106
▲ KEF 104/2	1595	G+ A reference point for dynamics, preferred without KUBE, suited to many rooms. Good stereo, high sound level	90x28x41.5	50	92	•	60
KEF K120	169	A Physically pretty and sonically competent but undistinguished bookshelf size model has good sensitivity but limited extension	34x20.5x26	45	87	•	106
KEF Q30	359	A Fine focus from Uni-Q driver, but lacks drive and time coherence; acoustically smaller than it looks	73x19x29	44	88	•	126
▲ KEF Q80	569	A+ Uni-Q floorstander has good stereo and fine midband coherence, but bass lacks extension, drive and resolution	85x24.5x26.5	45	87	•	106
KEF Q90	739	A Generous floorstander has even balance and decent extension but fails to communicate excitement and involvement effectively	90x25x32	25	88	•	118
Kammerzell Ref Mini Monitor	425	G A beguilingly sweet sound with good pace and drive, but scale is restricted and presence a little dulled considering the price	27x17x24	50	85	•	94
▲ Kenwood LS-770E	260	G Impressively communicative bookshelf model has fine vigour, scale and dynamics, if not the smoothest sound around	48x27x25	25	89	•	106
▲ Kenwood LS-500G	500	G Japanese designed and built luxury compact delivers an invigorating and exciting sound; an interesting contrast to some lazier models	45x23x26	48	89	•	118
▲▲ Legend II	200	G Liveliness, coherence and fine information retrieval justifies the odd looking moulded baffle construction	37x21x30	48	88	•	122
▲▲ Linn Index II/KuStone	374	G Stand and speaker looks and sounds very good, good bass extension and control, fine dynamic range. Clean, clear if a shade slow	44x21x23.5	28	86	•	90
▲ Linn Kaber	1298	G+ Dry, bright balance emphasises superb dynamic range and transient precision, but can sound unforgiving	89x19x29	25	85	•	118
Linn Kan II	530	A+ Niche product for those prepared to tolerate its strong character for the sake of fine bass performance and near invisibility	30.5x18.5x16.5	35	82	•	78
▲ Linn Keilidh	579	G+ Stunning timing and coherence and awesome bass drive, especially with ceramic plinth; sounds a bit shut in	83x20x27.5	22	87	•	114
Living Voice Air Partner	11990	E Formidable horn design with astounding transparency, dynamics and speed. Its idiosyncracies are compensated by sheer energy	165x64x92	40	101	•	117
Lumley Monitor Reference 4	375	A All metal diaphragm and real wood at fair price; balance uneven — upper mid forward with suspect bass tuning	36x17x23	44	86	•	126
▲ Magneplanar MG1.4	1090	G+ Offers a very crisp and articulate sound, particularly revealing of upper mid vocal details	155x8x57	40	88	•	72
Magneplanar SMGa	668	A Tonally 'rich', in the right room it proved a satisfactory musical experience	122x48x4.5	56	85	•	46
Marantz DS110	200	A+ Pretty near-miniature trades bass extension for sensitivity, delivering fine midband dynamics but little grunt	33x19.5x20.5	55	88	•	114
Marantz DS220	300	A+ Nicely shaped and presented large bookshelf model sounds competent rather than inspired; a touch too heavy	37x23x26	50	88	•	122

Loudspeakers continued

Product	Price	Comments	Size: HxWxD (cm)	Site in free space	Floorstanding	Issue No.
▲ Martin Logan CLS II	4333	G+ High resolution design, fussy about system set-up, demanding of ancillaries and software alike. It rewards the efforts though	60x28x7.5	45	86	• • 72
Meridian Argent 1	995	G+ Beautifully built, finished and shaped, has fine bass extension and virtual absence of 'boxiness'; needs a big amplifier	33x27x27	28	83	• • 98
Meridian Argent 2	875	G Beautiful high-tech 'large compact' delivers extended, smooth and neutral sound with fair speed. Slate Audio stands essential	48.5x21x29.5	23	85	• • 94
Meridian M30	950	A Pricey active speaker, easy on the ears and worth considering especially where space is at a premium	38.5x18x32	40	NA	• • 46
▲ Mission 753	700	G+ Gorgeous presentation and potential for open transparency. Floorstander with lots of drivers that gives lots of loudness	90x22x30.5	45	88	• • 114
▲ Mission 760i	130	A+ Attractive little wall-mount miniature has livelier dynamics and bass drive than most of its type, but sounds as little shut in	29.5x18x20	48	87	• • 110
Mission 764i	480	A Generous and handsome floorstander looks fine material value for money, but good scale sound has lazy tendencies	89x25x32	22	86	• • 118
Mission 765i	680	A+ Big heavyweight floorstander has good sensitivity and bandwidth, but somehow lacks agility, authority and dynamic grip	102x25x33	22	91	• • 110
Mission 751	300	A Attractive luxury miniature has great sonic potential, but our review samples have been marred by sample variations	32x17x27	45	86	• • 126
Monitor Audio MA1200 Gold II	1200	G Pricey but classy floorstanding variation on MA800 theme; beautifully voiced midband, heavy midbass	93.5x17x27	28	85	• • 122
▲ Monitor Audio Studio 6	800	A+ Pretty but pricey metal diaphragm compact has clear and transparent midband but is ultimately lacking in vim, vigour and drive.	35x22x25	45	86	• • 118
Mordaunt-Short 5.10	130	A Plenty of well engineered speaker for the money, and smoother than most of the competition, but lacks timing and enthusiasm	30.5x18.5x21.5	50	85	• • 110
Mordaunt-Short 5.20	150	A Lots of speaker for your money, but not as smooth or well balanced as other M-S 5-series models	36x21.5x21.5	45	87	• • 114
Mordaunt-Short 5.30	220	A- Good hi-tech material value for money, but a disappointingly dull and rather bland sound. Safe but uninspiring.	42.5x25x28	28	86	• • 106
▲ Mordaunt-Short 5.40	299	G Elegant near-floorstander has an even balance that makes it very easy on the ears, yet also inviting and informative	64x21.5x26.5	28	85	• • 110
Mordaunt-Short Classic 20	395	A+ Luxuriously finished, beguiling mid transparency, bass is altogether less convincing	37x22x27	45	86	• • 102
Morel Bassmaster 602	1200	G+ Superbly built compact stand-mount, did well in listening tests but suffers (enjoys?) upper midband peak	24.5x40x22.5	25	84	• • 114
Musical Fidelity MC-3	400	A+ Solid and authoritative large bookshelf model gives fine stereo and decent dynamic drive but balance is rather shut in	47x26x28	25	88	• • 118
▲ NAD 804	320	A+ Good value compact floorstander sounds lively and coherent, but quite coloured due to uneven balance too	75x20x26	25	89	• • 126
▲ NVA Cube 1	720	G+ Attractive, semi-omni is very sturdily built, and gives an idiosyncratic but unusually open, spacious and informative sound	33x32x32	52	85	• • 71
▲ NVA Cube 2	480	G A rude but exciting miniature, with unusually accomplished bass capabilities for its size	28.5x27x28.5	48	85	• • 82
NVA Cubix	1400	G Too idiosyncratic for recommendation, the Cubix possesses remarkable bass extension for its size, but is tricky to optimise	60x32.5x32.5	28	84	• • 78
Naim NA IBL	899	G This tiny floorstanding wall mount delivers outstanding dynamics, speed and detail, marred by pronounced upper mid forwardness	80x18x15-20	30	84	• • 94
▲ Naim SBL	1708	G+ Impressive scale, full bandwidth, coherent, attractively discrete, coloured midband, very well balanced and agile	88x26.5x17-27	25	86	• • 102
▲ Neat Petite	525	G+ Far from perfect, but one of the most entertaining and enjoyable speakers around, colorations notwithstanding.	30.5x20x18	33	86	• • 102
Nobis DM7	560	G Pretty US bookshelf model has more than enough speed, timing and coherence to make up for a measure of coloration	38x21.5x28.5	25	85	• • 110
▲ Origin Live OL2A	469	G Compact floorstander sounds open, transparent and evenly balanced; needs a big amp but enjoys hard driving	82x19x19	25	85	• • 122
Origin Live OL1	499	G Luxury miniature has very good overall balance, sacrificing sensitivity to achieve remarkable bass extension for the box size	30.5x19x21	25	82	• • 106
Philips FB820	470	A Big-but-less-than-beautiful three-way is well enough balanced but lacks communication skills in the time domain	86x27x35	28	87	• • 98
▲ Philips FB825	700	G Generous sounding and impressively uncongested, loudness and bass extension don't quite match plasticity looks	110x29x41	25	88	• • 90
Pioneer S-4UK	250	A+ Carefully developed minimalist audiophile design has some vigour but suffers an intrusive upper mid peak	37x21x28	50	87	• • 122
▲ Pro Mon Co LB1	998	G+ Delightful smoothness and transparency, though bass extension and sensitivity are both limited	53.5x18x26	33	86	• • 110
Professional Monitor Co AB1	1600	G Bulky stand-mount transmission line has lovely panel-like transparency, slightly shut in balance, and needs a big room	79x27x43	22	89	• • 114
QLN Model One	700	A Model One exaggerates the Signature's rich and heavy midbass and lacks its velvet smoothness	35x25x27	28	85	• • 82
QLN Signature	1100	G Luxury compact has a rather laid back and 'heavy' sound, but coloration is low and stereo imaging very good	37x18x36	30	83	• • 78
▲ Quad ESL-63	2384	G+ This classic electrostatic may not be punchy in the bass, but has strengths that some can't live without	92x66x27	34	84	• • 60
▲ Rega EL8	298	G Kyte drivers in compact floorstander give more bass but a shade less coherence; good for small rooms and budget systems	75x16.5x21	55	86	• • 122
▲ Rega ELA	405	G Very compact floorstander with integral stand has serious coherence and dynamics, but a measure of brightness and untidiness	84.5x20x30	30	86	• • 110
▲ Rega Kyte	198	G Has splendid timing and coherence, sounds very explicit and informative, if a bit bright and short of grunt	31x19x20	50	87	• • 114
Richard Allan CD5	176	A- Neatly presented small reflex design can sound engagingly communicative, but is flawed sonically and technically	38x19x23	80	88	• • 68
▲ Rogers LS2a/2	220	G Balance is a bit warm and rich but 2a/2 has delightful mid-to-treble coherence and transparency, and more welly than Mk1	35.5x23x22	30	84	• • 106
Rogers LS4a/2	300	A+ Civilised but a trifle lazy, this large bookshelf model hasn't quite the timing or agility to be particularly engrossing	43x25.5x25.5	25	86	• • 110
Rogers LS6a/2	350	G Largish stand-mount is well built, measures well, good material value, but sounds a bit heavy and lacklustre	51x28x29.5	22	87	• • 114
Rogers LS8a	450	A+ A mixed bag, with plenty of scale and welly but lacking the subtlety, clarity and agility delivered by some rivals	89x25.5x25	48	91	• • 102
▲ Rogers Studio 3	450	G Pricey LS3/5A-derived wall-mount sub-miniature is excitingly coherent if a bit lightweight; no real loudness capabilities	31x19x17	30	83	• • 118
▲ Rogers Studio 1a	599	G- Classic BBC monitor sound sensitively updated – transparent and natural with fine stereo, but a touch 'heavy' in balance	63.5x30.5x30.5	36	87	• • 66
▲ Rogers Studio 7	880	G Latest variation on classic BBC-monitor theme looks old fashioned but has beautifully voiced, laid back sound	63x30.5x30.5	30	88	• • 122

Audio Designs



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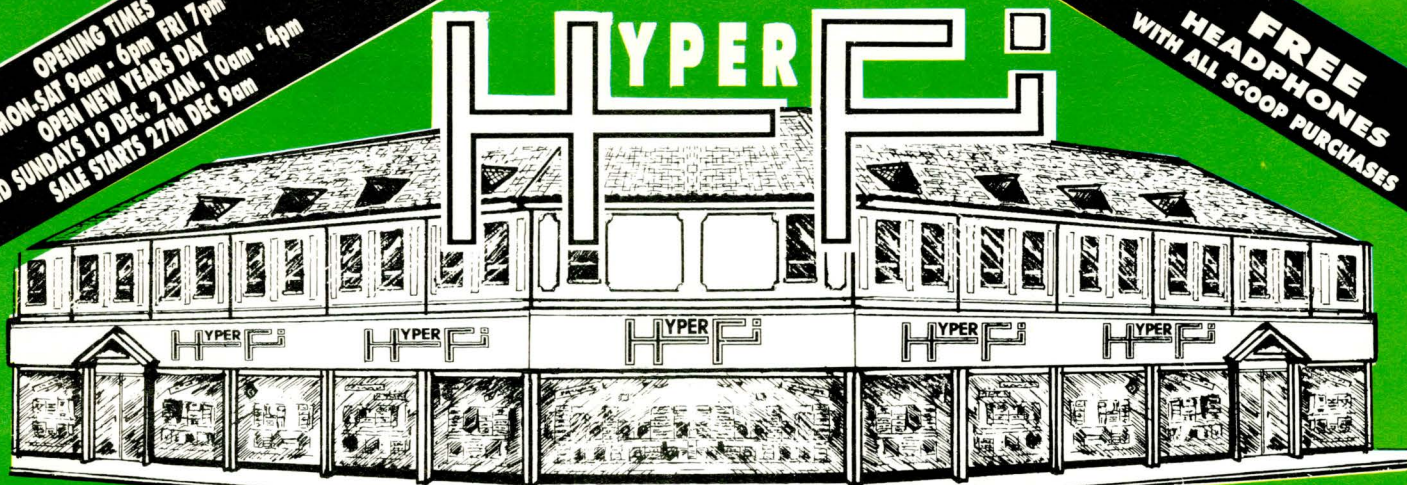
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- QUALITY COMPACT DISC
- 3 BEAM LASER PICK UP
- 20 SELECTION PROGRAM
- REMOTE OPTIONAL
- DIGITAL OPTICAL OUTPUT
- SMLINE BLACK 240 VOLT

HALF PRICE **£49.95** SCOOP

SONY

CDPM33

- 1 BIT D/A CONVERTER
- 45 BIT NOISE SHAPING DIGITAL FILTER
- 20 TRACK MUSIC CALENDER
- PEAK SEARCH

HALF PRICE **£69.95** HALF PRICE

PHILIPS

CD920

- FAMOUS PHILIPS QUALITY
- HIGHLY REVIEWED WHAT HI-FI
- BITSTREAM D.A.C. DIGITAL OUTPUT.
- FULL FUNCTION REMOTE
- DIRECT ACCESS. EDIT MODES

Also AK601
 MIDI CD
 £69.95

SAVE **£50** **£109.95**

SALE NEWS

SALE

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MARANTZ CD4211 £99.95

ROTEL RC960 £99.95

CAMBRIDGE A75POWER AMP £49.95

DENNON TU260L £99.95

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MARANTZ C165 VIDEO DISC £99.95

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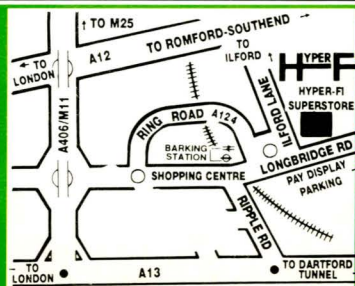
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& SUNDAYS 19th DEC & 2nd JAN
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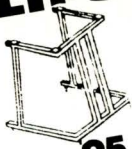
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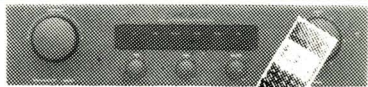
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PAIR**HYPERFI****SONY RACK**VERSATILE
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CONSTRUCTION
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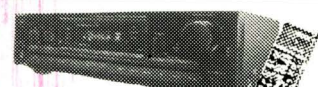
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£ **29.95**
SAVE
£70**AMPLIFIERS****PHILIPS**

- 2 x 43 WATTS 8 OHMS
- FULL SYSTEM REMOTE
- TWIN SPEAKER CONNECTIONS
- SUPERB BUILD QUALITY & SOUND
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- 435 MM WIDE. SOFT TOUCH CONTROLS

FA920Also FT920
REMOTE TUNER
£79.95HALF PRICE
SAVE £80
£ **99.95**
HALF PRICE**AMPLIFIERS****KENWOOD**

- HIGHLY REVIEWED WHAT HI-FI
- 44 KEY REMOTE CONTROL
- 2 x 60 WATTS 20HZ -20KHZ
- 2 x 140 WATTS DYNAMIC POWER
- PURE SIGNAL GROUND LINE

KA4040RSAVE
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£ **169.95****RECEIVERS****SONY AVV**

- A.V. REMOTE RECEIVER
- DOLBY SURROUND SOUND
- 2 x 60 WATTS FRONT 2 x 10 WATTS REAR
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- DYNAMIC BASS FEEDBACK SYSTEM

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- REMOTE CONTROL MOTORIZED VOL
- TWIN DRIVE POWER SUPPLY
- HEAVY DUTY BINDING POSTS
- TWIN SPEAKERS. SEARCH DIRECT SWITCH

TAF319RSAVE
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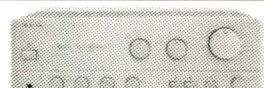
- EXCLUSIVE U.K. AUDIOPHILE DESIGN
- HIGHLY REVIEWED
- 2 x 90 WATTS RMS 8 OHMS
- PURE STRAIGHT PATH DESIGN
- MM + MC CART INPUTS

TAF540FSAVE
£80
£ **169.95****TUNERS****PHILIPS**

- QUALITY DIGITAL TUNER
- AM/FM 30 PRESET
- REMOTE CONTROL OPTION
- REMOTES WITH FA920 AMP
- 435MM WIDE

FT920HALF PRICE
£ **79.95**
HALF PRICE**YAMAHA AVV**

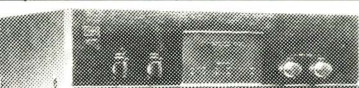
- FULL AUDIO/VISUAL FUNCTION
- 90 WATTS PER CHANNEL
- INFRA-RED REMOTE
- 6 INPUTS INC TWO TAPE
- SOURCE DIRECT. LOUDNESS
- TWIN SPEAKER OUTPUTS

AXV401SAVE
£60
£ **139.95****PIONEER**

- 2x95 WATTS 20HZ - 20KHZ
- 2 x 200 WATTS DYNAMIC POWER
- SUPER LINEAR CIRCUIT
- DIRECT SWITCH 7 INPUTS
- RECORD SELECTOR HIGH GAIN PHONE EQ.

A676GAlso A676BL
£229.95SAVE
£100
£ **199.95****SONY**

- HIGHLY REVIEWED TUNER RANGE
- DIAL TUNING SYSTEM AUTOSCAN
- 30 RANDOM PRESET
- 3 WAVEBAND
- QUARTZ LOCKED SYNTHESIZER

STS170SAVE
£20
£ **99.95**
SAVE
£20**SONY AVV**

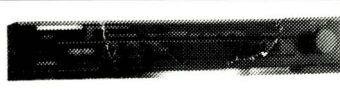
- 2-4 CHANNEL POWER AMP
- MULTI CHANNEL/ SURROUND SOUND
- 4 x 50 WATTS RMS 8 OHMS
- 2 x 100 WATTS RMS 8 OHMS
- 2-4 CHANNEL SWITCHABLE

TAN 220BSAVE
£90
£ **139.95****NAKAMICHI**

- HIGHLY REVIEWED WHAT HI-FI & HI-FI CHOICE
- "SWEET CRISP DETAILED AMPLIFIER"
- AUTHORISED U.K. DEALER STOCK
- 2 x 40 WATTS 8 OHMS
- 2 x 57 WATTS DYNAMIC POWER

1A3SAVE
£150
£ **199.95****KENWOOD**

- FM/LW/MW 30 PRESETS
- 12 STATION NAME PRESETS
- 6 EVENT PROGRAMME TIMER
- 60 MINUTE SLEEP TIMER
- SUPERB QUALITY

KT2030LSAVE
£40
£ **99.95**
SAVE
£40**MARANTZ AVV**

- DOLBY SURROUND PROCESSOR
- DOLBY PRO LOGIC
- 30 WATT BUILT IN REAR AMP
- SINGLE MASTER VOL CONTROL
- SUITABLE FOR MOST SEPARATE SYSTEMS

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£90
£ **159.95****SONY**

- 100 WATTS RMS 8 OHMS
- GIBRALTER CHASSIS
- 7 INPUTS. TWIN DRIVE POWER SUPPLY
- SOURCE DIRECT/RECORD OUT SELECT
- MM/MC. PREOUT. AB SPEAKERS
- HIGHLY REVIEWED AMP

TAF670ESSAVE
£150
£ **249.95****ROTEL**

- HIGHLY REVIEWED WHAT HI-FI
- AM/FM DIGITAL TUNER
- 3 BANDS 20 PRESETS

RT930AX

RT950 £169.95

SAVE
£40
£ **119.95**

TOTAL INFORMATION 1 800 1 105 1 600 1 600 2

TUNERS

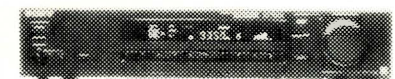
SONY



- HIGHLY REVIEWED WHAT HI-FI **STS570RDS**
- BEST TUNER IN CLASS (£200 WHAT HI-FI)
- RADIO DATA SERVICE RDS SYSTEM
- RADIAL POWER SUPPLY
- DIAL TUNING SYSTEM
- ALPHA NUMERIC DISPLAY
- 30 RANDOM PRESET 3 WAVEBAND

SAVE £80 **£149.95**

SONY

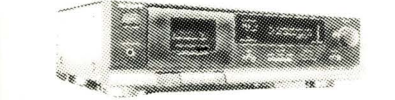


- HIGHLY REVIEWED RANGE **STS770ES**
- 3 WAVEBAND AM/FM/LW
- WAVE IF. DIRECT DETECTION
- 30 RANDOM PRESETS
- STATE OF THE ART QUALITY
- ALPHA NUMERIC DISPLAY

SAVE £100 **£199.95** SCOOP

CASSETTE DECKS

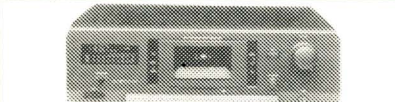
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- QUALITY CASSETTE DECK **TCFX170**
- DOLBY B+C
- FINE BIAS ADJUST
- AUTO TAPE SELECT
- MULTIPLEX FILTER

SAVE £15 **£79.95** SAVE £15

PHILIPS



- SUPERB QUALITY CASSETTE DECK **FC920**
- SINGLE AUTO REVERSE.
- DOLBY B.C. & HX PRO
- SOFT TOUCH CONTROLS
- FLOURESENT DISPLAY 435MM WIDE

SAVE £50 **£129.95**

YAMAHA



- QUALITY TWIN CASSETTE **KXW162**
- DOLBY B+C N.R.
- NORMAL OR HIGH SPEED DUBBING
- LEFT & RIGHT RECORD LEVEL
- 2 MOTOR MECHANISM

SAVE £50 **£129.95**

SONY



- HIGH REVIEWED CASSETTE RANGE **TCK490**
- THREE HEAD 2 MOTOR SYSTEM
- DOLBY B.C. HX PRO
- FINE BIAS CONTROL
- GOLD PLATED H/P SOCK VOL. CONT.
- OPTIONAL REMOTE CONTROL

SAVE £££ **£169.95**

CASSETTE DECKS

PIONEER



- 3 HEAD CASSETTE **CTS 510**
- INFRA RED REMOTE
- DOLBY B. C. HX PRO
- ELECTRONIC COUNTER
- H/P OUTPUT MUSIC SEARCH

Also CTS210 £99.95
CTS410 £169.95

SAVE £20 **£199.95**

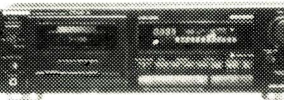
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- FIVE CASSETTE CAROUSEL **TCC5**
- CONTINUOUS RECORD/PLAY FOR 7.5 HOURS
- 3 MOTOR AMORPHOUS HEAD
- REMOTE CONTROL POWER LOADING
- DOLBY B.C. HX PRO. HIGH SPEED DUBBING

SAVE £100 **£199.95** SCOOP

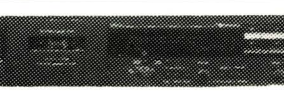
PIONEER



- HIGHLY REVIEWED CASSETTE **CT5610**
- DUAL CAPSTAN 3 HEAD DECK
- DOLBY BC HX PRO
- CD DECK SYNCRO
- MUSIC SKIP DISPLAY OFF

SAVE £70 **£229.95**

NAKAMICHI



- FIVE STAR WHAT HI-FI REVIEW **DR3**
- HIGHLY REVIEWED HI-FI CHOICE.
- SUPERB QUALITY 2 HEAD MACHINE
- OUTSTANDING RECORD QUALITY
- AUTHORISED UK DEALER STOCK

Also DR2 & DR1 UNBEATABLE

SAVE £££ **£ Censored**

AKAI



- RECOMMENDED HI-FI CHOICE **GX9511**
- 3 HEAD SUPER GX (10 YEAR GUARANTEE)
- CLOSED LOOP DUAL CAPSTAN DRIVE
- DOLBY B, C & HX PRO (SWITCHABLE)
- AZIMUTH & HEIGHT ADJUSTMENT

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SYSTEMS

PIONEER



- J3M
- FULL REMOTE MIDI HI-FI
- 2 X 80 WATTS SEPERATE POWER AMP
- 13 BAND SPECTRUM EQUALISER
- AM/FM DIGITAL SYTHESIZER TUNER
- TWIN AUTO REV CASS DOLBY B.C. HX PRO
- MULTI-PLAY COMPACT DISC
- TIMER PROGRAM EDIT

SAVE £230 **£599.95**

COMPACT DISC

SONY



- QUALITY COMPACT DISC **CDPM43**
- 1 BIT D/A CONVERTOR
- 45 BIT NOISE SHAPING DIGITAL FILTER
- 20 TRACK MUSIC CALENDER
- PEAK SEARCH

HALF PRICE **£99.95** HALF PRICE

PHILIPS

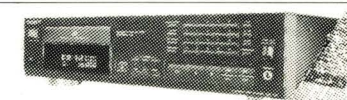


- FAMOUS PHILIPS QUALITY **CD692**
- HIGHLY REVIEWED WHAT HI-FI
- BITSTREAM D.A.C. DIGITAL OUTPUT
- FULL FUNCTION REMOTE

Also AK601 MIDI CD £69.95

SAVE £40 **£99.95** SAVE £40

SONY



- GREAT FEATURE REVIEW WHAT HI-FI **CDP597**
- 45 BIT 8 DAC D/A CONVERSION.
- DIGITAL SERVO SYSTEM
- FULL REMOTE/REM VOL
- TIME/MANUAL FADE

SAVE £50 **£129.95**

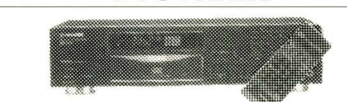
PHILIPS



- QUALITY MULTI CD * 5 DISC CAROUSEL **AK701**
- MEMORY 50 TRACKS * CHANGE DISC DURING PLAY
- SHUFFLE PLAY ALL DISCS
- 16 BIT 4X OVERSAMPLE
- TOUCH TO CLOSE TRAY

SAVE £££ **£129.95**

PIONEER



- HIGHLY REVIEWED RANGE **PDS601**
- STABLE PLATTER MECHANISM
- 1 BIT DIRECT LINEAR CONVERSION
- ANTI RESONANCE DESIGN
- OPTICAL DIGITAL OUTPUT
- H/P MOTOR DRIVE OUTPUT

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SONY



- 5 DISC MULTI PLAY C.D. **CDP322M**
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- 20 TRACK MUSIC CALENDAR
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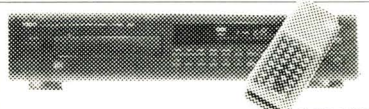
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COMPACT DISC

YAMAHA

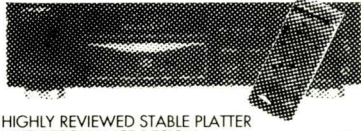


CDX 660

- UK SPECIFIED FOR SOUND QUALITY
- 1 BIT PDM CONVERTOR
- REMOTE CONTROL INCLUDES VOLUME
- RANDOM AND PROGRAM PLAY
- DIGITAL OUTPUT

SAVE £80
£169.95

PIONEER



PDS 701

- HIGHLY REVIEWED STABLE PLATTER
- ANTI RESONANCE DESIGN
- 1 BIT DIRECT LINEAR CONVERSION
- SEMI CENTRE TRAY OPTIC DIGITAL OUT
- DISPLAY OFF CONT. CD DECK SYNCRO

SAVE £90
£179.95

PIONEER A/V



CLD2600

- LASER DISC PLAYER
- ANALOGUE PAL SYSTEM
- 1 BIT D/A CONV.
- PLAYS NORMAL C.D
- OPTICAL DIGITAL OUTPUT
- SCREEN DISPLAY

HALF PRICE
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SPEAKERS

SONY

SSA505

- QUALITY BRITISH BUILT SPEAKERS
- 100 WATT POWER HANDLING
- 3 WAY INFINITE BAFFLE SYSTEM.
- SENSITIVITY 88DB PER WATT 1 METRE
- DELUXE BLACK ASH FINISH
- 250 X 470 X 195MM



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MINIM

- IMPROVED MODEL UP FROM MINI MONITOR
- RECOMMENDED HI-FI CHOICE
- 70 WATTS POWER RATING
- FERRO FLUID DOME TWEETER
- HARD WIRED X/OVERS
- LARGE DIAMETER TERMINALS
- WALNUT OR BLACK FINISH



Also SONATA
£20 EXTRA

SAVE £££
£ Censored SAVE £££

SPEAKERS

J.P.W.

SONATA

- HIGHLY REVIEWED WHAT HI-FI
- WHAT HI-FI AWARD WINNER
- HI-FI CHOICE BEST BUY
- 70 WATTS HANDLING
- FREQ RANGE 70HZ - 20KHZ
- WALNUT FINISH
- 320 x 230 x 210mm



SAVE £30
£69.95 SAVE £30

CELESTION

CELESTION 1

- RECOMMENDED WHAT HI-FI AWARDS
- 2 WAY BASS REFLEX
- 50 WATTS POWER HANDLING
- SENSITIVITY 86 DB SPL 1W/1M
- FREQ RES 78HZ-20KHZ
- 5 ELEMENT CROSSOVER



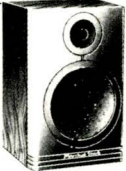
ALSO DITTON ONE
£139.95

SAVE £40
£69.95 SAVE £40

MORDAUNT SHORT A/V

MSS.10

- FULLY SHIELDED MAGNETS SUITABLE FOR ALL A/V APPLICATIONS
- HIGHLY REVIEWED HI-FI SPEAKER
- NEW IMPROVED TWEETER
- POSITEC PROTECTION SYSTEM
- SHELF OR FLOOR STAND USE
- 100 WATTS HANDLING
- ROSEWOOD FINISH



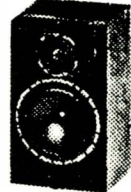
MSS.10 BLACK IMPROVED
TWEETER £99.95

SAVE £40
£89.95 SAVE £40

YAMAHA

NSB50

- HIGHLY REVIEWED RANGE
- 80 WATTS HANDLING
- SENSITIVITY 89DB
- 2 WAY SYSTEM. U.K. BUILT
- STAND OR SHELF MOUNTING
- 400 x 220 x 210MM

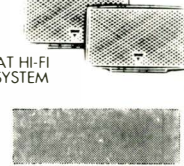


HALF PRICE
£89.95 HALF PRICE

CELESTION A/V

THIRD DIMENSION

- HIGHLY REVIEWED WHAT HI-FI
- 3 PIECE SUB WOOFER SYSTEM
- 60 WATTS HANDLING.
- 89 D.B. SENSITIVITY
- DELUX BLACK FINISH



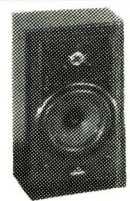
SAVE £90
£99.95 SAVE £90

SPEAKERS

CELESTION

DITTON 2

- HIGHLY REVIEWED RANGE
- CLASSIC SPEAKER QUALITY
- 100 WATTS HANDLING
- 2 WAY INFINITE BAFFLE
- SUPERB BLACK ASH FINISH
- DELUXE AMERICAN WALNUT FINISH £169.95

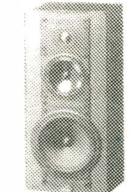


SAVE £££
£149.95 SAVE £££

CELESTION

CELESTION 9

- HIGHLY REVIEWED HI-FI CHOICE
- HIGHLY REVIEWED WHAT HI-FI
- 100 WATTS HANDLING
- 3 WAY BASS REFLEX
- SUPERB DARK OAK FINISH

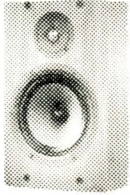


SAVE £70
£199.95

WHARFEDALE

COLERIDGE

- HIGHLY REVIEWED HI-FI CHOICE
- 100W POWER HANDLING
- FREQUENCY RESPONSE 45HZ-25KHZ
- SENSITIVITY 89DB
- DELUXE REAL WALNUT VENEER FINISH
- FBB15 SPIKED STANDS £39.95
- BLACK FINISH £199.95



SAVE £350
£249.95

CELESTION

CELESTION 15

- RECOMMENDED HI-FI CHOICE
- HIGHLY REVIEWED WHAT HI-FI
- FLOOR STANDING 2 WAY DESIGN
- TITANIUM DOME TWEETER
- 100 WATTS HANDLING
- SUPERB DARK OAK FINISH



SAVE £90
£299.95

MORDAUNT SHORT A/V

MSS.50

- HIGHLY REVIEWED SPEAKER
- FLOOR STANDING BASS REFLEX
- 89 DB 1 WATT SENSITIVITY
- TWIN BASS UNITS DOME TWEETER
- ROSEWOOD FINISH



Also DELUXE BLACK
FINISH
£349.95

SAVE £70
£329.95

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Ref 40	£429.90
Ref 50	£549.90
Ref 60	£749.90
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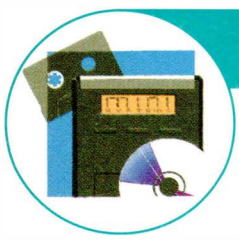
MINIM	£79.90
Sonata	£114.90
AP2	£179.90
AP3	£224.90

KEF

K120	£169.90
K140	£239.90
K160	£329.90
Q10	£199.90
M90</	

Loudspeakers continued

Product	£Price	Comments	Size: HxWxD (cm)	Site Sensitivity (dB)	Site in free space Bass from (Hz)	Floorstanding	Issue No.
▲ Roksan Darius	1895	G+ Provides an exceptionally impressive combination of transparency and delicacy with fine information retrieval and speed	47x27x40	20	82	•	86
Royd Topaz	173	A+ Cheerful, articulate and essentially communicative miniature can also sound a trifle scrappy and shut in; well worth trying	30.5x20.5x19	50	87	•	114
Royd Abbot	666	A+ Engaging and dramatic dynamics and fine transient coherence are hampered by a rather coloured mid-forward balance	83x20x34	43	88	•	118
Ruark Swordsman Plus	299	A Real wood variation on the Swordsman theme looks and measures rather better than it sounds	38x20x28	27	84	•	98
Ruark Templar	479	A+ Compact floorstander with striking baffle has decent bass/mid but dull treble; could tame over-bright system	73x19x27	25	85	•	122
▲ Ruark Talisman 2	700	G Less ideologically committed than some compact floorstanding rivals, its key strength lies in fine all round compromise	86x25x31	30	86	•	118
SD Acoustics Ribbon	2295	G+ Amplifier sensitive, Ribbon is a lively and loud hybrid marred by some colorations; some like it, others don't	152x30x(15-30)	30	91	•	81
▲ SD Acoustics SD1	1650	G+ A large scale, airy and unusually detailed system with excellent dynamics. A warmer balance than original model	123.5x38.2x32	50	90	•	60
▲ SD Acoustics SD3	399	G Port firmly blocked, the new SD3 has the agility and charm of a quality miniature, with good bass extension but low sensitivity	38x19.5x29	25	83	•	106
SD Acoustics SD4	699	G Tall slim floorstander has fine balance, good bass extension and lovely open midband transparency	100.5x20x30.5	25	85	•	114
Sequence 30	200	A Radical slimline hang-it-on-the-wall design has performance comparable to a typical miniature, with reasonable overall balance	87x25x7	50	85	•	114
Shahinian Arc	1062	G Unusual and occasionally wonderful small floorstanding omni; too bright but exceptionally coherent and revealing	69x35x25	24	85	•	110
Snell JIII	770	G Dated styling belied by fine sensitivity and bass extension, and a lively if slightly untidy and not quite coherent sound	58x33x25	30	89	•	118
▲ Spendor S20	535	G Maintains Spendor's tradition for peerless mid-to-treble coherence and perspectives. Bass is rather unconvincing.	38x22x26	25	83	•	102
Spica Angelus	1295	A A little bass shy and soft in the bass and lower mid, otherwise tidy, extremely lively and fluid, if uneven overall	116.8x53.3x26	50	86	•	60
Spica TC50	599	G This triangular-profile 'grown up' miniature is a shade boxy and laid back but has good rhythmic and musical integrity	40.5x33x29	55	88	•	71
Spica TC50SE	799	G A heavily UK-modified TC50, the SE sounds less boxy and more spacious, but lacks some of the urgency of the standard model	40.5x33x29	55	88	•	71
▲ TDL RTL3	400	A+ Bargain price floorstander has rich, heavy and bright sound with good scale and fine basic neutrality	92x20x38	25	88	•	126
TDL Studio 0.5	499	G Tiny floorstanding transmission line has good agility but doesn't provide the coherence or even balance of Studio 1	55x20x30	40	85	•	94
▲ TDL Studio 1	699	G Genuinely extended bass from a compact enclosure, very detailed but a shade clinical and detached in presentation	76x23x33	25	84	•	78
▲ TDL Studio 1M	899	G+ Transmission line helps bring the best from metal cone driver: lovely transparency and fine bass extension	81x23x33	<20	84	•	118
▲ TDL Reference Monitor	1999	G+ Fine solidity and good accuracy, with great bass extension. Needs a big room and can sound a bit lazy and a shade tinkly	118.5x30x47	28	85	•	66
▲ Tannoy 607 II	220	A Large bookshelf, smart hexagonal box has fine bass for the price, but treble sounds rather shut in	50x32x24	25	88	•	122
▲ Tannoy 609 II	295	A+ Large bookshelf size model with dual concentric driver has fine balance and scale with low coloration	50x32x24	22	86	•	126
▲ Tannoy Westminster	6000	G+ These awesome horn loaded speakers are remarkably controlled and impressive, if only suited to a few pockets and rooms	Huge	38	96	•	Col
Technics SB-EX2	180	A Nicely presented, well built and decent size enclosure sounds solid but somewhat dull	48x23.5x27	20	86	•	98
▲ Technics SB-RX50	650	A+ A smooth and well balanced loudspeaker, its minor weakness being a mildly excessive low bass	48x30x26	40	86	•	46
▲ Thiel SCS	1069	G Luxury piano-gloss compact sets class-leading standards for coherence and communication, can sound a shade dark and shut in	40x22x23	45	87	•	114
Thiel CS1.2	1219	G Elegant compact floorstander has fine balance and dynamic range, but transient timing and dynamics are less convincing	94x27x27	30	86	•	118
▲ Totem Model One	995	G Utterly delightful but exasperatingly expensive luxury miniature sets the benchmark for its size	31x16.5x23	28	86	•	122
Vandersteen Model One	1395	G+ This compact American floorstander's elegant staggered baffle arrangement contributes to a refreshing freedom from boxiness	100x30.7x25.6	23	87	•	86
Visonik David 6001	173	P Sharp styling but the complex grillework worsens a sound which starts off with too much top and not enough bottom	20x12x13	130	87	•	74
▲ Wharfedale 425	200	A+ Large bookshelf size 505 heir shows fine control and a conservative balance ideally suited to quality systems on a budget	40x27x26	45	87	•	118
▲ Wharfedale 515	260	G An update on the 505 theme, this is still more evenhanded, with better bass extension and smoother treble.	40x25.5x30	28	85	•	106
Wharfedale 517	400	A Half as big again as the 515, should offer an improvement, but somehow has a less effective overall subjective balance	53x26.5x34	25	86	•	110
▲ Wharfedale Delta 30.2	100	A Has a bigger main driver than many, and so packs a bit more welly and loudness. Coloration is rather obvious, but timing is good	38x22x17	48	88	•	98
▲ Wharfedale CRS3	110	A+ Loads of fun — a remarkably coherent and lively performer at any price; pity it doesn't look prettier	38x22x18	50	88	•	122
Wharfedale Diamond V	130	A This miniature is smoother than most, but rather stodgy with it, inspiring little enthusiasm among our listeners	27x18x20	50	86	•	114
▲ Yamaha NS 1000M	1200	G+ Living up to its monitor label, and tonally well suited to digital material, it's superbly crafted and capable of high levels	67.5x37.5x32.5	40	90	•	46
▲ Zyp A1	199	A+ Cute metal cased micro-miniature is quite coloured but great fun, with surprising dynamics and fine wall-loaded room balance	22.5x14.5x13	30	85	•	110



Stack systems

Stack systems is a generic title that we've chosen to describe any form of complete system package. Fundamentally what we're talking about here is midi and mini systems, you know those all singing all dancing, lights blazing systems that hi-fi snobs are allergic to. Sold on the basis of their ability to play virtually all mediums at the flick of a remote control switch stack systems offer a plethora of features, and the dearer the system the more complex

they tend to become. With things like double cassette decks, multi preset tuners, CD players and graphic equalisers supplied as standard the big boys of the stack world offer such luxuries as Surround Sound, separate chassis for different components and occasionally a record player. They usually have a few line inputs for extra sources and a few are available without loudspeakers. As the latter are often the weakest part of a stack system buying good quality speakers

separately will bring worthwhile improvements. The section headings for stack systems include size of the complete stack without speakers and rated output per channel — where a system has more than two channels this is indicated in the comments. Tuner presets and the existence of a remote control are self explanatory. A blob in loudspeakers shows that they supplied, an o indicates that they are optional. The final column is for those of you with records to play.

Stack systems

Product	£Price	Comments	Size: HxWxD (cm)	Rated output Watts	Remote control	Loudspeakers	Turntable	Issue No.
▲ Denon D110	870	G Nearly hi-fi from pretty but pricey silver stack; richer, fuller speakers would help	37x27x33	40	30	•	o	125
Goodmans System 700	735	A Separates flexibility and upgraeability in remote midi package; anodyne sound	69x35x37	50	20	•	•	125
▲ JVC MX7G	799	A Wondrous 2-speaker surround movie sound system, but a very uneven package elsewhere. Four by 20W output	42x28x28	20	40	•	•	125
Philips FW91	999	A+ Good looking and performing package rendered expensive by inclusion of DCC deck	37x26x32	60	30	•	•	125
▲ Pioneer N53M	549	A+ Cheap, occasionally nasty but undeniably cheerful and entertaining if horrid speakers are discarded	36x26x28	30	24	•	•	125
▲ Technics SC-CH950	1000	A+ Classy if rather bland allrounder includes useful Dolby Pro-Logic AV capabilities	42x27x34	60	39	•	•	125

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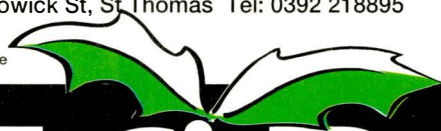
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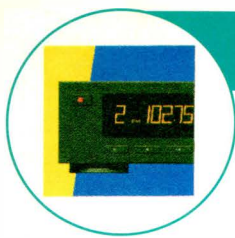
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RADFORDS



Tuners

The radio medium operates at a much lower profile than TV, but in areas outside pop music the BBC service is the envy of the world. Live Prom concerts can rival all other sources from a hi-fi perspective.

Only the FM (VHF) bands give stereo hi-fi sound, though AM (MW & LW) are useful for certain transmissions in the UK.

Something of a hi-fi afterthought, tuners are often selected merely to match a chosen amplifier

cosmetically. However, the task they carry out is far from simple, combining the skills of RF (reception) and audio (signal processing) engineering. The importance of the former will depend on local reception conditions, but money invested in a high quality outside aerial system is well spent.

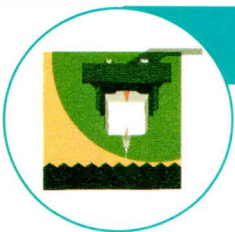
Tuners come in two basic types. Analogue models tune gradually (and usually manually) across the bands, and can have analogue or digital

displays; they are often preferred for sound quality, and are certainly best for AM bands. Digital tuners offer convenient automatic tune facilities and pre-set memories.

The 'Presets' column heading shows how many different frequencies a tuner can memorise for instant access. FM, LW and MW show which wavebands it can access. 'Signal strength meters' are useful for aerial alignment. 'Automatic tuning' means that a tuner can seek out signals for you.

Tuners

Product	£Price	Comments	Presets	Signal strength meter			Automatic tuning	Manual tuning	Issue No.
				FM	LW	MW			
Aiwa XT-003	120	A- Economically designed and built in the UK, but trade-offs have a marked influence on FM and AM sound quality.	30	•	•	•	•	•	93
▲ Akai AT-93L	280	G+ By AM standards presentable (good) while FM delivers the goods	20	•	•	•	•	•	65
Arcam Delta 280	350	G+ Fine sound quality marred by mild synthesiser whine; RF performance only average, remote £60 extra	20	•			•	•	120
▲ Audiolab 8000T	700	VG Unusually combines fine sound quality and RF performance (inc AM); superb ergonomics are a joy to use	39	•	•	•	•	•	120
Aura TU-50	300	G Tonally neutral, but with rather poor imaging and a certain woodiness to the sound.	16	•			•		109
Creek T40S3	250	A Analogue tuner. Sample was hampered by an obvious bass 'hump', production units are said to be cured		•			•		93
▲ Denon TU-260L	120	G+ Bare minimum of features. Careful designwork promises a surprisingly open and vivacious sound, so don't overlook it!	20	•		•	•	•	93
▲ Denon TU-580RD	220	G Fine feature package including remote and RDS, plus excellent RF performance and decent sound quality	30	•		•	•	•	120
Harman Kardon TU9200	200	A The listening panel appreciated its liveliness, but found it a little muddled.	32	•		•	•	•	109
▲ Harman Kardon TU9400	270	G+ Striking in appearance and with a sound to match, it comfortably exceeded our expectations. On stereo FM it's HK's best yet.	24	•		•	•	•	93
Harman Kardon TU9600	380	G Good bass and detail, and good - perhaps slightly enhanced dynamics	24	•		•	•	•	109
Kenwood KT-3050L	170	A Excellent RF performance and plenty of features including RDS, but did sound rather ordinary under our conditions	39	•	•	•	•	•	120
▲ Linn Kremlin	1779	E Controversially good sound at a very high price. The reviewer's saving up but you should check it out for yourself	80	•			•	•	120
▲ Magnum Dynalab FT101	795	G+ Although expensive for its fairly minimum set of facilities, its excellent sound makes up for what it lacks elsewhere		•			•	•	72
▲ Marantz ST-40L	140	G Slow to tune but provides a meaty and dynamic sound on FM. AM too has a little extra bite to its performance	30	•	•	•	•	•	93
Meridian 204	660	G Pleasant sounding with a fine finish but does not make the grade at this price	18	•			•	•	55
▲ Meridian 604	1350	VG Unique digital convertor makes most sense in Meridian system context; smooth sweet sound with fine front end	30	•			•	•	120
▲ Naim NAT 01	1425	E There may be better sounding tuners in the world, but we have yet to hear one		•			•		50
Nakamichi ST-7E	765	G+ Exceptionally good for weak-signal areas, and good all round	16	•	•	•	•	•	55
▲ Quad FM4	424	G+ Fine sound, excellent ease of use, good build and finish and a more than satisfactory technical performance	7	•			•	•	50
Quad 66	519	G+ Very pretty and compact but technically unadventurous. Smooth sound but only makes sense in Quad system context	19	•			•	•	120
▲ Rotel RT-930AX	160	G- A competent rather than exciting performer, with low audible interference though slightly compressed and muddled sound.	20	•	•	•		•	108
▲ Rotel RT-950BX	200	G+ Fine fast and coherent sound quality for price, but RF performance only adequate and sample build was suspect	20	•	•	•	•	•	120
Sherwood TX-3010C	120	A Lots of features and fine RF discrimination for price. Sound is communicative but inconsistently tacky	30	•	•	•	•	•	120
▲ Technics ST-G70L	200	G+ Another very polite and refined-sounding tuner but one that does retain just enough sparkle to keep your interest. Plenty of widgets	39	•		•	•	•	93



Turntables – cartridges

Cartridges fall into two groups: high output models, capable of working directly into most amplifiers and categorised as having a normal (N) output, and more expensive low and very low output models (L, VL). Stereotypically, low output cartridges use the moving coil principle of operation, have better mechanical integrity and tighter tolerances, and

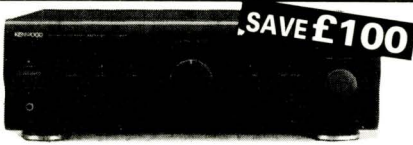
give better performance but at much higher cost. With CD now the dominant medium many amplifiers are no longer equipped with the necessary phono input for a cartridge and a separate phono stage is necessary. Valve designs need either an extra head amp or transformer to cope with the low output of moving coil cartridges.

Cartridge/amplifier interfacing can be very

subtle, but even basic high output MM designs benefit in overall balance from optimised amplifier capacitance loading. The mechanical characteristic of cantilever compliance ('springiness') needs to be considered in the light of the effective mass of the tonearm, and to achieve a good match compare the effective mass requirements figures with the actual effective mass of specific arms.

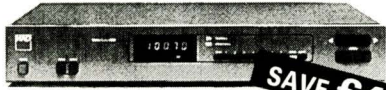
Turntables – cartridges

Product	£Price	Comments	Arm effective mass (g)	Output	MM	MC	Issue No.
▲ Arcam C77Mg	40	A Punchy sound quality with plenty of extra energy to liven things up. The solid body seems well worth the extra £10	4-8	N	•		67
▲ Arcam E77Mg	60	A Our sample had a disappointing stylus, but gave a coherent, rich and laid back sound, with good 'scale'	3-8	N	•		48
▲ Arcam P77Mg	73	A+ Preferred to its cheaper partner by virtue of a better tip. Channel balance could have been better	4-9	N	•		48
▲ Audio Note IO IIV	1395	E One of the best, giving 'an extraordinarily relaxing midrange clarity', needs a transformer	8-18	VL		•	100
▲ Audio-Technica ART1	850	VG This is a delicate and very fluid-sounding MC that tracks well, offers very low distortion and exceptionally good separation	9-18	L		•	72
▲ Audio-Technica AT-420E	36	A Better suited to pop recordings, this MM bears some of the sonic hallmarks of the Linn K5	7-14	N	•		67
▲ Audio-Technica AT-95E	20	A Clear, dynamic if richly balanced, the magnetic '95E is a definite Best Buy	8-14	N	•		48



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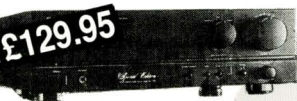
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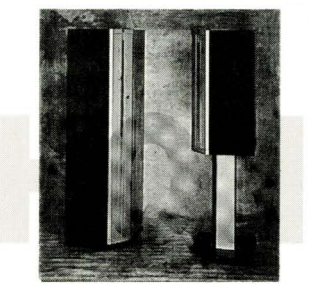
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AMPS Kenwood KA3020	£295.95	£309.95	£345.95	£369.95	£409.95	£429.95	
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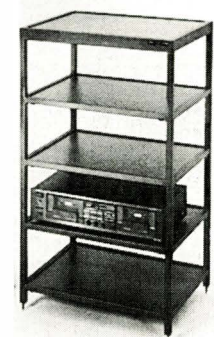
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- Kenwood KX5030, was £199.95
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- Marantz SD62, 3HD, HX PRO, was £249.90
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- Aiwa ADF410 ... £119.95
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- Denon DRS810 3HD ... £299.99
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- NAD 602 ... £199.95
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Tuners:

- Denon TU260L ... £119.99
- Denon TU580RD/RDS ... £219.99
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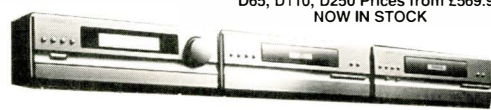
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Suggested Systems

The following suggested system package includes the NAD 5120 Turntable. Alternative items: ie CD Player/Turntable/Cassette deck are available options.

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Turntables – cartridges continued

Product	Price	Comments	Arm effective mass (g)	Output	MM	MC	Issue No.
▲ Audio-Technica OC-10	320	G+ Good treble and good detail too, but some congestion and coloration reduces its informativeness.	4-12	L		•	103
▲ Audio-Technica OC-5	130	G For the price, it's unusually effortless and detailed, but it tends to become rather relentless and tiring after a while.	5-14	L		•	103
Audioquest AQ 404I-L	500	G+ Slight harshness detracted from the performance of this otherwise clear-sounding and detailed cartridge	8-16	L		•	84
Audioquest AQ 7000	1295	G+ Stunning stereo imaging and good detail at low levels are spoiled by less-than-perfect tracking and high sensitivity to arms.	6-20	L		•	91
Denon DL103	100	A+ Good performance in bass and general 'life' is seriously let down by its spherical stylus which kills subtle details.	9-22	L		•	103
▲▲ Denon DL110	70	G Firmly recommended as a fine all-rounder, this high-output MC model is likely to perform well in nearly all circumstances	6-16	N		•	48
Denon DL160	90	G Although listeners just preferred the 110, its brother here proved a twin in lab tests and is still "thoroughly competent"	6-16	N		•	43
▲ Denon DL304	200	VG Uncolored, detailed, neutral, superb tracking; top notch altogether, and a top notch bargain too.	4-12	L		•	103
▲ Dynavector 17D2	298	VG Clear, detailed, neutral and generally very informative - excellent	6-18	L		•	91
▲ Dynavector DV10X IV	138	A+ Fine sounding and realistically priced, damping is recommended to ensure successful tracking ability	8-18	N		•	48
Dynavector XX-1	698	G+ Good, but not immensely competitive at the price, and not helped by comparison with the low output version	7-15	N		•	84
▲ Dynavector XX-1L	698	VG Very clear, very detailed, no troubles with tracking; response lift around 20kHz seems to do no harm	7-13	L		•	84
Empire Benz Micro MC-Gold	150	G Nothing is obviously wrong, but nothing is stunningly right either. Safe, but perhaps a little too safe	7-17	L		•	103
▲ Empire Benz Micro MC-Silver	150	G Ultimately not the peer of the MC Gold is more appropriate to the sort of equipment it's likely to be partnered with	8-18	N		•	103
▲ Empire Benz-Micro MC-3	800	G+ Offers a warmer and very transparent account of the music. Its tracking prowess is slightly limited	5-12	L		•	72
Glanz GMC-10LX	80	A+ Bearing some of the hallmarks of the '10EH, the '10LX is still less competitive in the sonic stakes	7-15	L		•	67
▲ Glanz GMC-20E	129	G+ Very good tracking, smooth sound and good detail. Very slight surface noise enhancement	5-10	L		•	91
▲ Goldring 1012	50	G Slightly harsh sound but plenty of life and quite good detail. Some very high frequency coloration apparent	6-12	N	•		85
▲ Goldring 1022	70	G As with 1012, a touch harsh; detail and transient purity improved, though, and it goes well with electric guitar!	5-11	N	•		85
Goldring 1042	90	G Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively, though	7-12	N	•		91
▲ Goldring Elan	20	A A lightweight and frisky-sounding MM that appears to be based upon the same body as the Nagaoka mm4	7-15	N	•		67
Goldring Elite	200	G The basics are right, and it will cheerfully tackle any source material, but its sound possesses a certain dirtiness	8-18	L		•	103
Goldring Eroica H	100	G- More confused and coloured than low-output LX, high output less of an issue these days	8-15	N		•	84
▲ Goldring Eroica LX	100	G Not the most subtle cartridge in the world; can sound edgy at times, but lively and informative	8-14	L		•	84
Goldring Excel	549	G Errs on the warm and heavy side of neutral. Strong bass lines are its forte, but resolution of subtle treble details is weak	6-13	L		•	72
Goldring Excel GS	600	G+ True high end quality in its lack of colorations, but tracking seems indifferent and high levels tend to sound rough and edgy.	9-20	L		•	103
Kiseki Blackheart	1995	G Demonstrated refined poise and a delicate but at once potent security, however, the price did seem a little on the high side	6-16	L		•	60
Kiseki Blue Goldspot	499	G+ Good bass and imaging, but hints of spit and coloration let the side down slightly	8-15	L		•	84
Kiseki Lapis Lazuli	5000	G+ Combining very sensible design concepts at a silly price, combines the detail of the MC3000 and the fluidity of the Clearaudios	4-12	L		•	60
Kiseki Purpleheart Sapphire	899	G+ Rare, beautiful to look at and sweet to listen to, our review of this high-flyer conjured up images of Japanese art	5-14	L		•	48
▲ Linn K5	49	A+ Not as crisply focused as the costlier Linn magnetics, the K5 offers a smoother presentation	7-16	N	•		67
▲▲ Linn K9	98	G Linn threw this model into the leading pack by beefing up the Basik's bodywork and adding a super stylus	6-15	N	•		Col
London Maroon	199	A+ Now manufactured under the London brand name this Decca cartridge is as iconoclastic as ever	9-20	N	•		67
London Super Gold	339	A- Immediate and detailed, but very coloured, very nonlinear and questionable effect on records. Devotees swear by it	9-15	N	•		84
▲ Milltek Aurora	299	G+ An overall feeling of relaxed ease characterised this clear and atmospheric Kiseki-built cartridge	8-16	N		•	Col
▲ Nagaoka MP10	19	A High frequencies sounded "shut-in" with this spherical-stylus model, but mid and mass were energetic, bouncy and punchy	5-13	N	•		48
▲▲ Ortofon 510	30	G+ For the price, a good blend of virtues - weight, clarity and neutrality.	3-11	N	•		85
▲ Ortofon 520	50	A+ Very sensitive to load capacitance this new Ortofon maintains the company tradition for a lively, effervescent SQ	7-16	N	•		67
▲ Ortofon 530	80	G+ Very clean and assured sound; transients not quite perfectly pure but plenty of detail.	4-11	N	•		85
Ortofon 540	100	A Graced with FGII stylus but possessed of too high a compliance for broad arm matching. It could also sound a little unforgiving	3-8	N	•		67
▲▲ Ortofon MC10 Super	80	G "What a delightfully sweet-sounding cartridge this is . . ." we said	5-15	L		•	48
▲▲ Ortofon MC15 Super	100	G+ A good all-rounder, with outstanding performance in detail retrieval, even if it can be very slightly bright and close-up	10-24	L		•	103
▲ Ortofon MC3 Turbo	110	G Not terribly subtle, but it obviously doesn't aim at that. The 3 Turbo is bright, cheerful and bouncy - take it as it comes!	10-24	N		•	103
▲ Ortofon MC3000 MkII	900	E Low levels of body resonance are a real ear-opener. Nothing to criticise elsewhere; one of the very best	9-16	VL		•	84
Ortofon MC5000	1500	G Review sample could not be fully run-in, limited tracking ability, bright and forward sound, though imaging is excellent	12-20	VL		•	91
▲ Ortofon Quartz	140	G Lively, quite detailed, and a touch bright, the Quartz has many qualities of the much dearer Quasar	3-12	L		•	91
▲ Ortofon Quasar	350	G+ Many of the qualities of the MC3000, although a touch bright. Good detail and delicacy	8-15	L		•	84
Ortofon Quattro	210	G+ Undoubtedly a competent performer. Generally neutral, but can be edgy and bright in loud passages	6-18	L		•	103
Rega Bias	34	A+ Difficult to mount in some arms due to its shallow build, the Bias offers a gentle, refined SQ	4-10	N	•		67
▲ Rega Elys	74	G Clearly superior to the Bias, despite their common heritage, the Elys is both more detailed, accurate and musically convincing	8-15	N	•		67
▲▲ Revolver	20	A This modified AT-95E enjoys a very lively mid and treble even if the bass is somewhat 'slower' in comparison. A firm budget buy	8-16	N	•		67
▲ Roksan Corus Black	130	G Recognisably related to Corus Blue, but distinctly more civilised and smoother.	7-12	N	•		91
Roksan Corus Blue	75	G Roksan-specified modified Goldring 1012; slight harshness detracts from otherwise good sound	7-12	N	•		91
▲ Shure ME97HE	55	A+ It won't turn a sow's ear of a turntable into a silk purse, but will at least keep going and produce an acceptable result	8-20	N	•		48
Shure V15 VMR	220	A+ Initial listening gave promising results, but extended familiarity gave the feeling of a lack of energy and a "shut-in" sound	5-12	N	•		38
van den Hul Grasshopper III GLA	3200	E Undoubtedly one of the finest cartridges available, it has tremendous bandwidth, energy and finesse	6-10	L		•	122
▲ van den Hul MC One	975	G This extended all the positive qualities of the '10 but added greater authority and scale - worth it for the extra money	6-12	L		•	60
van den Hul MC One Super	1100	G+ Slight softening on transients was the only real flaw, but it didn't quite seem to have that special touch one expects	8-15	L		•	84
▲ van den Hul MC Two	1300	G+ Connected directly to any standard MM input it rewards with a highly detailed yet fluid and musically convincing portrayal	6-13	N		•	72
▲ van den Hul MC10	775	G+ A neutral balanced performer giving transparent midrange, fine depth and focus with firm extended bass. Gosh!	5-10	L		•	60
▲ van den Hul MM1	275	G+ If woody midrange coloration could be tamed, the excellent imaging and admirable security would make it excellent	7-15	L		•	103



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Turntables and tonearms

Specialist turntables are what high fidelity sound is all about. CD 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 (sub-£350) tend to be supplied with matching tonearm, and often include a 'starter' cartridge. Still better quality is found at higher prices

amongst the separate motor units and tonearms. Careful partnering and set-up is essential for these components, but 'sympathetic' combinations exist.

The columns show from left to right, 'arm effective mass' which relates to cartridge compliance and is explained in the 'Cartridges' introduction. 'Suspended subchassis' - decks which have some form of internal isolation, generally in the

form of springs but occasionally more solid materials such as rubber. 'Manual' and 'Automatic' refer to the operational tendencies of the deck/arm combination - automatic high end turntables are as rare as hens teeth. 'Cartridge' - if one is supplied. 'Belt drive' as opposed to direct drive is the preferred method in most quality decks. An 'Electronic PSU' offers switchable speed change and a 'smoother' power supply, and better sound.

Turtables - integrated

Product	£Price	Comments	Suspended subchassis	Manual	Automatic	Cartridge	Belt drive	Electronic PSU	Issue No.
▲ Alphonson Sonata/HR100S MCS	1785	G+ Good sound in all areas - bass, clarity and neutrality all in the top class and bettered by very few decks at price	13	•	•			•	79
▲ Dual CS-503-2	160	A Not wholly inspiring; generally coarse and wooly sound is at least not offensive, but easily bettered by the CS505-4	10			•	•	•	91
▲ Dual CS-505-4	200	A Consistent sounding and well isolated turntable. It is slightly lacking in balls, compensates with a consistently un-muddled presentation	10			•	•	•	103
▲ Dual CS430	120	A- Ragged, sometimes unpleasant cartridge mixes with a modest pleasing player in a very sharply priced package	5			•	•	•	67
▲ Kuzma Stabi/Stogi Reference	2000	G+ Beautifully made solid oak plinth, the Stabi also sounds very clear, detailed and extended. Stogi Reference is very capable.	12	•	•			•	91
▲ Linn Axis/Akito	535	A+ A neat, attractive and well-made package which delivers a rather harsh sound with a 'one-note' effect in the bass	10	•	•			•	79
▲ Linn Basik	299	A+ Strong midband analysis and imagery, clean if sharp treble is matched to a good if occasionally wooden bass	10	•			•	•	103
▲ Linn LP12 Basik/Akito	904	G Trails the full LP12 significantly, but pace, rhythm, timing etc. still in top class, and bass tauter than of old	10	•	•			•	103
▲ Linn LP12-Lingo/Ekos	2642	G+ The classic reference is improved by the Lingo but charming character remains. Ekos is well made and suited to many decks	9	•	•			•	91
▲ Rega Planar 2	185	G A remarkable product at the price, surprisingly articulate and confident	11.5	•	•			•	48
▲ Rega Planar 3	250	G A long time leader in its category, the '3 (with excellent RB300 arm) sounded nicely 'musical' in a balanced and coherent manner	11.5	•				•	48
▲ Revolver Rebel	185	G- Quite lively and detailed but not the strongest on subtlety, with slightly lumpy bass. Motor breakthrough audible	12	•				•	91
▲ Roksan Radius/Tabriz zi	740	G Design is subtle, refined and easy on the eye. Musically it offers exceptional performance with a minimum of fuss	9	•				•	103
▲ Roksan Xerxes 33/Tabriz zi	990	G At its optimum with a relatively inexpensive arm/cartridge unless upgrade to full Xerxes is contemplated. XPSII PSU	9	•				•	103
▲ Roksan Xerxes/Artemis/Artaxerxes	2114	E Superb, highly integrated and synergistic in nature, suitable for use with any good MC. Will not suit all tastes, however	8	•				•	103
▲ Systemdek 1.920	235	A- The motor unit is derivative of the Rega Planar 2 with a Moth arm. Up tempo even bright at times but never lacks enthusiasm	12	•				•	115
▲ Technics SL-DD33	150	A As with the QD33 though better value. P-mount cartridge	7.5			•	•		48
▲ Technics SL-QD33	180	A Quartz controlled version of the DD is short on sound quality but not features. But it did have fair focus and some depth	7.5			•	•		48
▲ Thorens TD-3001/TP90SF	760	G Excellent middle ranking esoterica, with strong all round abilities rather than excellence in particular areas		•	•			•	103
▲ Thorens TD166 VUUK/RB250	280	A- Refined and articulate sound with well focused imagery, suitable for use with good MM and budget MC cartridges	11.5	•	•			•	103
▲ Thorens TD2001	650	G- Similar to TD320 but much dearer - why? Sound is comfortable but not very detailed	15	•		•		•	91
▲ Voyd Reference	5950	E Voyd's flagship, equipped with three substantial motors, a Lexan platter and brute PS. A strong contender for world's best		•	•			•	C91
▲ Well Tempered WTAT	1690	G+ Intriguing/challenging design. Musically it is not ideal, but has a limpid quality and a lack of artificiality that sets standards	7.5	•				•	67

Motor units

Product	£Price	Comments	Suspended subchassis	Solid plinth	Belt drive	Electronic PSU	Issue No.
▲ Michell Gyrodec	697	G Sweet and natural sounding player, well suited to Rega RB300. Aesthetics, and the acres of clear acrylic are very distinctive		•		•	•
▲ Michell Syncro	325	G A happy blend of qualities endows the stylish Syncro with a blend of subtlety and force - the mailed fist in the velvet glove		•		•	•
▲ Origin Live Oasis A	495	G- Rather coarse sound lacking resolving power - but lively sound may appeal. Industrial appearance		•		•	•
▲ Pink Triangle Anniversary	1495	E Possibly the most detailed, clear and neutral deck around. Likeness to master tape is uncanny		•		•	•
▲ Pink Triangle Export	890	E The PT TOO with built in PS. Retains features of great transparency and neutrality. Review sample had highish motor noise		•		•	•
▲ Pink Triangle Little Pink Thing	500	G+ Semi suspended, leads the field for clarity and neutrality at the price. It also looks good. Excellent value				•	•
▲ Revolver	200	A Nicely balanced, but unimpressive timing and lightweight bass made this deck rather average for the price			•	•	•
▲ Systemdek IIX/900	230	G A high performance budget turntable which is particularly strong at fine detail resolution and imagery		•		•	•
▲ Systemdek IIXE/900AP	388	G+ The acrylic platter'd IIXE is one of the most capable budget decks on the market, good resolution, dynamics and timing		•		•	•
▲ Voyd 0.5	3368	E Halfway between standard and Reference Voyds with the latter's platter and bearing. Superb finish, colourful and dynamic sound		•		•	•

Tonearms

Product	£Price	Comments	Effective mass (g)	Height adjustment	Pivoted	Parallel tracking	Issue No.
▲ Airtangent 1B	3000	E A complex but superbly built arm for high quality systems, giving excellent stereo and resolution	7.5	•		•	60
▲ Alphonson HR100S	490	VG S-shaped arm sounds smooth, but nevertheless reproduces transients with fine attack	10	•		•	C86
▲ Moth arm	95	G+ The ultimate budget arm? Refined, detailed, sweet and natural	12			•	60
▲ Rega RB300	139	VG Despite its modest price it sets exceptional performance standards and could be used on many high end turntables	11.5			•	60
▲ Roksan Tabriz	190	G+ Targetted at the Xerxes, this is a good alternative to the Rega arms in many cases - a trifle bright	9	•		•	91
▲ SME 309	568	VG Beautifully made and finished, fully adjustable, a highly neutral performer	10	•		•	79
▲ SME Series IV	828	VG Superb engineering and finish with a finely balanced sound, impressive stereo focus and low colouration	10.5	•		•	60
▲ SME Series V	1232	E Excellent in all respects, this arm arguably sets the standard for pivoted arms regardless of price	10.5	•		•	60

HI-FI CHOICE SPECIAL OFFERS

Choice accessories

Looking for ideas this Christmas? Choose from our fine range of accessories and specialist label recordings. And for this month only, a selection of 'Music for Christmas' as well as the 'Hi-Fi Choice Top Ten'.

We will try our best to get orders out to you in time to be wrapped.

CD Rack

Say good-bye to those lost CD blues with the smart CD rack. No more lost disc disasters!

Available as single units at the very affordable price of £1.25 each or order four and we will give you one more completely FREE. All racks interlock.

(Same model as the one given away free on the November issue of *Hi-Fi Choice*).

Order Ref: JE36A
£1.25

Golding Magic Record Cleaner

Kit consisting of a double-sided velvet brush and spray on Goldring

Magic record rejuvenating fluid.

Order Ref: JE13A £11.95

The Purifier

A ferrite cable clamp designed to reduce RF induced noise in audio, video and computer systems. The clamps will accept single or multiple cables of up to half an inch in diameter and can be used on both signal and mains cables. Can be particularly beneficial for digital interconnects.

Order Ref: JE14A £16.90
per pair

Nagaoka Anti-Static Record Sleeves No 102

Packs of 50 plastic record sleeves

that can be used on their own

or inserted into an existing card or paper sleeve. The sleeves keep records dust free and eliminate static.

Order Ref: JE15A
£6.99

Gold Plated 4mm Banana Plugs

Top quality solderless gold plated banana plugs for use with speaker cables. Simply push the speaker cable into the body of the plug and tighten for a perfect connection.

This Furukawa plug accepts cables up to 4mm in diameter.

Sold in packs of four.

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£7.95

Audio Technica CD Lens Cleaner AT-6078

The focusing assembly for the laser head of a CD player is a very delicate affair and yet it requires cleaning from time to time to give of its best. Rather than fumbling about with cotton buds, we would suggest you employ an Audio Technica AT-6078 CD lens cleaner.

This is a standard size disc with a set of eight tiny brushes set into it. To clean your laser, just apply a drop of cleaning fluid on to one of the brushes, place the cleaning disc

into your player and press play. Ten seconds later, a clean laser assembly and a cleaner sound from your compact discs.

Order Ref: JE21A £16.95

CD Jewel Case (Five Pack)

Everyone has them, now replace broken CD jewel cases and ensure your discs are properly protected.

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Disc Cleaning and maintenance

This month's special offer

In order to introduce vinyl users to a meaningful protection and maintenance system, we have negotiated a special price on a full size bottle of SF-100 and SF-200 (SCO12) complete with applicators for just £38.50.

Trial Pack, SF-100 And 200 (Full Size)

Order Ref: JE31A
£38.50



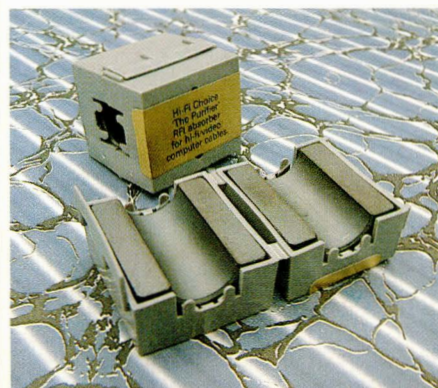
Hi-Fi Choice Sweatshirts



Don't let those cold east winds chill you to the bone this winter. Kit yourself out with the *Hi-Fi Choice* sweatshirt. Discreetly sporting the *Hi-Fi Choice* logo in white and red on navy blue, this accessory is sure to complement any outfit.

So not only will you look good but you'll be as warm as toast while you listen to all your favourite recordings. It also gives added credibility and negotiating sway when buying new hi-fi components. For just £15 it's available in large and extra large.

Order ref: JE22A



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Symphonic Dances and Vocalise

Donald Johanos and the Dallas Wind Symphony Orchestra. This LP is still the standard by which others are judged. It's a 'must buy' for all serious audiophiles and music lovers. (Limited edition analogue). Unavailable on CD.

Order Ref: **ALSW-10001LP**
£23.99

Music for Violin and guitar

Giuliani: Sonata in A Major Op85, Paganini: Cantabile. Chaminade/Kreisler: Serenade Espagnole...and more. Includes the World Premiere recording of David Leister's neo-classical masterpiece, Sonata for Violin and Guitar. Musically and sonically this is one of the finest recordings of violin and guitar ever produced. Unavailable on LP.

ORDER REF: **ALSS-10006CD**
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ONGAKU

Cohler on Clarinet

This disc includes the World Premiere recording of contemporary American composer Simon Sargon's Deep Ellum Nights, as well as Cohler's distinctive new interpretations of the Sonata in F Minor, Op120 No1 by Johannes Brahms. "Commandingly played... in total command of every demonstrative and virtuosic gesture..." Performance, 5 stars. Sound, 5 stars (Top rating) BBC Music Magazine. Unavailable on LP.

Order Ref: **ONG-001CD** £13.99

REFERENCE RECORDINGS

BETTER THAN DREAMS: JOHN SHARP

This is John Sharp's debut album. You may recall he featured on Jim Brock's Tropic Affair album (RR-031), which has proved to be one of RR's best selling titles.

With support from some of the same cool Southern jazzmen, and production by the 'Brockmeister' himself, Sharp defines his own distinctive musical voice with Better Than Dreams.

Order Ref: **RR-054CD** £13.99
Order Ref: **RR-054LP** £16.99

Also available: RR031

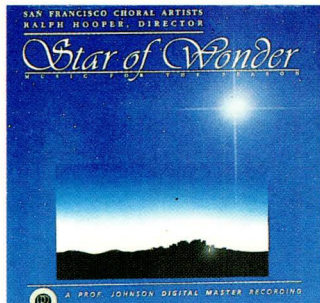
Order Ref: **RR-031CD** £13.99
Order Ref: **RR-031LP** £16.99

SHEFFIELD LAB

MARGIE GIBSON: SAY IT WITH MUSIC

Songs of Irving Berlin with Lincoln Mayorga at the piano. Puttin' on the Ritz. - Soft Lights and Sweet Music.-How Deep is the Ocean.- Let's Face the Music and Dance and many more great standards beautifully sung by Margie Gibson with all the typical Sheffield Lab live to two track qualities.

Order Ref: **CD-038** £17.49



KLAVIER

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The Music of Louis Vieme, Elmore, Saint Saens, Kabalevsky, Mendelssohn, Grieg, Macfarlane, Bach, Hebble, and Reubke.

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Symphony Number 2 in E Minor.

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RAVEL: MICCESOTA ORCHESTRA/STANISLAW SKROWACZEWSKO. Mother Goose (complete). Valses nobles sentimentals.

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£29.99

GERSHWIN: LEONARD SLATKIN/SAINT LOUIS SYMPHONY ORCHESTRA.

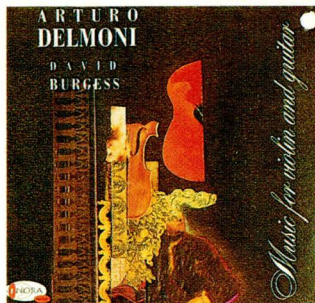
An American in Paris. Promenade. Cat Fish Row.

Order Ref: **RM-1005LP**
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THE 1993 CHOICE TOP TEN

TESTAMENT: THE TURTLE CREEK CHORAL.

Using the new HDCD process, this was probably the best recording made during 1993. It contains an inspiring collection of Americana, with texts by Thomas Jefferson, Walt Whitman and Robert Frost,



sung by 150 robust male voices with full concert bank.

Order Ref: **RR-049LP (SET/2)**

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Order Ref: **RR-049CD**

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DICK HYMAN PLAYS DUKE ELLINGTON.

The World's second Direct-to-CD recording, with timeless music of America's greatest jazz composer performed by the most imaginative of pianists. The DCD version is produced on a gold compact disc.

Order Ref: **RR-050DCD**

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Also, Order Ref: **RR-050CD**

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TRITTICO: THE DALLAS WIND SYMPHONY.

Trittico was the first Dalls Wind Symphony recording to get the patented HDCD treatment. (see HFC #117 4/93 for more details). As with all HDCD discs, this recording exhibits superior resolution and spatial characteristics, which make it a must buy for hi-fi enthusiasts as well as music lovers. Tracks include- Isaac Albinez: Feast Dat in Saville. - Norman Dello Jojo: Variants on a Medieval theme. Edvard Greig: the Funeral March for Rikard Nordraak.

Order Ref: **RR-052LP (SET/2)**

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BERLIOZ: SYMPHONIE FANTASTIQUE. THE UTAH SYMPHONY ORCHESTRA, VARUJAN KOJIAN CONDUCTING.

Widely considered to be THE recording of this magical work. The CD contains two versions of the explosive finale, one with orchestral bells, and another with digitally recorded church bells.

Order Ref: **RR011LP (SET/2)**

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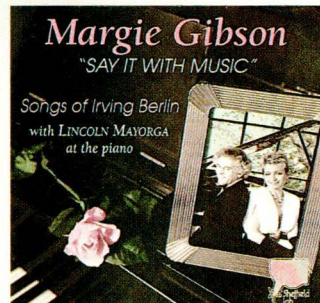
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A variety of traditional Japanese percussion instruments are featured on this CD.

Please note, these tunes span the entire dynamic range from soft playing at the bare limits of audibility to the thunder of the mighty 800 pound O-Daiko drum, and are extremely challenging to play back correctly.

Order Ref: **CD-KODO**

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385 North End Road, London SW6. Tel: 071-381 0706



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MUSIC FOR CHRISTMAS

A SHEFFIELD CHRISTMAS COLLECTION

To celebrate its twenty-five years in 'audiophile' recordings, Sheffield Lab have introduced this new CD. The theme is centred around children, the season and Christmas. The list of performers and guests is a who's who in hi-fi artists include Pat Coil, Dave Grusin, Lincoln Mayorga, Margie Gibson, Michael Newman and more. This compact disc should be in every audiophile's stocking.

Order Ref: CD-038 £17.99

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Festive music for the holiday season by an outstanding professional chorus, recorded in the glorious acoustics of San Francisco's St Ignatius Church. *Carols. *Renaissance Motet. *20th Century Choral works. *Organ Harp and Flute. *Bell ringers.

Order Ref: LP-021 £16.99
Order Ref: CD-021 £13.99

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Prelude to Cantata BWV 142 (Bach) - Alleluja! (Mozart) - Alleluia (Randall Thompson) - Suite of carols - Troika (Prokofiev) and other traditional Christmas music.

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£13.99

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Malcolm Arnold, England's greatest living composer, conducting his old orchestra in hitherto unrecorded material. Of particular interest for the season is 'The Commonwealth Christmas overture'. Others include A Sussex Overture, The Smoke, Flinch for Orchestra and more.

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Order Ref: RR-048CD £13.99

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The

Artlets

SALE

STOCKISTS OF:

Aiwa, Adcom, Arcam, Audiolab, Audio Source, Audio Technica, Aura, B&W, Cable Talk, Celestion, Cerwin-Vega, Copland, Creek, Cyrus, Dali, Denon, Dual, Exposure, Furakawa, Harman Kardon, JPW, Marantz, Michell, Miromega, Mission, NAD, Nakamichi, Panasonic, Philips, Pioneer, ProAc, Quad, Rogers, Rotel, Royd, Sennheiser, Sony, Systemdek, Tannoy, Target, Technics, Tripod, Wharfedale, Yamaha.

EXAMPLES:

	Normal Price	SALE PRICE
Micromega DUO CD 3 Transport & DUO BS DAC	£1799.00	£1299.90
Micromega DUO CD 3 Transport & DUO Pro DAC	£2399.00	£1699.90
Mission Cyrus PSX Power Supply for Cyrus 2	£299.00	£149.90

Loudspeakers
B&W
Epiphany
Tannoy

Harman Kardon
Audiolab 8000 T
Denon TU 260 L
Harman Kardon TU 9400

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Bartletts Suggested Systems

The Bartletts Suggested Systems listed below are supplied with the Marantz CD 53, an alternative CD player or Turntable are available, see below for price details. All systems are supplied with 8 metres of 79 strand loudspeaker cable. QED 4mm plugs are available at a cost of £1.00 each. Carriage charge for delivery to an address on the UK mainland is £12.00 per order. All items are sent fully insured. Prices were correct at time of printing but are subject to change without notice. E&OE.

	Celestion 1	Mission 760i Cesestion 3 Tannoy 603	Tannoy 605 Mission 760ise	Mission 761i B&W DM 600i Celestion 5	Tannoy 607 B&W DM 610i Celestion 7 Mission 780	Rogers LS 2A2	Mission 762i Cerwin- Vega VS 8	Rogers LS 4 A 2 Tannoy 609
Marantz PM 44 SE	384.95	429.95	457.95	469.95	503.95	511.95	527.95	560.95
Marantz PM 32	335.95	374.95	405.95	413.95	447.95	459.95	475.95	499.95
Marantz PM 40 SE	343.95	383.95	389.95	419.95	451.95	467.95	483.95	529.95
Nad 302	359.95	396.95	424.95	432.95	464.95	480.95	496.95	520.95
Nad 304	409.95	455.95	483.95	491.95	523.95	539.95	545.95	579.95
Harman Kardon 6150	384.95	415.95	445.95	458.95	491.95	499.95	515.95	539.95
Harman Kardon 1200	439.95	482.95	511.95	523.95	556.95	564.95	581.95	622.95
Sony TAF 442	409.95	455.95	483.95	491.95	523.95	539.95	545.95	579.95
Technics SUA 600	399.95	415.95	443.95	451.95	483.95	499.95	515.95	539.95

Choices. The following CD players or Turntables can be ordered instead of the Marantz CD 53 in the above systems.

CD Players

Aiwa XC 300	Deduct £60.00	Sony CDP 311	Deduct £30.00
Denon DCD 595	Deduct £20.00	Sony CDP 711	Add £50.00
Denon DCD 695	Add Nil	Sony CDP 911	Add £100.00
Denon DCD 890	Add £70.00	Technics SLPG 440	Deduct £20.00
Marantz CD 42 II	Deduct £20.00	Yamaha CDX 470	Add Nil
Marantz CD 52 II SE	Add £100.00	Yamaha CDX 570	Add £45.00
Nad 502	Add £20.00	Yamaha CDX 670	Add £90.00

Turntables

Dual CS 503-2	Deduct £70.00
Dual CS 505-4	Add Nil
Thorens TD 280 IV	Add £10.00
Systemdek IIX 900 inc.RB 250 AT 110e	Add £125.00

Bartletts HI-FI

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Christmas & New Year Opening Times

Date	London Store	Woking Store
24th December 1993	9.30am-6pm	9.30am-6pm
25th December 1993	CLOSED	CLOSED
27th December 1993	9.30am-6pm	CLOSED
28th December 1993	9.30am-6pm	CLOSED
29th December 1993	9.30am-6pm	9.30am-6pm
1st January 1994	10am-6pm	CLOSED
3rd January 1994	9.30am-6pm	CLOSED

Bartletts System of the Month

Marantz CD 53 CD player
Marantz PM32 Amplifier
Celestion One Loudspeakers
8m 79 strand cable

£319.90

Carriage for the above system £12.00

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The ceiling's the limit

The last link in the hi-fi chain is not, as is commonly assumed, the loudspeakers. In between speakers and ears is something called a room. Which as much as any of the other components superimposes its own characteristics on the overall sound — just ask any reviewer who's recently moved house.

For the past five years I've been doing most of the *Choice* loudspeaker reviews in one particular room. It's a good room, a little larger than average but not unduly



Paul Messenger looks into eigentone amplification — and explains what it means too.

so, and with a few more idiosyncracies than most, which is no bad thing. It's used for both the listening tests and for the rather unconventional room-based measurements I take.

These mean little to engineers accustomed to one metre on-axis anechoic pen-charts, largely because they replicate the real life situation of a stereo pair operating in a real room, and therefore add the latter's characteristics to the loudspeaker contribution. But the benefit of hindsight and the experience of hundreds of different models shows they do define the subjective balance of a speaker surprisingly well.

Balance isn't everything, but an even balance is still arguably the most important single factor, and it's here that the room invariably introduces its own distortions.

The interactions are so complex that the most experienced loudspeaker engineers I spoke to were also the most cautious about attributing generalised causes and effects. But from a more naïve journalistic standpoint, I'm coming to the conclusion that one (or rather three) crucially important factors play a vital role in defining the low frequency performance of most speaker/room combinations.

They're called the main eigentones, or if you prefer it in English, the standing wave modes of the room. Rooms nearly always have three sets of large parallel surfaces, between the opposite walls of length and width, and between floor and ceiling. Each of those lengths corresponds to a sound vibration of a particular wavelength, which in turn represents a specific frequency. Put a loudspeaker or two in the room and

generate those particular three frequencies or their harmonics and you will excite the standing waves, which amounts to an unpredictable but substantial and very frequency specific amplification factor.

In fact, it's the half-wave-length frequency that's really important. And it's the room height, floor-to-ceiling, that takes the dominant role. That's because height is the smallest dimension in all but the most confined of rooms, so its half-wave-length has the highest frequency, which gets most obviously in the way of our wanted music signals.

Add in the fact that ceiling height has been pretty well standardised at eight to nine feet for the vast majority of British homes built this century, and that eight to nine feet corresponds to 50-60Hz, and you have the ready made recipe for one of my major gripes about many (especially larger) commercial speakers — midbass boom.

You've also got a very feasible explanation for the considerable success of tiny little seven litre miniature loudspeakers here in the UK — not to mention their relative failure in the USA, where room sizes tend to be significantly larger. These tinies often simply work much better than larger models in the way they interact with our typical rooms to create an even bass balance.

It has always seemed impossible that these little 90mm cones, even with port assistance, can work as well as they do. But place them close to a wall to fill out the mid-to-upper bass, let the 50-60Hz eigentone add its own contribution, and hey presto, you end up with flat in-room bass down to 50Hz, in complete agreement with my measurement and listening test findings.

By the same token, larger drivers and enclosures all too easily end up with far too much 50-60Hz output in-room, because that's often where their port and driver resonances occur, and the vertical eigentone amplification factor only makes matters worse.

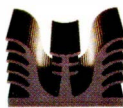
The end of the page approaches leaving oodles more interesting implications and analogies. I don't claim this 'eigentone amplification' theory is in any way proven or original — Raymond Cooke pointed out that the (mono)

hi-fi systems of the forties deliberately used corner placement to maximise the contributions that the eigentones could make to bass output and extension. This was in an era when sensitivity was king and amplifier power was at a premium. But I do suspect that designers ought at least to consider the British standard ceiling height far more seriously when carrying out low frequency system alignment.



This response of *Tannoy Westminster Royals'* 15 inch dual concentric drivers, mounted open-backed and flush, shows obvious eigentones corresponding to half- and harmonic wavelengths of the room (8in 9ft high, 14in 2ft wide and 18-22in 6ft long), notably at 25-32Hz, 55Hz and 100Hz.

Paul Messenger has been writing about hi-fi longer than he cares to remember, and is a former editor of *Choice* — three times over.



THE F SERIES: F22-REMOTE CONTROL TUBE PREAMPLIFIER. F15-100 WATTS PER CHANNEL HYBRID STEREO POWER AMPLIFIER WITH TUBE BALANCED INPUTS. F18-220 WATTS PER CHANNEL HYBRID STEREO POWER AMPLIFIER WITH TUBE BALANCED INPUTS. FX-90 WATTS PER CHANNEL STEREO POWER AMPLIFIER.

The F22. Made by fanatics, for fanatics.



The Critic's Choice

AMPLIFIERS

Rotel RA-930AX

Gamepath, 25 Heathfield, Stacey Bushes, Milton Keynes
MK12 6HR. Tel: (0908) 317 707



If you had an award-winning budget amp on your books and the time came to update the range, would you junk a successful design? Of course not and neither has Rotel. So when the popular RA-820AX had run its course it simply re-arranged the fascia and tinkered with the circuit layout before re-launching it as the RA-930AX!

The style of this amp complements Rotel's other 900 Series separates with its centralised volume control and new, luxurious finish. Yet like the RA-820AX it caters for MM, disc, CD, tuner, aux and tape inputs with both switchable tone controls and a second set of speaker outlets. Nothing ostentatious, then, but perfectly adequate for the keen listener.

Inside there is the same series-feedback RIAA stage with its Signetics op-amp and traditional Sanyo-based power amp. However the layout of the PCB is now wholly symmetrical, a change known to improve upon the breadth and depth of stereo soundstaging, while star-earthing and Rhoderstein signal-path resistors complete the evolution. All this with an increase of just £10 since we reviewed the RA-820AX in issue 80. Not bad, huh?

Lab report

By way of recompense the power output has edged up from 47W to 53W (8ohm) and has edged up to 77W (4ohm) though the headroom and peak current are quite unchanged. Stereo separation, channel balance and the low 0.006ohm output impedance have all taken a turn for the better while the DC offset is still too high!

Rotel has obviously changed the feedback operating about the power amp, for the overall sensitivity is reduced while distortion has increased from 0.0013 to 0.007 per cent at two-thirds output - just compare the 3D plot with that in issue 80. The disc response is identical, by the way.

Sound quality

This was one of just two or three amps that gave us the distinct impression of playing all louder than usual, despite the outputs of all contenders being matched at precisely the same level. Both vinyl and CD inputs were similarly influenced, pulling up low-level detail from a deathly silent background - detail that was often masked elsewhere.

This prompted a slight split in opinion. Some were mildly aggravated by the immediacy and 'loudness' of its presentation yet were bound to acknowledge its biting clarity and insight. Large-than-life, the panel suggested - a truly surrealistic performance! Ordinarily, of course, they would have reduced the volume a notch or two.

Meanwhile the remainder of the panel were captivated by the clean, even-handed and thoroughly involving sound. The sort of sound that enhanced the femininity of Julia Fordham's voice while exposing percussive and string detail from both pop and classical and discs with exquisite clarity. Notes grew and faded with realistic presence, a trait, along with the sheer vibrancy and tension of the music, that prompted one listener to correctly identify this as a Rotel amp. Not once, I might add, but in two consecutive blind listening sessions.

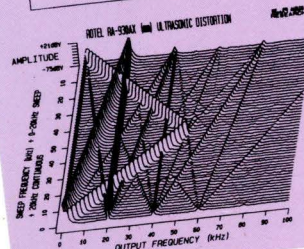
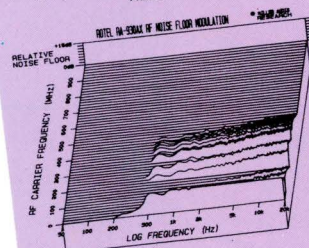
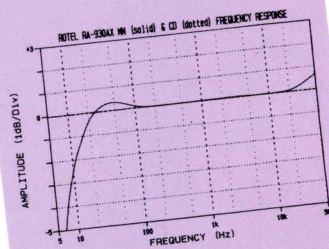
Conclusion

'A real scorcher' was the overwhelming response of the *Choice* listening panel. But so it should have been. After all these were the same people that voted its predecessor - the RA-820AX - a Best Buy exactly two years ago! In common with this classic, the RA-930AX bundles across a wealth of intriguing musical detail with bags of enthusiasm.

Indeed, it was voted second only to the Lecson for its ability to invoke powerful, emotive music. This, plus its technical competence and reliability, maintains the family tradition for Best Buys.

TEST RESULTS

	20Hz	1kHz	20kHz
Maximum Continuous Power Output, 8ohms	47.5W	52.5W	50.4W
4ohms	66.6W	76.7W	74.9W
Dynamic Headroom (IHF)+1.36dB (72.0W)			
Peak Current (5msec, 1% THD)+12.5A			
Output Impedance 0.0058ohm			
Damping Factor 1391.3			
	CD/Aux	MM	
Stereo Separation (1kHz)	81.8dB	80.5dB	
(20kHz)	56.8dB	54.5dB	
Channel Balance (1kHz, -20dBV)	0.21dB	0.27dB	
(-60dBV)	0.31dB	0.42dB	
Total Harmonic Dist. (0dBW)	-82.3dB	-85.7dB	
(2/3 power)	-83.3dB	-83.4dB	
CCIR Intermod. Dist. (0dBW)	-87.8dB	-76.7dB	
(2/3 power)	-90.7dB	-77.5dB	
A-weight Noise (0dBW)	-86.3dB	-79.8dB	
(2/3 power)	-98.1dB	-80.7dB	
Residual noise (unwtd)	-72.0dBV	-72.0dBV	
Input Sensitivity (for 0dBW)	27.6mV	450uV	
(for full output)	201.6mV	3.29mV	
Disc Overload (1kHz)		181.1mV	
(20kHz)		1660mV	
(50kHz)		3175mV	
Tape Output/Impedance	11.2V (disc) / 2.0kohm		
Input loading	30kohm/125pF	47kohm/180pF	
DC offset, left/right	+75.5mV/+78.5mV		
Retail Price			£180



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HI-FI CHOICE 67 MARCH 1992