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STA Six new midi systems

on test, see page 64

Revealed: Our pick of nine new home cinema amps

> GUIDE The UK's definitive review based hi-fi catalogue. **Our reviewers** choose their **Best Buys.** 18 pages of products tested and rated.

BUYER'S

Imagine, if you will, standing in your living room. You've read about DCC, but words cannot fully describe what you are hearing from your new Marantz DCC deck.

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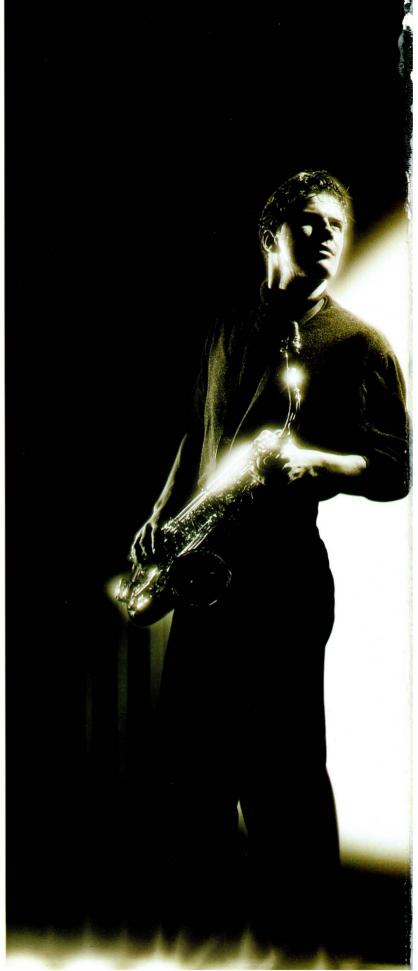
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The ears still have it

n this issue of *Hi-Fi Choice*, both Barry Fox (page 51) and Paul Messenger (page 176) sing the praises of one of the most successful consumer electronics shows to hit the UK for a long time, *Live '93*.

The success of the show, held at Olympia towards the end of September, is due in no



small part to the willingness of many hi-fi makers present to mix it with video and computer exhibitors, moving away from the notion that hi-fi can continue to operate in a vacuum.

Simon Davies explains why hi-fi is ideally placed to take advantage of the AV boom.

The simple fact is that in this day and age, there are many different products competing for our hard-earned disposable income, and hi-fi must fight its corner against videos, computers, computer games and a whole raft of related hardware and software technologies.

Long gone are the days when every home simply had to have a hi-fi system. Today, it's more likely that a TV or home computer is the automatic first choice, with hi-fi coming further down the option list.

So is this the end for hi-fi as we know it? Far from it. As *Live '93* clearly demonstrated, there is still a very healthy interest in quality sound, alongside top notch TV pictures, faster and faster home computers and ever more sophisticated computer games. The trick is to realise that all these technologies can work hand in hand, rather than competing head on all the time.

Our test of nine audio video switching amplifiers in this issue (page 90) serves to illustrate the point. Not only do these amplifiers function as normal stereo amps, but they are also equipped with surround sound decoders and switching that enables them to recreate the sound of the cinema in your living room too.

As with conventional stereo amplifiers, there are good examples of the breed and not so good ones. But, as Paul Miller and our listening panel discovered, the final buying decision is determined by quality of sound rather than technical sophistication.

The significance of this finding cannot be overstated. While pin sharp TV images and the ability to recreate the sound of a concert hall, theatre or even a disco may be desirable,

ACCONTRACTOR OF A CONTRACTOR O

featuring the piano playing of Daniel Levy. Daniel is one of Edelweiss' most accomplished artists, and the collection features over 68 minutes of his finest work.

You can find out more about the way your CD was recorded on page 35, along with an interview with Daniel himself where he talks about the influences that have shaped his life and musical career.

If the free CD is missing from the cover, please tell your newsagent at once.

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Our regular round up of the latest hi-fi news and views. Plus, the brightest new products, just in time for Christmas.

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Tantalizing tasters of hi-fi sundries, ranging from book and album reviews to a look at a high-end amplifier from Perception and Hitachi's latest Pro-Logic TV.

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Paul Messenger takes a nostalgic look at hi-fi shows old and new.

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Once again *Choice* offers an exclusive Audiophile CD. Read the full background to the Edelweiss piano recitals by Daniel Levy.

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48 Competition

A chance to win fabulous in-car entertainment from Alpine. Over £2,500 of car stereo equipment to be won.



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81 Conclusions, Best Buys and Recommendations

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You have been surrounded! Nine AV amps fill the *Choice* pages with cinema sound. **90**

AV AMPLIFIERS

AV amplifiers for surround sound systems in the home. Nine of the latest models line up to battle it out for the laurels.

111 Conclusions, Best Buys and Recommendations

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129 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).

> Look ma, no wires! We roundup three of the latest cordless infra-red headphones, page 114.



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CHOICE NEWS FROM AROUND THE WORLD

New amp heralds Restek's arrival

A £799 line level integrated amplifier spearheads an attack on the UK hi-fi market by specialist German manufacturer Restek, distributed by Analogue Technologies International Ltd in Surrey.

Called the *Challenger*, the new amplifier marks something of a departure for Restek which is better known in Europe for its upmarket range of electronics. This range from the $\pounds 1, 149$ Sector line level preamplifier to the $\pounds 5,999$ *Exponent* monobloc power amplifier.

The *Challenger* has no phono input, tone controls or remote control, but it will drive 4 or 8 ohm speakers (260 and 150 watts respectively) and is even claimed to operate down to 2 ohms, for use with difficult speaker loads.

Eight line level inputs are provided, and the *Challenger* can be upgraded by the addition of an external preamplifier, or by bridging it to create a monobloc power amplifier. Ultimately, it can be upgraded into dual monoblocs using



Cool, calm and confident, the Restek *Challenger* is easily upgraded.

an external preamplifier.

Respect in every Aspect

A chrome front panel is standard but, in common with all Restek products, the *Challenger* can be ordered with alternative extra cost finishes such as anodised black, brass, rhodium, platinum and gold. Also new from Restek is the

stylish Matinee system comprising a

CD player, tuner, matching pre and power amplifier (with separate power supply) and the *Saga 3* three-way loudspeakers. The components are available separately and, as with all Restek products, come with a three year warranty. Prices have yet to be confirmed. 2081-770 9553

What, no tubes?

Valve amp specialist Audio Innovations has crossed the line into solid state electronics with the £299 Alto, a very stylish little integrated amp that is completely valve-free. Apart from being unusually aerodynamic, courtesy of industrial designer Graham Allen, the Alto has four line inputs, two tape loops and a 35 watt output.

By using carefully selected components in a simple circuit, the Alto is designed to provide Audio Innovations quality at an entry level price. (0305) 761017

Optimal Sugden digits

Sugden has introduced the £599 Optima CD player to complement its existing, but more expensive, CD players, transports and D/A converters. The Optima uses the same Philips CDM-9 laser head and 922 loading mechanism as the £1,000 SDT-1 CD player, and boasts a 16-bit, four times oversampling multibit DAC chip.

The Optima has a digital output, an attractively sparse facia and a basic remote control. A more 'sophisticated' remote is available as an option. 🕿 (0924) 404088

Polk balances the dynamics

American loudspeaker giant Polk Audio is introducing its S Series to the UK. The S Series benefits from what Polk calls 'full field quasi-heterodyne laser interferometry' testing which is said to help minimise unwanted cabinet resonance and resulted in another Polk'ism: Dynamic Balance.

The four-strong range of two-way designs starts with the £199.90 S4, which has a 25mm tweeter and 165mm mineral filled woofer in a compact reflex cabinet, and works its way through the £299.90 S6 and £449.90 S8 to the £599.90 S10. The S10 is an American style floorstander with a 190mm woofer and 254mm bass radiator. All four offer healthy sensitivity and use Polk's own Dynamic Balance drivers. ☎ (0727) 827311

Innovations Alto integrated.

A pair of piano lacquer *Aspect* 1.1s unsuccesfully attempt to hide behind some lillies.

Jordan Watts has produced the £1,695 Aspect 1.1, its first two-way, floorstanding loudspeaker.

Intended to be the frontrunner in a series, designer Ted Jordan has used his distinctive aluminium foil cones to produce a speaker that's claimed to have excellent dispersion due to the hexagonal cabinet and the flexible nature of the drive units. The Aspect 1.1 uses a 125mm bass driver operating from 25Hz and a 50mm tweeter that reaches 27kHz.

Improved cabinet building and optional marbled and piano finishes mean that the Aspect 1.1, claims Jordan Watts, will look good for years to come. 20 081-985 1646 The Wing comes to audio amplification courtesy of the Audio



The BeoSound Century, available in any colour as long as its green, blue, red or grey.

The 20th Century B&O

Bang & Olufsen is making its way into the realms of affordable, high-tech hi-fi systems with the £995 BeoSound Century, a complete system with CD player, tape deck and radio. Supposedly aimed at a younger audience, in many



Beyerdynamic's latest infra-red cans the *IRS890s* let you listen in wireless luxury.

Beyer's latest quartet

Beyerdynamic has introduced four new models to its extensive headphone range. The £49.99 DT331 and £69.99 DT431 are open backed, circumaural designs with large, removable earpads, OFC cable and gold-plated dual size jack plugs.

The top of the range £229 DT911 now has an S suffix and boasts a 4dB improvement in bass response due to improved ear cushion design.

Finally, the IRS790 infra-red model (reviewed in this issue, see page 114), now has a bigger brother in the form of the £199 IRS890, which features an improved transmitter and circumaural earpads. 22 (0273) 479411 respects the Century is much like the dearer 2500 portable, having glass doors which open automatically, remote control and built in active loudspeakers which can be finished in green, blue, red or grey cloth. The Century is not portable

Top hat brings more power to vinyl

Hot on the heels of the successful Michell amplifier range comes the new Gyropower QC power supply for the long-standing Gyrodec turntable.

'Top Hat' styled to match both the Gyrodec and the Alecto power amplifiers, the £349 Trichorddesigned Gyropower QC allows Gyrodec users to switch speeds electronically and filters the power supply to the turntable, which is claimed to the lid, the *Gyropower QC* features high-quality, surface mounted components.

as such but is designed to be

flexible and easy to use, especially as its control buttons light up only when

required. Features include

synchronous CD recording,

radio and something called

automatic skip tuning on the

adaptive bass linearisation -

which must qualify it for the

Nobel prize in technobabble.

2 (0452) 307377

In addition, for those who buy the *Gyrodec* with a *Gyropower QC* as a complete package, the combined price is £996 without arm, saving £50 on the two sold separately. 2081-953 0771

Gyropower QC: probably the dinkiest power supply around.



In Brief

David Ostick, furniture designer, has produced a range of clean looking CD storage shelves. Prices start at £65 for a 500 disc unit. 22 (0865) 251887



Philips has created the £99 Voice Commander remote control for the couch potatoes among us. It allows you to program your TV, video recorder or satellite tuner by simply speaking to it. The Voice Commander can recognise up to four different voices, so you and your family will never have to press a button again. (20 (081) 689 2166

Aston Audio is holding a series of musical evenings over the coming weeks. November 4th is for the latest Arcam kit, on November 17th Meridian's 500 Series will be in action and December 1st will be a Mission extravanganza. Call for tickets.

KEF has negotiated a licence to build the classic BBC designed *LS3/SA* loudspeaker. KEF has always manufactured the drive units and crossovers for the design, so it was a logical step to take over where Rogers left off when it gave up the licence. **2** (0622) 672261

Counterpoint has announced the launch of the £1,499 DA-11 transport to match the upgradable DA-10 D/A converter tested in November. The front-loading DA-11 incorporates a low-jitter clock, memory buffers claimed to reduce input/output data signal modulation and a wealth of outputs. 🕿 061-777 8522

The Onkyo brand of electronics has returned to these shores courtesy of NAD Marketing. 2 081-343 3240

TDK is moving into the battery market with a range of alkaline cells that are mercury and ►

The Bose[®] Lifestyle[®] Music Systems



Finally, the simple beauty of music. "No visible speakers, no stack of components, nothing that looks like sound equipment... Hit the start button and suddenly the room fills with music

of exemplary clarity and fullness." Hans Fantel, The New York Times

Now you can get this revolutionary award winning music system. Fill your home with the power and simple beauty of music – instead of bulky, complicated equipment.

Lifelike sound. Elegance. Simplicity.

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Listen to Stereo Everywhere® Speakers and enjoy lifelike sound at any volume level. The system is easier to use than your telephone. With the radio controlled handset you can operate the entire system from anywhere in your home – upstairs, downstairs, through walls, even from outside. Choose the Bose Lifestyle® Music System that suits you best – and let it grow with your demands. Spend only minutes for a demonstration at your Bose Dealer – and have music for a lifetime!

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Update

Sennheiser expresses itself

Sennheiser has replaced its 400 Series with the 300 Expression range. This distinctively styled range is designed to be more comfortable as a result of reduced weight and better ergonomics. There are three models in the range, the £39.95 HD 320, the 54.95 HD 330 and the £64.95 HD 340, the latter two featuring copper clad alloy wire for the voice coils.

The Expression line features the same OFC cabling and open backed design as previous Sennheisers. (0628) 850811

Right: Sennheiser's Expression range features radical looks and cables routed to one side only.

Deflex damping Dynamics

Spectra Dynamics has taken a scientific look at the problem of internal damping in speaker enclosures and developed Deflex panels

Available to the speaker manufacturer and enthusiast alike, Deflex panels are made of a soft polymer with a computer-designed pattern of concentric circles which are designed to control unwanted energy within the cabinet.

A single 27.9 by 20.3cm Deflex panel costs £7.95, and Spectra Dynamics recommends that as much of the internal surface as possible be covered for maximum benefit. However, it's claimed that treating one panel can produce significant benefits Deflex is designed to replace existing wadding and bitumen which Spectra claims have a muffling effect on the sound. **2** (0745) 570194

12 bore Hardcore Ixos Hardcore 12 is a new speaker cable from the Path Group that features six individually shielded strands per conductor, which means it can be used for single, bi and tri-wiring. Also included is an earth cable which can be used pseudo balanced fashion to reduce RFI induced noise.

Each conductor in the £5 per metre Hardcore 12 is 0.7mm diameter copper encased in a Mylar shield and a plastic cover. These are arranged star quad style around a non-conductive core. 20 (0494) 441736



The Aeon factor

Gamma Acoustics is a new valve amp manufacturer with an attitude, a factor evident in the literature design for the company's £5,000 Aeon monoblok power amplifiers. The Aeon is "a hand-built statement of audiophile dedication" according to the blurb, and looking at the amp's credentials it's not hard to see why. The Aeon is a class A, single-ended design using a direct-heated 211 triode and what is claimed to be a unique circuit topology — a rare thing in valve amplifiers.

Gamma claims to have mastered the technique of cancelling the distortion generated by one stage of the amp with that of the next, and employs output transformers with a claimed bandwidth of 10Hz to 65kHz. The Aeon uses silver internal wiring and custom made components throughout.

🕿 (0753) 526939



boys of the tube world, the 211 triode.



 cadmium free and are claimed to last 20 times longer than a conventional alkaline battery.
 (0737) 773773

Hi-Fi '94, Bristol's premier hi-fi show, will be held at the Marriott Hotel from Friday February 18th to Sunday February 20th next year.

Classic FM's Quentin Howard has become the first presenter to regularly broadcast live from the comfort of his own living room, courtesy of British Telecom's digital telephone system, called Integrated Services Digital Network. Quentin's *Six of the Best* quiz show can be heard between 10pm and midnight every Saturday.

Soundstyle is bringing its colourful and chunky styling to the world of CD storage with a five shelf rotating system that will store up to 250 discs. Available in red, green, two blues, grey and black, the Soundstyle CD Storage System costs £199.95. 20 (0284) 701101



Soundstyle's CD Storage System: it's big enough to support a midi system.

Phoenix, the Netherlands based Goldmund accessories distributor is on hand to help anyone having trouble with Goldmund gear. Service and maintenance are only a phone call away. **2** (010 31 32420) 3000

Tandberg distributor Esoteric Audio Imports has set up two service centers, PRP Electronics in Nottingham 2 (0777) 81851 I, and Howards of Exeter 2 (0392) 58518.

Harman International Industries is

currently negotiating a minority interest in Madrigal Audio, manufacturers of the high-end Mark Levinson and Proceed brands. In addition,

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.

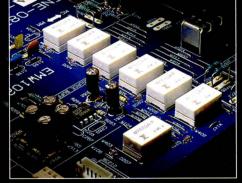
NTEGRATED AN

IVC

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



Update

More than just a hybrid from Copland

Not content with making fine valve amplifiers, Swedish manufacturer Copland's latest £999 CSA14 integrated amplifier features a brace of solid-state components alongside two E88CC valves.

Most valve/transistor designs use valve technology alone for an entire stage of the amplifier, transistors only in other sections. However, the 'synergistic' CSA14, distributed through Absolute Sounds, uses valves only in the differential stage of the pre-driver circuit, which is said to be crucial to the sound of the amplifier.

Wharfedale goes Latin with modular Modus

Following recent well-publicised financial machinations, Wharfedale has bounced back with a new outlook, a new logo and a completely new range of loudspeakers, under the Modus Vivendi banner. The style and the logo of the new image is intended to reach out to a wider (and presumably younger) audience.

In the past, Wharfedale has used a multitude of speaker drive units and cabinets for each range, but Modus Vivendi use common drive units and modular moulded cabinets, not unlike a Lego kit. This allows quick and easy development of new speakers.

The Modus Vivendi range starts with the £69.90 Modus Cube, which features a single 100mm full-range drive unit, while the next model — the £99.90 Modus Micro — features a 100mm bass unit with Wharfedale's unique 12mm glowing red tweeter dome, used to correctly align the rotatable tweeter.

The Modus Mini (\pounds 129.90) and Modus Monitor (\pounds 149.90) also feature the same treble and bass units as the Micro, save that the Monitor uses a second 100mm bass drive unit, while the Mini uses an identically sized Auxiliary Bass Radiator.

There are two specialised products in the range. The £99.90 Modus Centre is an AV dialogue speaker, which uses a central driver from the Cube flanked by two bass units. Finally, there is a 100W Modus Active Bass subwoofer, priced at £399.90. The designer, Olë Moller, believes that this combination allows the amplifier to maintain the valve-like

Lovely knobs, a couple of tubes and 60 watts per channel of transistor output. qualities of transparency and warmth, while increasing the power output to 60 watts per channel. In addition, the valve section is less stressed than it would be in a conventional hybrid amplifier. **2** 081-947 5047

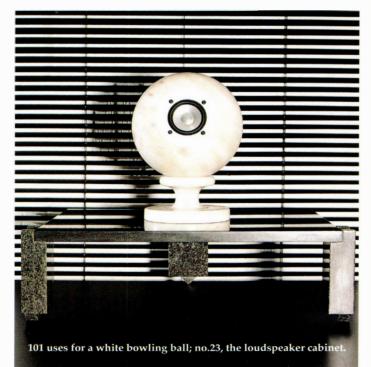


Great balls of sound

We've seen spherical loudspeakers before but none with cabinets made from marble or granite, which is Audiophonics' claim to fame. The £1,595 *CA50* design is made up of a 20cm diameter composite stone 'spheroid' fitted with a single Bandor 50mm aluminium driver.

Audiophonics claims a frequency response of 100Hz to 22kHz for the CA50, and produces the complementary FBX150 subwoofer — called a 'Fundamental Bass Extension Loudspeaker' in Audiophonics' literature — which extends bass down to below 40Hz.

The *CA50* weighs approximately 9kg and is available in a range of different marbles and granites. **2** 081-390 1354



In Brief

► Harman has acquired a 76 per cent majority shareholding in AKG, the Austrian headphone and pro audio manufacturer. The deal cost 76 Austrian schillings, and the small matter of \$22 million worth of debts.

Jamo has given Dolby Pro-Logic fans another alternative on the centre channel speaker front this month. The £199.99 Centre 200 incorporates a pair of 125mm mid/bass drivers and a 25mm tweeter. It also comes complete with mounting brackets. 22 (0327) 349449

Richard Allan, loudspeaker specialist of 46 years standing, is now selling its range direct to the public. It is offering free delivery and home audition with the option of a full refund if not entirely satisfied. 2 (0274) 872442

Pioneer LDCE has released three Laserdiscs this month, Verdi's *Stiffelio* (£29.99) starring José Carreras at the Royal Opera House, *Universal Soldier* (£24.99) with the twin talents of Dolph Lundgren and Jean-Claude van Damme, and *Honeymoon in Vegas* starring Nicholas Cage and a host of Elvis impersonators (£24.99).

After 10 years of running The Music Room in Manchester — which was voted best hi-fi dealer in the Midlands and North West for three consecutive years in the Sony Dealer Awards — David Speirs has set up his own hifi consultancy, called Serious Kit. 20 061-707 4823

Fancy a violin or electric guitar shaped chopping board? If you do, Instrumental Furniture can help. Its range includes cello shaped CD racks, grand piano coffee tables and music on the wall in the form of iron musical note shaped clothes pegs called Coat Notes. 20 071-328 0058

Aiwa has introduced two 'high value' video recorders. The £289.99 HV-FX11 has four heads, digital tracking and index search, while the £329.99 HV-FX55 adds 'easy programming' and an LCD VideoPlus handset to this line up. 20 081-897 7000

Rega Research is moving into the high-end with the new £1,040 XEL floorstanding loudspeaker. As with Rega's popular ELA loudspeaker, the XEL uses a hybrid transmission line design and boasts a new tweeter and two mid/bass units operating in tandem. The XEL can also be modified so that it may be driven bi-amped, or as an active speaker.

PHILIPS INVENTS

The Digital Compact Cassette For generations

Philips has invented the ways we enjoy music. The compact cassette came with the

freedom of the Sixties and Seventies. Play the music you want, wherever you want to play



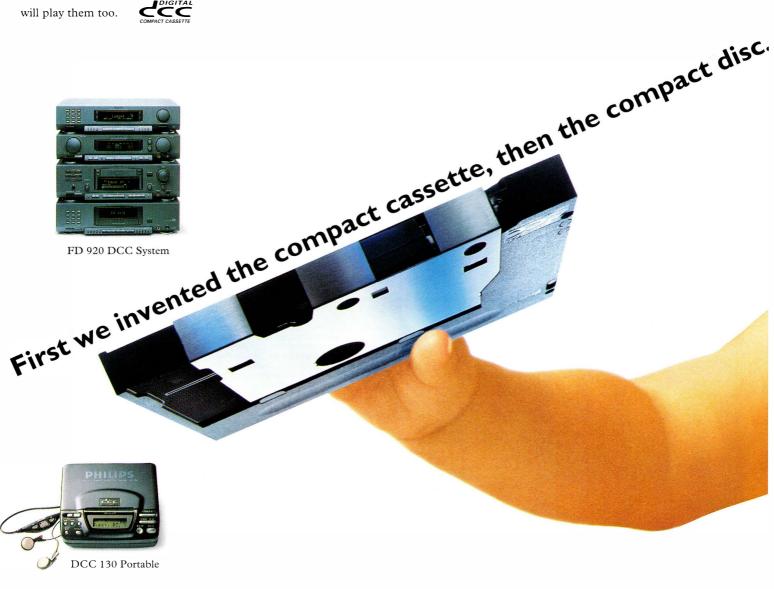
it. In the Eighties the Compact Disc brought the absolute purity and reality of high technology sound. And now, for a new generation, Philips has invented a

new system, Digital Compact Cassette, DCC. Quite simply, the DCC System gives you

the best of all worlds. It is as portable and as versatile as an ordinary cassette. You can buy pre-recorded tapes or you can record your own. But anything an ordinary cassette can do, a DCC can do better because the sound quality has all the precision and beauty of a compact disc. And don't worry about your existing collection of ordinary compact cassettes, the beauty of the DCC System is that it

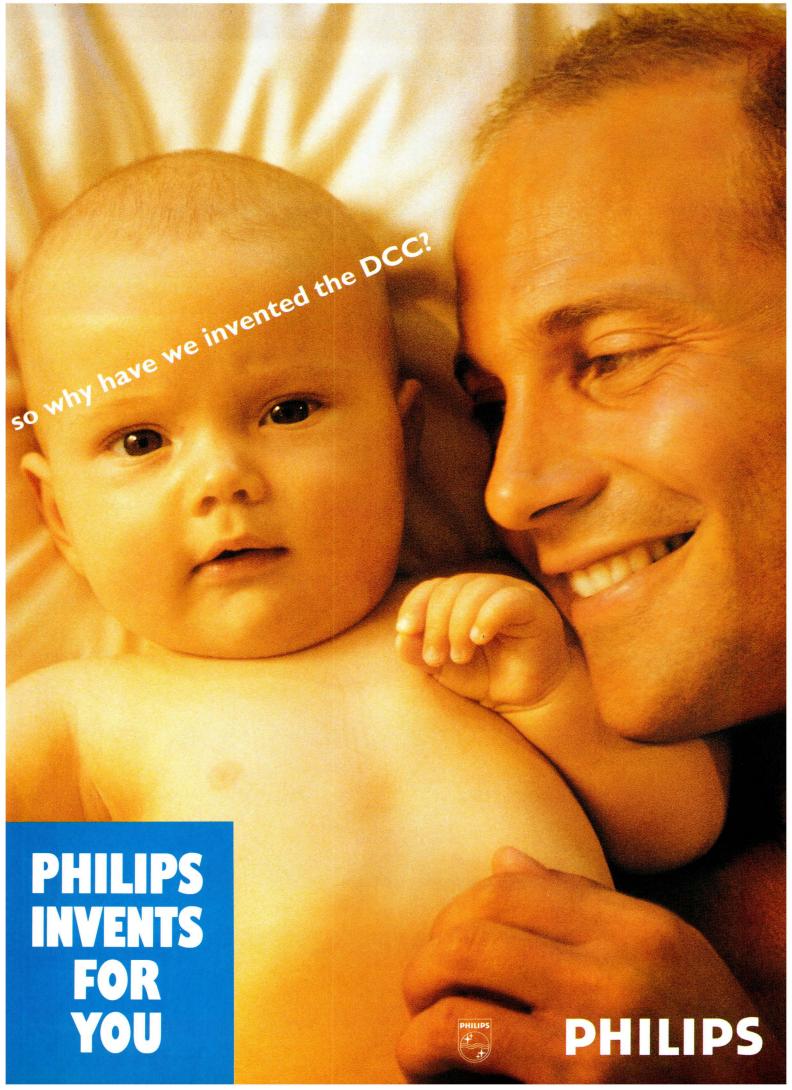
will play them too.







DCC 811 In-car



Together, they've certainly made the critics take note.

"NAD 502 CD Player, 302 amplifier and 802 loudspeakers ... For all round performance we'd have to go for the NAD System ... Best facilities ... Best for Rock ... Best value for money ... Best sound quality overall ... you'd have to try hard to beat the NAD System ... 100% rating for value ... NAD has done it again with a superbly cost-effective set-up ... Detailed, involving sound, stunning value for money." *What Hi-Fi* – *March* 1993



THE 302 AMPLIFIER AND 502 CD PLAYER FROM NAD



need we say more?

Don't miss next month's bumper issue of HIFI CHOICE

Speakers

Eight of the latest speakers under £400 face the perils of the blind listening panel. We point out what you should look for, find out the sweetest sounding, which offer the most value for money, and award *Choice* Recommendations and Best Buys.

Highway hi-fi

Six in-car systems featuring the latest digital technology are pulled over to

see if they pass the driving test. Find out which systems set you headbanging at trafficlights and which soothe you through the most stressful jams.

Let's glow crazy

Four glowing examples of valve amplifier technology are tested for those with a high-end addiction.

Sony celebration competition

Join Sony UK in celebrating its 50 year anniversary, by entering our competition in which you have the chance to win £3,000 worth of top Sony hi-fi equipment.

Not much Ikea in 'ere

We take a trip to Scandanavia to look at the system and lifestyle of a Swedish audiophile.



FREE! The ultimate guide to blank tapes

Comprehensive guide to take you through all the latest blank cassettes available giving advice on when and how to use them and to see whether they live up to the proud claims of the manufacturers.

Bi-amping and bi-wiring

We explain what the difference is, and how to try it for yourself.

Speaker spotlight

Townshend's mighty *Sir Galahad* speakers enter *Choice*'s colourful pageant. Why buy a car when you could have these speakers instead?

All this plus a stocking filler special for last minute great gift ideas for audiophiles.

January's bumper issue is on sale Friday 10th December.

(All contents subject to change due to circumstances beyond our control)

Now you can turn a system that raises goosebumps into one that raises the roof.

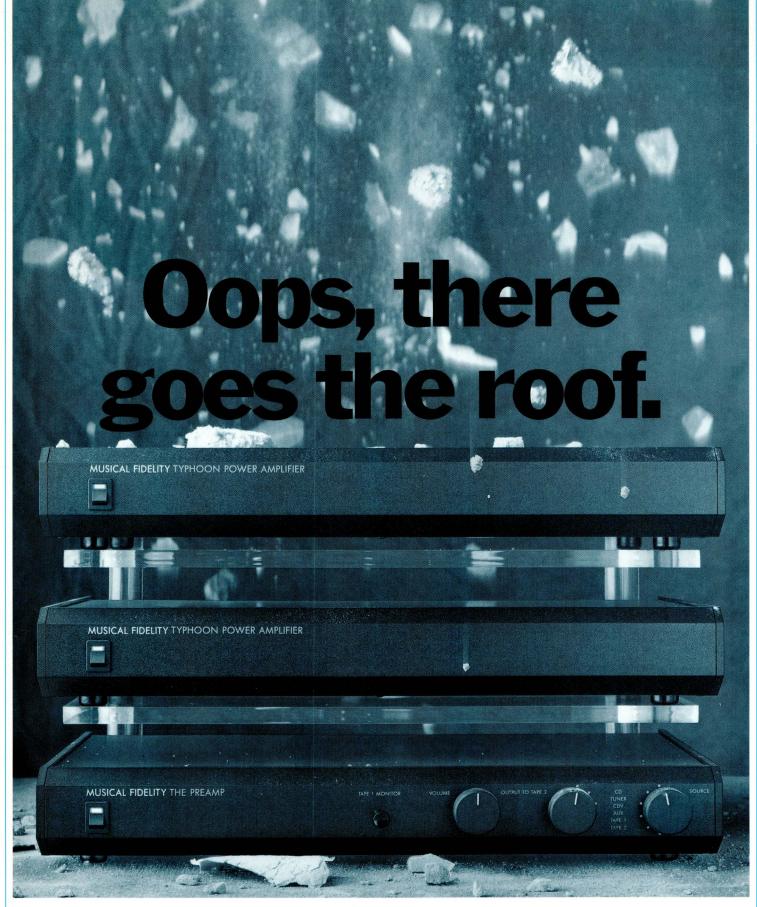
MUSICAL FIDELITY TYPHOON POWER AMPLIFIER

MUSICAL FIDELITY THE PREAMP

The Preamp and the Typhoon stereo power amplifier may be just what you want but you don't have to stop there. Bridge a second Typhoon into the system and you more than triple its power. Your Musical Fidelity stockist can demonstrate the effect but don't say you weren't warned.

MUSICAL FIDELITY

FOR DETAILS OF YOUR NEAREST STOCKIST WRITE TO MUSICAL FIDELITY, 15/16 OLYMPIC TRADING ESTATE, FULTON ROAD, WEMBLEY, MIDDLESEX HA9 OTF OR TELEPHONE 081-900 2866.



The Preamp and bridged Typhoons deliver **150** watts per channel into 4 ohms. Ask for a demonstration at your Musical Fidelity stockist. You'll get deeper bass, startling detail and plenty of extra headroom.

MUSICAL FIDELITY

The latest products, the best recordings and our own points of view on the most interesting

DEVELOPMENTS TO HIT THE HI-FI SCENE. CONCISE REPORTS BY THE CHOICE TEAM.

CHOICE SESSIONS

CD PLAYER

Sony CDP-711E

The *CDP-711E* is Sony's new £250 CD player, the 'E'-suffix standing for England, as in 'optimised for English listening tastes'. I forgot to ask, but I'm sure there will be Welsh, Scottish and Irish versions too.

Construction is lightweight, much of the material content being invested in the wealth of controls. The Sony has it all, and does it all. The only omission is an electrical digital output — an optical output is provided — but be sure to avoid the variable analogue output.

Design highlights include a new mechanism to minimise resonance and vibration. The transformer has been upgraded, and moved away from the main PC board to reduce vibration transmission.

A new digital servo IC has facilitated a reduction in the chip count, which has been further reduced by a new hybrid pulse D/A converter, and now includes the previously independent digital filter. The digital and analogue sections have been separated, and a number of passive components specified by the factory have been upgraded for the *E* model.

After a thorough burn-in period, the sound proved sharp and clean, but lacked gravitas, and suffered from a midband that sometimes appeared swamped by an upper mid/lower treble



Sony's new *CDP-711E* has been designed especially for English ears, but how will it sound in the rest of Great Britain?

region that could sound excessively forward. Translated from technobabble to music, this resulted in crisp, incisive music making, won at the expense of weight and solidity.

The Sony produced a tidy, colourful and attractive sound, well matched to budget/mid price systems, especially those whose speakers lack control in the bass. In a big high-end type system, the imbalance showed only too clearly,



though the incisive, colourful quality and stable imagery helped it to win through.

The Sony also sounded controlled at high levels, where the Marantz *CD52SE II* can sound muddled and coarse when extended.

Taken as a package, with a couple of weeks of regular use to take it all in, I found myself warming to the Sony. Its vitality and colourfulness ensured that even much played material didn't sound boring. A definite thumbs up. *Alvin Gold*

Sony UK Ltd, Sony House, South Street, Staines, Middlesex TW18 4PF. 2081-784 1144

AV without tears: Hitachi's C2574TN television has a builtin Dolby Pro-Logic decoder.

TELEVISION

Hitachi Pro-Logic C2574TN

Beating Toshiba to it by a matter of weeks, Hitachi's new C2574TN is the first TV set to incorporate a complete home cinema surround sound system with full Dolby Pro-Logic decoding. The complete package, including the 25in/59cm screen size television, with all the processing electronics, amplification and some speakers built in, plus four tiny satellite surround speakers, costs a very $reasonable \pm 900 - roughly \pm 270$ more than the simple Nicam stereo version of the same set.

For that sort of money you're not going to get optimum domestic AV sound, but you do get a package that's very easy to set up and use, and one which certainly gives something approaching what the director intended when you feed it with a Dolby Stereo film soundtrack, whether from Nicam broadcast or stereo VCR.

The reason has much to do



with that Dolby Pro-Logic chip set, which gives much more effective surround sound separation than simpler Dolby Surround decoding. It also supplies an additional centre-front 'dialogue' signal, which should ideally be handled by a single mono speaker close to the screen, preferably one with very similar acoustic performance to the left and right front speakers.

This is one of the compromises here, because the Hitachi relies instead on the slimline stereo speakers which come part and parcel with the original Nicam set on which this is based. The other two compromises are the use of an in-set so-called 'subwoofer', which has no more bandwidth than a Goodmans *Maxim* (probably rather less), and a total amplifier power of around 55W — distributed seven ways.

The other snag is that there are no line output sockets for easy connection to a hi-fi system or components. You can use the speaker sockets provided of course, but that's hardly hi-fi. This is essentially the AV equivalent of the music centre — fine value for money as far as it goes, but without any real upgrade flexibility.

What you do get is very respectable picture quality indeed, if just a shade 'cold' on colour balance, plus an effective though distinctly limited sound system, which does the job well enough provided you don't mind the lack of genuine bass and loudness capabilities.

Paul Messenger

Hitachi Sales UK Ltd, Hitachi House, Station Rd, Hayes, Middlesex UB3 4DR. 2081-848 8787





Luxury and sophistication from the new Sennheiser *HD580*, but is it too refined for its own good?

HEADPHONES

Sennheiser HD580

The *HD580* is the new flagship dynamic headphone from the Sennheiser stable, supplanting the *HD560 Ovation II*. A full size open back, circum-aural design, the *580* is more compact in construction than its predecessor, and much more appealingly styled.

Its chief claims to fame, however, are the new 'Duofoil' transducer which uses two Mylar film diaphragms, sandwiched together to form a rigid and well damped composite, and an improved magnetic circuit designed to ensure that the coil always stays within the area of maximum flux. Both measures are intended to improve behaviour at high volume levels.

First impressions were of tremendous comfort. The oval felted ear cushion had a luxurious feel, and applied pressure around the ear, leaving the ears themselves unobstructed, though the older *HD560* allowed the ear more room to breathe, and its split headband design felt better than the new one.

The *HD580* was a warm and lucid sounding design. There was no hint of aggression or bite, and the system was less resonant and therefore less coloured than any dynamic headphone I can name. Unfortunately, it seemed that some of these qualities had been achieved at the expense of transparency and resolving ability. Playing an operatic

recording, I was struck first by

the emaciated sound of the orchestra. Although bass depth was good, the balance left something to be desired. Orchestral basses sounded weak. The singers were well handled, but the overall effect was lightweight.

The same was true with other types of music. It was possible to extract plenty of clean sound at high volume too much for the ears to safely handle in fact. But the raw power, aggression and presence I had expected from some of my better rock and blues albums had legged it.

This is only a guess, but I suspect that the *HD580* may have been subject to design



clinic optimisation, resulting in a product that offends no one. However, without the means to offend, the *HD580* also lacks the ability to excite. It's well built and eminently serviceable, courtesy of plug in leads and other components, but at this price, and from this source, I had expected more.

Alvin Gold

Sennheiser UK Ltd, 12 Davies Way, Knaves Beech Business Centre, Loudwater, High Wycombe, Bucks HP10 9QY.

LOUDSPEAKERS

UKD Callas

UKD is an Anglo-Italian company, now about 15 years old, which distributes a range of audio brands in Italy, and manufactures its own loudspeakers. In a three strong range, the 9.5 litre *Callas* is the baby, though some new models, one of which is cheaper, are on the way.

It is the progeny of an unusual synergy between Italian cabinet making skills and Wharfedale transducers, incorporating the British company's ceramic dome tweeter and a version of its 12cm polypropylene cone bass driver, both undervalued elsewhere.

The enclosures are simply stunning. Veneered MDF baffle apart, they're made of solid mahogany 3.5cm thick (a walnut version is imminent, at £790) which has freed the designer from the usual constraints of building loudspeakers as rectangular boxes. The *Callas* is a series of

UKD's elegant *Callas* loudspeakers. Beautifully built and good for more than opera.



The highest fidelity. Naturally.

HD 580 Top of the range dynamic headphone using new duofoil diaphragm which virtually eliminates sound colouration.

> HD 320 Part of the new generation of dynamic hi-fi stereo headphones, the HD 320 has ergonomic styling with a sound quality that is designed to optimise transparency and clarity, whilst ensuring a strong bass definition.

HD 560 II "A detailed and open headphone with the ability to recreate the power and depth in a piece of music." *Hi-Fi Choice Oct 91.*

Immerse yourself in the music. No distractions, just pure sound reproduction. It's no coincidence that Sennheiser headphones are acclaimed again and again in the hi-fi press. We set new standards of sound reproduction and quality at the leading edge of acoustic technology. Supremely comfortable and near-unbreakable, the headphones are specially designed for easy replacement of parts. With accurate, detailed response and rich pure tone, recreate the eloquence of the instruments, the vitality of the vocals. Whatever your taste in music you'll appreciate the transparent natural sound quality, balanced by a wide dynamic range. Now prove it. Try out our headphones for yourself. You'll be convinced. Naturally.

SENNHEISER

Sennheiser UK Ltd, Freepost, Loudwater, High Wycombe, Buckinghamshire, HP10 8BR. Telephone 0628 850811. Fax 0628 850958

HD 340

A headphone which produces a roomy and detailed sound whilst incorporating high quality in its design making it lightweight and comfortable to wear.

A CHICERER



sumptuous curves, a sloping back panel, and an air flowed rear-firing port, all assembled with traditional furniture joints for rigidity and longevity, and internally braced for good measure. The nonhomogenous nature of real wood gives superior damping and resonance control to MDF, UKD claims, and based on what I heard, I don't doubt their assertion.

One concern with compact loudspeakers that cost as much as this one is value for money, but in this case you can see where the money's gone just by looking. The enclosure is big enough to yield a respectable low frequency extension that in most circumstances will pass as full bandwidth. More to the point, the bass is clean and agile, with good pitch and timing, yet suffused by a feeling of warmth and grace.

These qualities carry over to the rest of the audio frequency band. The overall balance is extremely neutral, and the sound has a combination of vitality and fine control that I have not heard from a box speaker in a long time.

Tonal colours and complex sounds are fully resolved, and the sound retains its intelligibility (given decent matching hardware) even when the volume is turned down very low. This is a speaker I've decided to live with for a while — I can offer no higher praise.

Alvin Gold

UKD, 23 Richings Way, Iver, Bucks, SLO 9DA. ☎ (0753) 652669





CABLE

van den Hul First/Second

The USP (unique selling point) of both the *First* and *Second* interconnects from van den Hul is the use of tiny carbon fibres where other cables use silver or copper wire.

The *First* is a coaxial design that uses 12,000 individually insulated fibres for the central signal conductor, which is only 1mm in diameter, and 38,000 fibres for the screen that forms the return conductor. Available in lengths up to two metres, *First* costs from £120 for a 0.6m pair to £180 for a full metre. It can also be purchased in single lengths for use as a digital interconnect, though the 390hm impedance won't suit all applications.

The *Second* is a balanced version of the *First* with identical carbon signal and return conductors, and a silver coated copper braid as a shield, but costs a little more than *First* at £200 for a terminated metre pair.

If the vdH metal free cables have a specific character, it's an open, spacious and airy one. They are capable of very high detail resolution, revealing as much information as Audioquest *Lapis Hyperlitz* but doing so in a lighter and less coarse fashion. The ability to resolve so much high frequency detail without becoming in the slightest bit ragged is particularly appealing and something that even the best copper cables struggle to achieve.

However, the expensive Audio Note *AN-Vx* cable showed both a thing or two when it came to the resolution of dynamics. Both *First* and *Second* had an excellent sense of timing, creating large and specific soundstages, but with slightly lean bass. I found the *First* more involving, but in systems with balanced connections or hum problems the *Second* is the logical choice. *Jason Kennedy*

van den Hul UK, PO Box 304, Maidstone, Kent, ME16 8TS. 🕿 (0622) 729204

Better known for the big transmission line speakers, how will TDL cope in the budget arena?



VAN DEN HUL FIRST/SECOND
 PROS: High resolution; open and clean sound.

CONS: Could be more dynamically revealing.

From £120.00 SOUND QUALITY

LOUDSPEAKERS

TDL Near Field Monitor

The reputation of TDL, and its earlier incarnation IMF, rested upon big, expensive transmission line loudspeakers. Now it's building smaller, cheaper speakers to introduce TDL to a new audience. The smallest and cheapest ever TDL speaker is the new £99 Near Field Monitor. It is also the first TDL speaker not to feature a transmission line.

Three of the four new loudspeakers in the TDL range are known as reflex transmission line designs, but the Near Field Monitor is a conventional reflex two-way bookshelf speaker. An 88dB efficient speaker with a first order crossover at 5kHz, the Near Field Monitor is suggested to be an easy eight ohm load, which is good because a £100 loudspeaker is not generally expected to partner powerhouse amplifiers. A small box,

The **NEW Series**

feel

It's that

ON A HIGH AND LOST IN MUSIC -THAT'S THE FEELING THAT LISTENING TO THE NEW KEF Q-SERIES CREATES EVERY TIME. KEF HAVE POURED ALL THEIR EXPERIENCE, DESIGN AND UNIQUE TECHNOLOGY - INCLUDING THE KEF UNI-Q® DRIVER - INTO A RANGE OF HI-FI SPEAKERS WHICH WILL ABSORB YOUR SENSES WHER-EVER YOU SIT. ALL THREE MODELS ARE MAGNETICALLY SHIELDED FOR HOME THEATRE COMPATIBILITY. AND THEY'VE BEEN BEAUTIFULLY DESIGNED TO SUIT YOUR INTERIOR STYLE AS WELL AS YOUR LISTENING MOOD.

The Uni-Q listening benefit

KEF has pioneered the coincident source drive unit, which unlike conventional speakers, places the tweeter in the middle of the woofer cone in such a way that the acoustic centres coincide. The directivity or 'Q' of the woofer and tweeter is matched at the critical crossover point – hence the name 'Uni-Q' – and sound is reproduced with astonishingly accurate tonal balance throughout the room. This design gives the listener two sonic benefits; near-perfect sound wherever you sit, and the best possible sound in your listening environment.



neatly finished in black ash or rosewood, the *Near Field Monitor* is designed to be used in free space on a solid stand, which is where we encounter the speaker's biggest failing.

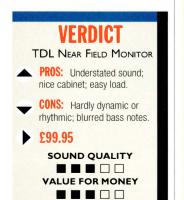
In testing the speaker, I found it worked best on a pair of Target stands, designed for ProAc *Response One S* speakers. Unfortunately, these stands cost approximately three and a half times that of the speakers themselves. However, a pair of sand-filled Atacama stands would probably suffice.

The Near field Monitor has a well rounded sound, without the spit and aggression of the average £100 speaker. I compared the Near Field Monitor with the Choice Best Buy Wharfedale CRS3. The Near Field Monitor was more graceful and refined, with sharper vocals and greater stereo imagery. Playing Towers of Dub by The Orb, the barking dogs in the opening passages were more clear and detailed.

However, it's not all rosy as the *Near Field Monitors* do not have the *CRS3's* rhythmic abilities, nor can they cope with dynamic contrasts. They also tend to cloud the differences between recordings which can result in a bland sound.

In addition, they lack the rough-diamond charm that comes from the *CRS3's* ability to boogie. Playing the KLF's *It's Grim Up North*, the bass notes were ill-defined and blurred, detracting from the tracks up-beat rhythm.

A good budget loud-



speaker is a difficult thing to produce. TDL's first attempt strikes a fair balance in many ways. Those who like an easy, relaxed sound on a tight budget may like the *Near Field Monitors*, but unfortunately they are marred by rhythmic inconsistencies. *Alan Sircom*

ARCAM O

TDL Electronics Ltd, PO Box 98, High Wycombe, Bucking-hamshire, England HP12 3AD. 22 (0494) 441191

The Arcam *Alpha* 6: is it any more than an *Alpha* 5 with a remote control? Read on.

Arcam Alpha 6

AMPLIFIER

I was really impressed by Arcam's new £230 *Alpha 5*, which to these ears was clearly the class act in a recent subjective group test of the latest budget 'real hi-fi' amps (issue 123). The 5 was only one of two *Alpha* amplifiers Arcam launched this summer. You might be tempted instead to pay the extra £100 asked for the *Alpha* 6. The two look very similar indeed on the surface, so where does the money go, and is it really worth forking out the extra?

One major attraction is the 6's remotely controllable motorised volume pot. You have to go up to the *Delta 290* to add remote input switching, and you don't get a handset as part of the *A6* package, but owners of Arcam CD players can use their existing CD remotes, and simple or system handsets are

BOOK REVIEW

Radio! Radio! — The hi-fi view

This glorious looking book is a celebration of radio since the very earliest days of broadcasting. The beautiful dust cover implies a lavish coffee table browser, but the reality is much more a work of scholarly research. It is essential reading for any serious radio enthusiast, but at the same time maybe a little dry and ponderous for those with a more casual interest in the subject.

Much of the book seems to have been built up from the archives of the trade press of the time, including some quite delightful contemporary quotes. There are copious pictures of radios through the years too, and these are the most entertaining sections, but the pictures are monochromatic and often rather fuzzy.

Sadly, the hi-fi (and overseas) perspectives are virtually ignored. This is really a tribute to the British radio set from the twenties up until the transistor and import takeovers of the sixties. As a hi-fi enthusiast, I would have loved to have seen some of the prewar American AM designs, and rather more acknowledgement of the way the radio

Radio! Radio!

BOOK REVIEW



evolved into the hi-fi tuner as well as the tranny radio. *Paul Messenger*



The radio perspective

BOOK REVIEW

The researcher looking for a comprehensive history of radio and television broadcasting in the UK would find one here. Each year from the twenties to the sixties has its story documented over a couple of large (A4) pages or more, when the need arises.

It's as lively as it is thorough, and the pictures of receivers are terrific, especially the full page illustrations introducing each decade. Everyone over 40 should recognise an old family friend among these pages.

You won't get much down the hi-fi shop for £25, but this volume is a substantial work of research, a jolly good yarn, and pretty with it.

Those of us who remember valve radios with affection will want to possess this book as a reminder of times gone by. And younger people, who have any curiosity about how life could possibly have been lived prior to ghettoblasters, Walkmen and *Radio 1*, can discover what the wooden wireless set meant to generations of the past.

Norman McLeod

Sunrise Press, 2-4 Brook Street, Bampton, Devon EX16 9LY.

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And insured to him to strength and the

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"Rock fans will enjoy the way the speakers handle the kicking bass line..."

What Hi-Fi? Sept '93.

"Celestion 3's just want to get up and go." What Hi-Fi? Aug '93.

"Their superior drive and rhythmic integrity make them most suitable for rock fans." What Hi-Fi? Sept '93.

"A loudspeaker that's ready to rock and roll." Alvin Gold, Audiophile Aug '93.



For further information and your nearest d call Celestion on 0473 723131



separately available at £30 and £60.

Arcam also claims to have beefed up the power supply by 25 per cent, increased the power output by 20 per cent (50W into 80hms), and added refinements to components in general, with particular emphasis on improvements to the phono stage.

The important question is whether the upgraded engineering brings a worthwhile improvement in sound quality, and here the A6 proved a little disappointing. Via the line input the sound is a little bigger and less boxy, but also less agile, immediate and coherent. It's a fair enough performance for a £330 amplifier, but somehow lacks the *A5*'s cheeky charm.

However, one of the main differences between the two Alphas lies in the (moving magnet) vinyl disc stage. Using an Arcam P77 for optimum compatibility, the Alpha 6 had a distinct advantage, sounding sweeter, bigger, more authoritative, dynamic and precise than the 5, though the slightly more ponderous bottom end of the Alpha 6 was still apparent.

I suppose there will be those at Arcam who disagree, but I found the A6 didn't offer any real sonic improvement over the A5 overall. What I would like to try, however, is an Alpha 5.5, which combines the vinyl disc stage of the 6 and the basic 5 amplifier. Paul Messenger

A&R Arcam, Pembroke Avenue, Denny Industrial Centre, Waterbeach, Cambs,



CARTRIDGE

Goldring 1012 GX

CD might never have happened. Goldring, one of Britain's best known manufacturers of cartridges, has improved its range of middlemarket moving magnets. In the case of the ever-popular Goldring 1012, the existing FG III stylus has been changed for the Gyger II line contact type.

The 'new' cartridge is the £59.95 1012 GX. Existing 1000 series owners can upgrade to the new D12 GX stylus for £38.95, as it fits all the cartridges in the range. This Gyger stylus was previously fitted to the 1022 cartridge.

Goldring's 1000 series range of moving magnets have received mixed praise over the years. Some find the cartridges sluggish, uneven, coloured and muted, preferring the sound of similarly priced Audio-Technica, Nagaoka and Linn cartridges.

Others, however, have praised the easy and musical dynamic contrasts that come with the 1012 and its stablemates. The new stylus profile goes some way towards silencing the detractors of the Goldring ethos, but by bringing the price down without upsetting its existing followers.

I was able to compare old and new 1012 styli, in a Systemdek IIX/900 turntable, fitted with a Rega RB250 arm proving that old turntables never die, they simply loose their bearings. Both styli were able to portray dynamic changes well in the lower registers and mid-band, but the new Gyger stylus overcomes many of the inconsistencies in the treble.

It is now possible to distinguish pianissimo female vocals during a forte passage, and recording differences were clearly audible between tracks on I Do Not Want What I Haven't Got by Sinead O'Connor.

The character of the cartridge is fundamentally unchanged; even with the new GX stylus, the 1012 is still a

mixed bag. Its overall performance is inconsistent and lacks both the up-beat timing, and the music dissecting abilities, that seem to be de rigeur today. However, it is also the only cartridge at the price that tries to reproduce real music, not sound effects. Alan Sircom

Goldring Ltd, 8 Greyfriars Road, Bury St. Edmunds, Suffolk IP32 7DX. ☎ (0284) 701101





Goldring's 1012 has been upgraded to GX status with a Gyger stylus that was previously the domain of the more expensive 1022.

PREAMP/PHONO AMP

Perception Phono Centre & Pre-amp

Peter Hawkins is an electronics engineer with a background in small signal electronics. He's also an audio enthusiast and in late 1989 he built himself a phono stage which turned out to be pretty decent. Receiving encouragement from fellow music lovers, Peter put what was to become the Perception Phono Centre into production. This year the range was expanded to include a preamp and a DAC.

The Perception Phono Centre (£495) and Pre-amp (£645) are about as minimalist as you get, just an input and output on the former and volume and input selection on the latter. The Pre-amp has six line inputs, tape out and balanced line main outputs, equipped with XLR sockets. Balanced lines are quieter and far better suited to long runs than conventional single ended connections, and are used in many high-end solid state amps and CD players as well as virtually all professional equipment. The only catch is that few power amps in the Perception's price range feature balanced input sockets, but a pair of good quality XLR to phono interconnects is supplied with the Pre-amp and was used for most of the auditioning period.

Listening to both these components in the context of both valve and solid state amps, I have to admit that I was impressed. The Phono Centre coped remarkably well with the paltry output of an

BIG SPEAKER SOUND



It's a clear dilemma. Your lifestyle has changed but not your speakers. What used to fit well into your dorm or first apartment, certainly looks out of place in your living room now. It's time for a change.

And we've got the perfect solution close at hand. Or more accurately, one that fits in the palm of your hand. The Polk RM3000. For that's how small these miraculous satellite speakers are. (Take a close look, it's sitting on the right side of the



Polk's compact subwoofer design uses sophisticated bandpass technology to produce room-filling bass without distortion.

fireplace mantel.)

And wait till you hear it! You and your house guests will be astonished. Because Polk has miniaturized everything but their famous, room-filling sound. Chosen by 1800 experts as the winner of AudioVideo International's Grand Prix award for

WITHOUT THE BIG SPEAKER

the last three consecutive years, no other mini speaker system comes close in sonic excellence. Nor few big ones, for that matter.

Within each satellite speaker, constructed of non-resonant materials, is a 3/4 inch dome tweeter in a stepped down design with a $3^{1/2}$ inch driver. This time-aligned feature delivers a life-like sound. You'll marvel at how it enables you to distinguish individual instruments and vocals.

But the ultimate magic of the enitre system lies in our sophisticated band pass subwoofer which can

be placed anywhere in the room, hidden if preferred. This enables those important low bass frequencies to be faithfully reproduced invisibly.

We invite you to hear a demonstration of the RM3000.

But hurry. Once you hear the great sound of the RM3000, you'll agree that you're not giving up the big speaker sound. Only the big speaker.

matthew & F

THE RM3000. FROM THE SPEAKER SPECIALISTS (

For details and stockists of the Polk Audio range of loudspeakers, phone 0727 827311 or fax **0727 827284** U.K. distribution - Polk Audio Europe Inc., Tyttenhanger House Coursers Road, St Albans AL4 0PG





The discreet appearance of the Perception Pre-amp and Phono Centre hides a serious bit of solid state audio design.

ACCESSORIES

Base baseboards

Audiophile Furniture's £65 Base

baseboard is an elegantly cham-

fered board made from medite,

fitted with two metallic beams

damped with Sorbothane for

A tuneable design for large

available at roughly twice the

In use, the standard *Base*

seems to be able to lower the

noise floor of the system and

is adept at digging out good,

supporting a valve amplifier.

Many bases accent one range

good by default — the Base's

inherently neutral nature lets

the character of the equipment

This can be unnerving for

if to make a system sound

products that are used to

coping with the vibrational

effects presenting most tables,

uninteresting by comparison.

It represents the middle

performance of the Mission

Isoplat, but short of the

shine through.

of frequencies over another, as

clean bass, especially when

cost of the standard *Base*, as

well as an elegant five shelf

high frequency isolation.

turntables is soon to be

rack to which the Base

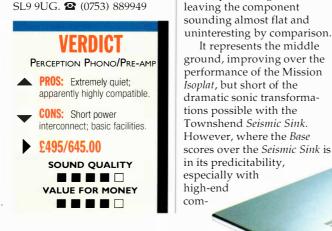
supports can be fitted.

Audio Note Io cartridge, bringing it up to line level in the quietest fashion I've heard.

As a result, the cartridge's phenomenal detail retrieval was displayed in virtually all of its glory. I say 'virtually' because replacing both units with an Audio Innovations P2 and decent step-up transformer resulted in a higher noise floor but a better sense of dynamics. However, the Perception combo put in one of the best transistorised phono performances that I've lived with. An obvious competitor for the Phono *Centre* is Michell's *Iso*, which delivered greater clarity but less textural subtlety.

The *Pre-amp* is a remarkably good example of the breed. It's silent and has very high resolution. In my dynamics oriented system, I find good tube preamps more interesting and enjoyable but when it comes to detail, the Perception is a real contender. Jason Kennedy

Ortofon (UK) Ltd, Chiltern Hill, Chalfont St Peter, Bucks, SL9 9UG. 22 (0753) 889949



RECORD REVIEW | RECORD REVIEW

Ravel

Ma Mere L'Oye Complete Ballet Velses Nobles et Sentimentales Minnesota Orchestra/Skrowaczewski Reference Mastercuts RM-1004 LP only

Stanislav Skrowaczewski recorded Ravel's orchestral music virtually complete for Vox back in 1974. It was issued in the US as a four LP Vox Box, and as separate Vox Turnabout LPs here in the UK.



But the pressings were dire. Even by Vox standards the surfaces were unusually noisy. This was a pity, since the performances and sound were good.

No need to worry about surface noise with these new pressings; the Reference Mastercuts are some of the quietest LPs I've ever experienced. Pressed on thick 180gm vinyl, and superbly cut by Doug Sax at the Mastering Lab in LA, the utmost care has been taken to make the sound as good as possible.

Ma Mere L'Oye (Mother Goose) is Ravel's most magical score. Much of it is quiet, so those looking for an equipment demonstration record may find the music insufficiently extrovert. But there are many marvellously scored passages, subtly lit by Ravel's shimmering orchestration. Valses Nobles starts with a bang, but again for the most part is subtle and refined.

Ma Mere L'Oye lasts thirty minutes, and is usually contained on a single side. However, this reissue retains the side layout of the original Vox LP which breaks after the ninth section. This is a shame; modern cutting techniques surely make it technically feasible to cut a thirty-minute side with no loss of quality.

Skrowaczewski's performances are clean and straightforward; he shapes the music with sensitivity and care over phrasing, and never over-interprets. By the highest standards there are subtler more imaginative accounts of both works to be had, and the orchestral playing could be more distinctive and idiomatic. However, there is still a great deal to savour and enjoy.

Jimmy Hughes

ponents. The Base doesn't seem to have compatibility problems; it transforms a product that likes it (if not to the same extent as the Seismic Sink), and also helps less amenable components.

The Base baseboards sound as good as they look. I would be confident of slotting them into any system, as their level of improvement is so consistent. They filter out the majority of structurally borne vibration, simply leaving the

Oh my God, it's full of stars. Great monoliths of our time. the Base.

equipment to get on with playing music to the best of its ability.

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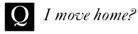


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Copland CTA 301/CTA 504

A man of little will power — Alan Sircom is once again hooked on values thanks to his recent experiences with the Copland CTA 301/CTA 504 pre/power amplifier combination.

The guts of a warm machine;

the CTA 504 power amplifi-

er's innards are in stark

contrast to its sophisticated

external appearance.



Having spent nearly a year at the Betty Ford Clinic, I thought I was off the stuff for good. I had a lost week-

end with the Jadis Defy 7 some months ago, but aside from that, I've been staying off the tubes. Unfortunately, one week into listening to the Copland CTA 301 preamplifier and CTA 504 power amplifier, I suddenly realised I was back on the bottles to stay.

For a valve amplifier to survive in today's solid-state market, it has to be something really special. Many companies make a feature of the valves by displaying them for all to see, otherssimply bathethelistener in a rich, warm sound. If we look back to the days before valve amplifiers became an anachronism, tube technology was not considered warm or showy, but simply the norm. As there was

no alternative to the valve, the valve amplifier had to perform consistently and reliably.

Swedish amplifier manufacturer Copland is one of the few valve amplifier companies that makes nineties valve amps with the fifties no-nonsense mentality. No flashy exposed valves or acres of chrome on a Copland; the style is pure Swedish sophistication, understated and refined.

The £1,250 CTA 301 preamplifier and £1,750 CTA 504 power amplifier are typical examples of the Copland design brief. The large knobs are easy to operate and have a satisfying resistance that gives the impression that the amplifier isn't going

to fall apart two weeks after the guarantee runs out. The two are built to be unfussy, so that the power amplifier can sit on top of the preamplifier without inciting the transformers to riot. If you want to be fussy and placetheamplifierson separate tables and supports, the Copland duo will improve slightly, but the basic package is so userfriendly that it doesn't need to be handled with kid gloves.

Although it may be

overstating the point, you get such an aura of confidence from the Copland amplifiers that you quickly forget that there are hot-running valves inside the casing. There are no ornate warming-up rituals; it simply powers up without fuss, leaving a single green LED in the top



elegant; this pair is designed to sound as good as it looks.

right-hand corner of each amplifier.

Both pre and power amplifiers are comparatively straightforward designs, but engineered to perfection. The CTA 301 uses a passive, shunt regulated push-pull phono stage, with two pairs of E83CC valves, while the line amplifier uses a single E82CC per channel. The GTA 301 also features a soft start, which gently wakes the valves up when first switched on — the usual start-up for valve amplifiers is akin to the tubes being woken up by a foghorn in the morning. As with most valve preamps, it can't deal with moving coil cartridges without a separate step-up transformer. However, unlike some valve preamps, it is whisper quiet in operation.

Refined and transparent

The CTA 504 power amplifier is no less well designed. A 50W pentode design, using two 6550 output valves per side, the power amplifier can also be operated in triode mode, which halves the power output, but makes the amplifier considerably more refined and transparent. Copland's designer, Ole Möller, spent



considerable time designing the seven power supplies for the 504. These keep a tight rein over the voltage reaching the valves for a longer operating life.

In use, both pre and power amps acquit themselves as first-rate performers. Used separately and with other amplifiers, the *CTA 301* and 504 had grace, control, dynamics and a good sense of rhythm. But they really excelled when used together.

The duo is just on the right side of musical warmth. Occasionally, the rosycoloured glasses appear in front of the loudspeakers, adding a bit too much tonal beauty, but for the most part, the Coplands have just the right blend of warmth and clarity. The combination has the sort of dynamic abilities you'd expect from a well designed amplifier with triode aspirations. It doesn't quite ring the musical changes of Mahler's *Second Symphony* with the finesse of a single-ended triode amp, but makes a pretty fair stab at it.

If anything, on first listening, the Coplands hide their quality, only to reveal it after you have fallen under their spell some hours, days or weeks later. It is only when the *CTA* 301 and *CTA* 504 are removed from the system that you realise just how beguiling their abilities truly are. They have the liquid, threedimensionality common to every good valve amp, combined with a tight grip over the bottom octaves, that is capable of resolving all bar the most subtle of dynamic changes.

Reputation in the making

The entire package — both sonically and in terms of build quality — reminds me of the Quad 22/II combination of the late fifties and sixties. Built to last forever, both products were in the reference class of their time, and a fully restored pair of Quad II power amps can still sound stunning today. In many respects, Quad's reputation for reliability and service rests upon these classic amplifiers.

With refined products like the *CTA* 301 and *CTA* 504, I have no reason to doubt that Copland will develop a similar reputation in years to come.

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Home on the dynamic range

The perfect loudspeaker doesn't exist, but Jason Kennedy believes he may have discovered a design that comes pretty close in the Hørning Agathon.

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When you hear the Hørning Agathon, you realise how far away from such a goal the majority of loudspeakers are, which is a bit depressing given their price and size (101x36x35cm). However, once you've listened to them for a while, £3,500 doesn't seem so much for what is a remarkably domesticated horn loudspeaker.

The Hørning *Agathon* is a horn loaded design that's made in Denmark by Tommy Hørning. It uses a cone tweeter and two Lowther drive units per cabinet. The distinctive white paper cone you can see in the picture on page 31 covers the midrange and has its own infinite baffle enclosure. The other one covers the bass and its rearward output is horn loaded. The horn mouth is between the bottom of

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STATEMENTS

the cabinet and its plinth. In its basic *Bronze* guise, the *Agathon* uses a PM6A (A for alnico magnet) midrange unit and a PM2C bass driver. There are three alternative guises, however, with higher grade Lowther drive units. These are called *Silver*, *Gold* and Σ .

One unusual feature of the *Agathon* is its use of a transformer for matching the load of the speaker to the amplifier. There's a plate in the back that's riddled with 4mm sockets so that its various windings can be bridged with gold plated links to achieve alternative responses from the speaker. The design uses the characteristics of the horn and the midrange enclosure to act as mechanical crossovers for the Lowther drivers. The only network component is a capacitor for the tweeter.

From an amplifier's point of view, the *Agathon* is highly efficient (the manufacturer states 95dBW) with a four ohm impedance that's assisted by the aforementioned transformer. I achieved excellent results with a variety of amplifiers including the Audio Innovations *Second Audios*, a Border Patrol *Chargehand* and an Audio Note *Kassai*. The two latter single ended designs proved particularly gratifying.

Living presence

When I first put the *Agathons* in my system two things struck me; what an incredibly solid sense of stereo they created and how odd Donald Fagen's voice sounded. The latter turned out to be a factor of the recording which I got used to very quickly. The way the *Agathons* managed to turn musical instruments into living, resonating three dimensional objects constantly enthralled me throughout the review.

They achieve this with tremendous midrange transparency. The Lowther drivers used are probably the best midrange drivers in the universe but they are expensive and difficult to use, which tends to make them unfashionable. They also make a dramatic case for the superiority of valve amplifiers, which isn't always going to be a popular approach.



Whatever the arguments, the drivers in this speaker are dynamic, subtle and revealing to a degree that's far too rare.

Tonally they can seem a little dull, but if you change over to a more open amplifier the sound opens out with it. Rarely have I come across a speaker that is as revealing as this. No sooner do you think you've got a handle on the speaker's character than a change of component reveals

This plate full of sockets is

used to bridge a transformer

which tailors the Agathon's

response to your amplifier

and listening room.

that what you were listening to was an amp or a tonearm. However, I'm prepared to suggest that the speaker is a little rolled off at both extremes and that the midrange unit, which carries the can right up to 10kHz, has a tendency to steal the show.

But these speakers aren't really about hifi equipment. They are about listening to discs (both silver and black), nearly all of which sound excellent. The *Agathon*s have this uncanny ability to find the best in every recording that they're presented with. Recordings sound different but unless you contrast examples from opposite ends of the spectrum rarely does anything sound bad. They revel in the grunt on Yello's *Baby*, expand in all dimensions with Rachmaninov's *Symphonic Dances* and open up the room with any one of Zappa's excellent live performances.

I had around 15 pages of notes to sift through for this review, and there'sbarely space for a third of the positive points I made. The Hørning *Agathon* isn't a perfect speaker — they don't exist — but it's one of the most complete I've come across.

If you prefer acoustic music (such as classical, jazz and folk) I'd be surprised if there's anything that comes close for the price. Just remember that stereo doesn't mean two channels. It means solid, and the Hørning *Agathon* is capable of creating some of the most solid sounds around.

Definitive Audio, 2 Carlyle Rd, West Bridgford, Nottingham NG2 7NQ. (0602) 813562

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()) PIONEER The Art of Entertainment

CD OFFER

FREE! EDELWEISS CD Piano recital by Daniel Levy

Following the popularity of our first Edelweiss compilation disc, given away free with the April edition of Hi-Fi Choice, attached to the cover of this issue is yet another CD from the noteworthy Italian audiophile label.





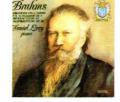
his month's highly collectable CD is a showcase for the extraordinary harmony of the world's most treasured classical instrument: the piano. The pieces played on this CD are all interpreted by the pianist Daniel Levy, whose works have already attracted acclaim from around the world. He has conducted an extensive study of musical styles throughout his life, and these superb recordings stem from this research.

In addition to his professional skill, his sheer enthusiasm puts Levy among today's most talented performers. Levyis a tireless soloist and is in great demand at some of the most prestigious musical centres in Europe.

The piano pieces on your CD are taken from Edelweiss' Levy discography and they form a musical programme that is a fine introduction to both the performer's work and to the piano itself.

Track One is a *Nocturne* by Chopin. Daniel's deeply moving performance builds a kind of salutary spell, evoking marvellous, sonorous images of a nocturnal landscape. As with all Edelweiss recordings, the musical event has been transferred with as little technical artifice as possible, thus respecting the acoustics of the auditorium, the expressive range of the artist and the crystalline harmonics of Levy's Steinway.

Tracks Two to Six reveal the magic of Grieg, summoning up enchanted landscapes and the nuances of his Northern European heritage. Special research conducted during the recording made it possible to capture surprisingly gentle sounds which highlight this perfect coming to-







gether of the performer and his piano. Tracks Seven and Eleven are per-

formed in homage to Venice, and are taken from the popular Edelweiss CD, A

Daniel Levy's Piano Recitals 1. Chopin — Nocturnes (from ED 5009)

Nocturne in B Flat Minor Op 9 no.1 Playing time: 5'31''

2. Grieg — Sonata in E Minor Op 7_(from ED 5005)

- Allegro moderato
- Andante molto
 Alla menuetto
- Alla menuetto
 Finale. Molto allegro
- Playing time: 19'32"

6. Grieg — Lyric Pieces (from ED 5005)

Once upon a time — Puck Playing time: 5'04" and 1'04"

7. A Piano Recital for Venice (from ED 5024)

Mendelssohn, Venetianisches Gondellied Op 30 no. 6 Playing time: 3'21''

8. A Piano Recital for the World's Children (from ED 144)

Schumann, Kinderszenen Op 15 Playing time: 17'07''

9. Brahms (from ED 5002)

Ballade in G minor Playing time: 3'41"

10. *Brahms* (from ED 5002)

Intermezzo Op 118 in E Flat Minor Playing time: 5'29''

11. A Piano Recital for Venice (from ED 5024)

Wagner/Liszt, Isolde Liebestod Playing time: 7'21'' Total playing time: 68'10''

Please note. If your copy of *Hi-Fi Choice* has not been supplied with a free Edelweiss CD attached to the cover, please contact your vendor or newsagent, who will be able to obtain a replacement CD for you. *Piano Recital for Venice*. One has only to listen to the *Venetianisches Gondellied* by Mendelssohn, or Liszt's transcription for piano of Wagner's *Isolde Liebestod* from *Tristan and Isolde*, to hear the echo of beauty of the famous, but slowly sinking, Italian city in the lagoon.

Track Eight presents the *Kinderszenen* by Robert Schumann. The beauty and the warmth of this live recording, during a concert, are unsurpassable.

Only a few words about the pieces by Brahms, *Ballade in G Minor* (Track Nine) and the *Intermezzo Op 118 in E Flat Minor* (Track Ten) are necessary. Levy's sensitive dynamics, shades of tonal colour and elegant rhythmic presence are all captured by the superb recording quality.

Listen and enjoy.



The star of this month's show, Daniel Levy takes a truly global approach to music.

CD OFFER

Scaramuzza, and a concert artist in her own right — who took me through the first steps of piano technique, musical theory and the study of Bach's *The Welltempered Clavier*.

Soon after, I took classes with the great maestro Scaramuzza himself and with one of his most important pupils, Mrs. Ana Gelber. These teachers were pivotal to my musical development. To complete my education, I later studied composition, conducting and musicology, in addition to master classes and seminars.

In those years, not that long ago, Buenos Aires was still a cosmopolitan musical metropolis where the great Russian, German and Italian teachers would receive pupils from all over the world.

However, these later studies did not add much to the basic core which I had acquired under my first two teachers that is a deep love for music, the idea that technique is an aspect of musical energy, and that the body, the mind, the soul, the arms and the hands together form a psycho-physical unity which can express thoughts and musical intuitions.

Is music your main activity?

Yes, if by music you mean drawing constant inspiration and channelling that into teaching, recording and performing.

I have always lived with the idea of the piano and music as my microcosm, but I felt that my education should not be limited to the narrow confines of keyboard specialisation. Hence, I have developed interests in psychology, philosophy and religion which have helped me develop my truly global idea of music.

Your recordings are marked by a bright and powerful sound. Where do you see the border lines between sonority and expressiveness?

There are no border lines because the expressiveness is required by the composer, but sonority depends on an inner state of the performer.

The concentration on sound for its own sake makes for good listening, but meaning is conveyed where there is a coherence between the idea itself and the obtained sound.

Judging by your recordings, your repertoire is huge. However, who are the composers you view as essential?

At the moment I perform a composition from any composer, I have to feel it is the most beautiful and important. Yet, within this repertoire, there are composers whom I regard as essential. Among them are Bach, Beethoven, Schubert, Schumann, Brahms and Scriabin.

Caution, maestro at work

What are your first musical recollections?

I was four when I first discovered the piano, which my mother used to play at home. We also listened to recordings of Horowitz, Heifetz, Toscanini and others.

It was a gradual discovery which took place even before I had a teacher. I was attracted by the various possible combinations of sounds as if they were a game. This natural discovery developed, when I was about six, into a compulsion to improvise and compose musical passages dedicated to people and situations.

Every time I was asked to play these pieces, I would repeat them exactly, though I had yet to learn to read and write musical notes and begin my formal musical education. I consider these years a fundamental period during which music was like a food to me.

Tell us about your musical education.

I began my musical education with a cousin — a pupil of maestro Vincenzo

This month's free CD highlights the virtuoso piano skills of Daniel Levy, one of Edelweiss' major performers. We spoke to Daniel Levy about his love of music, his philosophy on performing and his views about the state of the classical music industry today.

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Each month we're giving away a one metre pair of Isoda interconnect cables to the writer of the most interesting letter. If you've any queries send them to: *Hi-Fi Choice* (Help!), Dennis Publishing Ltd, 19 Bolsover Street, London W1P 7HJ.

The 20 year itch

After over 20 years, my muchloved and much-used B&O *1600* hi-fi system is nearing the end of its days, and I want to add a good quality CD player to the set-up.

I am informed by my local specialists that it is not possible to add a CD player to my system, as it is too old, and that my Wharfedale *Glendale 3XP* loudspeakers will not be able to cope with the input from a modern player.

My interests are in hi-fi reproduction of organ, classical orchestral music and choral singing. I need a system, for about £2,500, that includes turntable, CD player, FM tuner, tape deck, amplifier and good quality speakers.

My room is approx 6m by 4m. I want to finish up with a system that will give me many hours of audio enjoyment without having to go over the top financially.

P E Tadgell, Worcester Park, Surrey. Although adding a CD player to an antiquated system may lead you to consider replacing the lot, the B&O 1600 may not be as redundant as your dealer has suggested. A CD player can be added to the 1600 system through the tape input. If you already have a tape machine, there are after-market switching boxes that allow a tape deck and a CD player to run from the same input. We're not convinced that a CD player would shake the Glendales to pieces either; CDs have wide dynamic range but as long as you are sensible with volume there should be no problem.

However, it may be worth starting over again, with a completely new system that will last another 20 years. For a little over £2,500, we would recommend a system featuring a Systemdek IIXE/900AP turntable, a Rega RB300 tonearm with an Ortofon 510 cartridge, supported by a dedicated table.

The rest of the system should consist of a Rotel RCD-965BX CD player, Denon TU-260L tuner, Sony TC-K520 cassette recorder, Audio Innovations Series 300II valve amplifier all on a Sound Organisation multitier table, and a pair of Audio Note AN-J loudspeakers on heavyweight JPW stands. Finally, connect the system up with the lower cost Audio Note cables for a well balanced sound.

Affordable tube power: Audio Innovations' Series 30011.



QUERY OF THE MONTH Unforgiving undergraduate

I have recently equipped myself with a Marantz CD-52II CD player, Arcam Alpha 3 amplifier and the new TDL RTL 2 floorstanding loudspeakers. This system has given me many good times and some genuine musical insights, but it lacks warmth and the natural balance I have enjoyed in other systems. I often listen for hours at a time and the clinical quality of the sound becomes quite unforgiving. The amp also

struggles at high volumes. What possible upgrades do

you suggest? I listen to a wide variety of music, and ideally would like to hold on to the CD player and amplifier as they have many qualities I like. I am a fulltime student and thus on a somewhat limited budget. Dan Leggett, Worthing, Sussex.

Aside from some very minor changes, sit tight until you have paid off your student loan. A serious

Magnum Opus

The equipment I have is as follows: Rega *Planar* 3 turntable with a Linn *K9* cartridge, Pioneer *PD*-9700 CD player, Rotel *RA*-940BX amplifier and a pair of Goodmans *Magnum K2* speakers, which I have had for the last 22 years.

I am considering alternative speakers and I'm attracted by the good reports on the floorstanding loudspeakers in the £700 bracket. Would they suit my equipment and would I notice a significant improvement, as I don't fancy spendupgrade may involve a complete rethink, and this involves major cash injections. As you find the amp struggles at high volumes, you may need to add a beefier amplifier like the Arcam Delta 290 or

Audiogram MB1 which sounds warm and rich, and has bags of power to boot. In the meantime, go through the system as if your life depended upon it, levelling each

component carefully on its own shelf, and preferably on a dedicated

equipment table. You may also find the addition of a Mission Isoplat or Base baseboard under the Marantz CD player will help to alleviate the problems you mention.

Adopt the same regime for the loudspeakers, following the manufacturer's recommendations carefully and ensuring that the speakers cannot rock on their spikes. Experiment with toeing in too. Finally, add some of the excellent Isoda interconnect that MPI Electric generously supply to the letter of the month winners.

ing £700 and being disappointed? I intend to hear them first, of course, but would appreciate your comments.

Dave Edwards, Dundee, Scotland.

In short, don't do it! Using a pair of Mission 753s or Castle Chesters with your system as it stands is a recipe for disaster, or at least

dissatisfaction. You would be far better off with a more humble pair of speakers, such



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ACOUSTIC

Tony Kleiser Uxbridge Audio 109 Chiswick High Road Chiswick London W4 2ED

22nd June 1993

Dear Sir.

I am writing to you, to inform you that I have recently purchased several items from your Chiswick shop.

The reason for this letter is that I have never had such freedom and pleasure buying anything in my life.

Your staff are all friendly and very helpful. One person in particular has put himself out to help me non stop. That person is Gordon, it is because of his help, that you can be assured of seeing me in your Chiswick shop very soon, ready to sit, listen and purchase any new items I may like the sound of.

I would also like to thank you for giving me the chance to improve my system without having to feel as though I'm being forced to buy because it's there.

Thank you once again for your help and staff. I would appreciate it if you showed Gordon this letter, as I'm looking forward to my next listening session and cup of coffee.

Yours gratefully,

Nigel Harradine

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as IPW AP3s with heavy IPW stands. Use spare funds on a run of Audio Note AN-B loudspeaker cable. Alternatively, try Linn Index II speakers and Ku-Stone stands with K400 cable. Either speaker system will make for a far more balanced performance, and allow for future improvements of front-end and amplifier when the time comes.

Stack 'em high

My problem is one from the real world, not an ideal place for hi-fi. I currently have a Rotel RCD-965BX CD player, Audiolab 8000A amplifier, Mission 753 loudspeakers plus a cassette deck, tuner and turntable — and no room for specialist furniture.

This equipment resides on a very sturdy sideboard with room for only three components side by side. Therefore, at least three of the five components must be stacked, but which three, in which order and where should Mission Isoplats or Sorbothane be used for best effect? Seismic Sinks are currently out of financial reach.

> D Taplin, Pontesbury, Shropshire.

If you consider

which pieces of

equip-

Mission's Isoplat works well but watch out for the slippery feet.

ment are of primary importance, place them on the sideboard and then stack the secondary devices on top.

First, place the turntable by itself, as it is very sensitive to



Is the Tannoy 611 well suited to top turntable performance?

vibration and will not benefit from sitting atop another component. The same principal applies to the CD player, although it is not quite as sensitive. The other component that would benefit from a solid grounding is the amplifier, as its function is so central to the performance of the system.

The two remaining components can be placed on top of the CD player and amplifier. Occasionally, this can create hum; if this is the case, swap the tuner and tape deck over. Sorbothane feet or Isoplats would help under all of the components in your system, except for the turntable. Be careful of the slippery nature of the Isoplat plastic feet on a polished surface.

So you Linn again

My system consists of a Linn Sondek LP12 turntable, with Lingo power supply and Cirkus bearing upgrade, Ittok LVII arm and K9 cartridge. This is connected to an Audiolab 8000A (MkI) amplifier and a pair of Acoustic Research AR18 speakers on Linn Sara stands and connected with Linn K20 cable.

I have pursued the Linn philosophy of front-end first, but how much of an improvement could I get from a pair of floorstanding loudspeakers? I am considering the Mission 753, Linn Keilidh or Tannoy 611. Also, is it possible to upgrade the amplifier to the latest specification?

N Rogers, London.

The logical answer would seem to be a pair of Linn Keilidhs, but the character of the passive Keilidh can be too laid-back for turntable-based systems. At a later date, bi-amping or ideally active drive, using two or three power amplifiers and a set of Aktiv cards, should help equalise the toned-down treble as well as driving the Keilidh properly.

per item on a CD player, amplifier and cassette deck, plus a bit on decent cables. A record deck will hopefully be added later.

The cassette deck that I had in mind was the new Sony TCK-611S which has already had first class reviews from yourselves and other magazines. I would be grateful for some ideas on CD players and amps in the above price range that will blend together well.

The system should sound warm and clear with reasonable bass. My listening room is approximately 6m by 4m and I favour rock and pop music. Paul Frend,

Poole, Dorset.

Only one magazine has raved about the new Sony TCK-611S Dolby S machine so far, but it has shouted so loud that it seems as if



Aside from the Linn option, speakers like the Tannoy 611, Castle Chester or possibly the new Mordaunt-Short MS40 or MS50 floorstanding speakers may fit the bill well.

Finally, although it is possible to upgrade some parts of the Mk I Audiolab for about £100, the Mk II 8000A amplifier is significantly better and radically different from earlier versions. Not all the upgrades are retrofittable.

Midi migration

I currently own a good quality Technics midi system but have replaced the speakers with a pair of Bose 305s, and intend to use these as the basis for a new system of hi-fi separates.

I plan to spend about £300

Sansui's AUX-417R amplifier will get the best from a pair of Bose 305 loudspeakers.

everyone has heard about it. We shall be looking at the player with our usual balanced outlook as soon as a review sample becomes available.

However, among our Best Buys, there are several products worth experimenting with. Start with the Rotel RCD-965BX CD player, add either a Denon PMA-450, a Pioneer A-400 or a Sansui AUX-417R amplifier and a Harman

Kardon TD4200 cassette recorder, with DNM interconnects and Mission



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Stranded *loudspeaker cable to make a fine combination of electronics.*

The next stage would be to add a turntable, and the logical choice would be the Rega Planar 3 or Systemdek IIX/900 with the Moth arm. Either of these would work with an Audio-Technica AT-95E cartridge.

Better buy British

My system is made up of a Rega *Planar* 2 turntable, Pioneer *PD-S601* CD player, Aura *VA-50* amplifier and Tannoy 605 loudspeakers, used with QED 79 Strand cable. I would like to have a totally British set-up by adding an Aura or Arcam *Alpha* CD player.

At present, I seem to get inconsistent sound. Mary-Chapin Carpenter and REM sound great, but other discs sound dull and lacking in bass. Would a better CD player be worth considering or is the speaker cable at fault? S R Kessler,

Eastbourne, East Sussex.

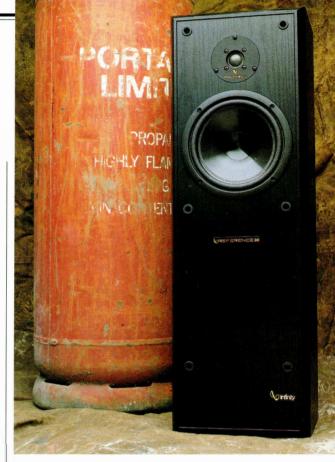
Pioneer's Legato Link digital filtering system has its inconsistencies, and this may be part of the problem, so changing the CD player could help. We have yet to test the new Arcam Alpha 5, but first reports suggest that it is in the same league as its predecessor, so this may be a worthwhile replacement for the Pioneer.

As for cables, if you want to stay all-British, then try adding a second set of QED 79 Strand, to bi-wire the system. You could also try using two sets of Mission Stranded cable.

Second-hand surprises

I am a new convert to hi-fi separates, and recently bought a Marantz *CD-52IISE* CD player and a Sony *TAF-242* amplifier. I am currently using these with an old pair of Wharfedale *Dentons*, which badly need replacing.

In the classified adverts in *Hi-Fi Choice*, it appears that bargains are to be had in



New for old. Infinity Reference 30 or Wharfedale Coleridge?

speakers which may be a few years old and replaced by new models. In particular, the Wharfedale *Coleridge* which I have seen for as little as £200, although it first sold for £600.

Please could you advise me. Are these speakers worth buying or would the money be better spent on a new model? I realise the amplifier may not be ideal, but I would prefer to buy better speakers with future upgrading in mind.

Neal Dorman, County Down, N Ireland.

The Coleridge and Coleridge C loudspeakers were considered to be competent, if not stunning, examples of the loudspeaker designer's art in their time. They are not difficult to drive and would probably complement your system well. As they were considered overpriced when they were current, the price you mention seems pretty fair.

Ultimately, however, a decent pair of modern £350 speakers could see off the Coleridges, and in the long run it might make more sense to go for a proven design like Heybrook HB1 S3s or Infinity Reference 30s.

Quid pro Quad

My hi-fi system is made up of a first generation Philips *CD* 303 CD player, Quad 34 preamplifier, Quad 405 power amplifier and Quad *ESL-63* loudspeakers. I am planning an upgrade and I believe that the CD player is the weakest

What better CD player than a Quad 67 for a Quad system?



link in the present system. I'm not really planning to change the amplifier section for the moment, so I wonder which CD player (up to £1,200) would be the most interesting and suitable for my system?

Stephan Billiet, Brugge, Belgium.

Simple, Quad's new 67 CD player would seem to be the obvious choice. There is no magic synergy between Quad components, but the 67 will shine through the ESL-63 speakers.

Get stuffed

I've just bought a pair of Mission 763 loudspeakers very cheaply, as they contain no acoustic damping material.

Although I was pleasantly surprised by how good they sound in my system — Pioneer *PD-M601* CD player and Rotel *RA-960BX* amplifier — presumably they could be improved by reconditioning.

Bearing in mind that access is limited via the rear terminal blocks, could I partially fill them with polystyrene beads or is proper damping material advisable and, if so, where? N Parrish.

St Neots, Cambridgeshire.

Simply pouring polystyrene beads into the speaker will not suffice. The damping material used in loudspeakers — usually long-haired wool, rock wool or Acoustilux wadding — needs to fit along the insides of the side and rear panels of the loudspeaker cabinet.

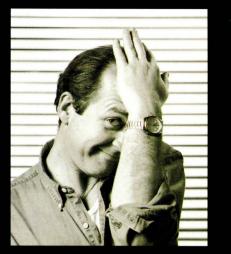
Alternatively, there is a new material, called Deflex, which is claimed to break up standing waves inside the speaker cabinets, thereby eliminating the need for damping material. We have yet to look at the Deflex panels, but you seem to have

a perfect opportunity to experiment with such damping materials, if you feel able.

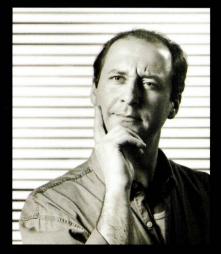




"I've got a pretty good hi-fi system"



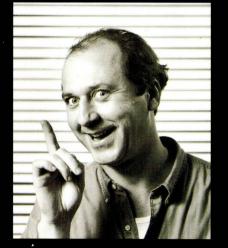
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Glowing testimonial

I have been a hi-fi enthusiast since the fifties, and can remember the heady early days of stereo. I built most of my first hi-fi system, using Gilbert Briggs' loudspeaker books and Williamson's valve amplifier designs.

I was the first in my area to own a transistor amplifier — a Leak *Stereo* 30 — but despite the stunning reviews it received at the time, I preferred the sound from my old valve amps.

Recently, my Leak *Point One* preamplifier got too old to work properly and I had to find a replacement. Not having looked at a hi-fi magazine for nearly 30 years, I was happy to see that there is still a small valve amplifier selection in this age of microchips.

Are they a pale imitation of the Leaks and Quads of old, I wonder, or are they still better than today's transistor amps? If the latter is the case, what has the hi-fi industry been doing since 1964?

Robin King, Aberdeen.

Metal through the ages

There has been a lot of publicity surrounding metal cone drivers and linear array systems over recent months. However, I would like to attempt to put the chronology in order. The earliest example of a metal driver (circa 1920) comprised a radially pleated diaphragm, driven at its centre with a moving iron mechanism.

Metal diaphragms continued to be developed experimentally until the early fifties, when GEC introduced the first commercial metal cone driver, an eight inch full range unit having a seamed aluminium cone, PVC surround and a phase plug.

After this, Goodmans Industries commenced studies into cone behaviour, and the concept of Controlled Cone Flexure (CCF) was born. Later, in 1962 the Jordan-Watts *Module* became the first full range driver to combine CCF with a metal cone.

The first published details of a linear vertical array date back to 1982, following my extensive studies into the improvement of stereophonic imagery.

> E J Jordan, Designs, South Pembrokeshire.

All above board

Having read about, and experienced, the effects that different baseboards for the Linn *LP12* can make to the sound of the turntable, I decided to remove the baseboard from my deck altogether.

The first thing I noticed was the openness and lack of smearing. The notes could be heard to start and stop a lot faster, giving the music added drive. There was a stripping away of what must have been background mush, leaving a dark silence. The sound proved far more tuneful (always an LP12 strength) as well as dynamic and taut. I'm sure that Linn may not

approve, but it is a quick and fun tweak.

Gary Hastie, Northants.

Linn LP12 baseboards are often removed in the quest for a better sound, as it appears to make music slightly brighter. However, many of those who perform a 'boardectomy' often replace it after the honeymoon period wears off.

Peter Nowicki, of Linn Products, points out that the procedure leaves the electronics underneath exposed to dust and prying fingers, which isn't wise. Alan Sircom,

Reviews Editor.



The classic Linn *Sondek LP12*. It may be safer, but does it sound better with a baseboard?

LETTER OF THE MONTH Championing the cause of ecologically sound hi-fi

I own a Pioneer A-400 amplifier, and I have read in magazines such as yours that it is better to allow the amp to warm up for at least an hour before use. I have also read that it is better to leave the amp switched on permanently with the

volume low. My concern is the amount of energy this uses. On the rear of the amp, Pioneer quotes the power consumption as 500 watts. Does this mean that I am using the same amount of electricity as five electric light bulbs, 24 hours a day? If so, I think it shows a poor regard for the environment, besides the obvious financial cost.

Is the search for sonic perfection really more important than the preservation of the planet? Are there any manufacturers who have considered this issue and, if so, why are they so silent on the matter?

Simon Eyles, Bath.

We spoke to Pioneer about the power consumption of the A-400. The figure stamped on the rear panel (500 watts) is the maximum power consumption, and there is a substantial difference between this and the amplifier's

power consumption when lying idle, which is as little as 25 watts.

Some solid state products, such as CD players, benefit from being left switched on all the time. When standing quiescent, the power consumption of such components is minimal. It still taxes the environment, but only as much as a child's night light or a video cassette recorder.

Most hi-fi companies take the ecological issues in hi-fi seriously, using recycled packaging and environmentlyfriendly paints wherever possible. In addition, many loudspeaker manufactur-

ers are switching over to veneers from sustainable resources. Though it doesn't shout it from the rooftops, the hi-fi industry like the music industry it is closely associated with is slowly coming round to a greener way of thinking.

Ed.

Win! Win! Win! Each month, the writer of the best *Write On!* letter receives an exclusive *Choice* sweatshirt.



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he first lucky winner out of the Hi-Fi Choice post bag will receive a fabulous Alpine 7980M 3-disc CD-cum-tuner worth £650, along with a £140 Alpine 3531 power amplifier and £150 worth of Alpine loudspeakers specially selected to suit the winner's car.

The two runners up will each receive a 7514L radio/cassette player

Questions

1. How many discs does the Alpine 5952Z multi-disc changer hold? a)3 b)2 c)6 d)24

2. What small white flower is commonly found in Alpine landscapes?a) Dandelion b) Tulipc) Edelweiss d) Gladioli

3. As well as being a multi-disc CD player Alpine's 7980M is also
a) a tuner b) a cassette player
c) a clock radio d) a MiniDisc player

4. The Alpine 3531 is what kind of incar hi-fi component?a) a graphic equaliserb) a preampc) a subwooferd) a power amplifier

4. What kind of flag is traditionally used in motor racing to indicate the final lap of the race?a) red b) black c) chequeredd) blue cross

5. How much is the Alpine 7514L radio/cassette player worth? a)£270 b)150 c)£75 d)£330

valued at £270, a 5952Z six disc changer worth £330 and the £70 3501 amplifier.

The fourth entry to be drawn will win a 7513L radio/cassette, worth £230.

An opportunity not to be missed. Simply send in your entry now and you could be cruising the hi-ways and bi-ways (or stuck on the M25) with something far more entertaining than having to read bumper stickers.

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, however, as the entry will be automatically void.

Send your completed entries to Alpine Competition (HFC/1293), *Hi-Fi Choice*, Tower Publishing, Freepost WD7, Market Harborough, Leicestershire LE87 4AU. Entries must be received by first post on Monday 20th December, 1993.

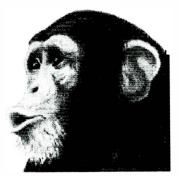
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The Editor's decision is final and no correspondance will be entered into. Winners will be notified by post. The competition is not open to employees of Dennis Publishing Ltd, Alpine, their suppliers, agents or associates. The competition is open to UK residents only. No cash alternative will be offered. Submission of entry will be taken as meaning 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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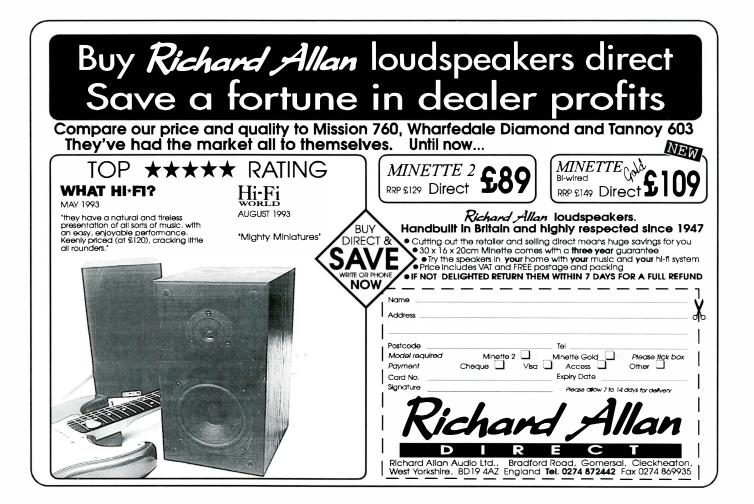
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Building bridges, banging heads

ive '93 was a rip-roaring success. So were the public days of the Hi-Fi Show at the Heathrow Ramada hotel, held the weekend before.

The audio industry has to move very fast to sort out what happens next year. As things presently stand there will be two shows, Live '94 at Earls Court and the Hi-Fi Show at Heathrow, again within a couple of weeks of each other.

In theory they should pull in different crowds, but paying customers will choose either one show or the



Barry Fox ponders the future of UK hi-fi shows and asks why isn't there a VCR for radio enthusiasts?

other. Some manufacturers will choose, too. Others will feel the need to show different types of products at both, if they can afford it.

The obvious answer would be some kind of tie-up, where specialist firms exhibit serious hi-fi at hotels close to the main hall, with free buses shuttling people between venues. But efforts to arrange such links this year failed.

If Live '93 had failed and cancelled for 1994, it would have solved the show split problem, but it would have been a disaster for the electronics industry which hasfor years wanted and needed a big public show. For a while

Live did look shaky. The plan to pre-sell tickets did not work out, because there was no financial incentive to buy early. In the run up to the show, public awareness was clearly low. Exhibitors like Sony, who had spent around £600,000 on the show, were getting very edgy and reminding the organisers of their promises on publicity and attendance.

However, the Live '93 organisers blitzed the public with a campaign that made the show the huge success it undoubtedly was. So now the organisers of Live '94 will be negotiating with the Hi-Fi Show's organisers, from a position of much greater strength than it was before.

The Federation of British Audio and the British Audio Dealers' Association is trying to decide what to do about next year's shows, and how to build bridges or bang heads together. When push comes to shove it will be the big audio boys, like KEF, Tannoy, Mission, Meridian and Linn, and the foreign giants, like Panasonic, Sony, Philips, Sharp, Toshiba and Hitachi, who decide what happens next September. One thing is certain: you can't run a hi-fi show with just cable and accessory exhibits, and Earls Court is no place to demonstrate the subtleties of a top class hifi system.

Where for art thou RCR?

Neither DCC nor Mini Disc is selling well. And still neither Philips nor Sony offer the one unit which many would jump to buy

questions at press conferences around the world.

One of the UK's top journalists,

Barry Fox asks

the awkward

- the radio equivalent of a video cassette recorder.

Although we have had VCRs now for 20 years, there is still no RCR, with FM tuner and timer integrated with a stereo cassette or disc recorder. Over the years, many people have asked why they cannot buy an RCR. And I have put the question many times to all the major manufacturers, both in Europe and Japan.

The main reason they used to give was that the conventional analogue audio cassette is not suited to the job. They would also waffle on about "well, we sell a rack system and you can buy an add-on timer to go with it". This is rubbish, as anyone who has tried to tape an hourlong radio drama or concert well knows.

Now we have logic-controlled DCC and MD decks, with auto-reverse recording on DCC and at least an hour on an MD blank, it seem even more crazy that there is no timer-controlled radio deck.

At the Chicago CES I put the question to Panasonic and Philips, and finally the real answer slipped out. The large markets, such as Japan and the USA, do not want a radio recorder because in those

countries people only listen to radio as background, at home or in the car.

Of course, we all know that in Europe, radio is taken much more seriously. But this message has never been rammed home by the European subsidiaries of the Japanese majors. So the Japanese factories see a radio recorder as a specialist product, not worth tooling up for.

But this doesn't explain why

Philips, a European company, hasn't seen the market opportunity. It is because the manufacture of DCC hardware has been driven by Philips' factory in Japan. Although it was Europeans in Eindhoven who developed DCC, it is Marantz which makes it.

Only one puzzle remains. If the Japanese see a radio recorder as a specialist product, that will sell only in small numbers and is thus not worth making, why are they bothering to make any DCC and MD recorders at all? People are hardly queuing up to buy either format in their present form.

Even in the quietest moments, Live '93 was packed. Could this benefit the specialist hi-fi show, or kill it off altogether?

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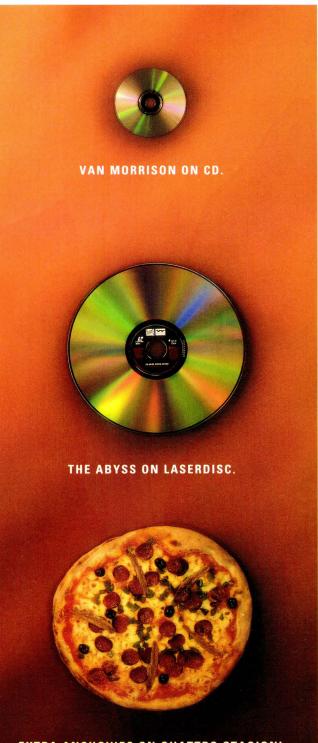
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Simon Davies talks to rock guitar legend Steve Hackett about his hi-fi, his studio — built into the basement of his Surrey home — and his music in the years before, during and after Genesis.

I KNOW WHAT I LIKE

INTERVIEW

" was playing the harmonica 10 years before the guitar," enthused Steve Hackett pushing a digital tape recording of a track from his latest rhythm 'n' blues project into the open maw of a Sony DAT player in his studio. "When I joined Genesis, though, I reckoned my playing days were over. The other guys in the band thought it was more of a toy than a musical instrument."

Such an admission is somewhat surprising, coming as it does from the man largely credited with providing Genesis with its distinctive guitar sound in the early seventies. But then Steve Hackett has always been different. From 1971 to 1977, when herecorded no less than eight albums with Genesis, he established a reputation as the quiet, thinking member of the band.

While Peter Gabriel and Phil Collins were happy to grab the limelight afforded them by being part of one of the decade's great 'super' groups, Steve concentrated on developing the complex sound that made Genesis so unique. Not content with the traditional guitar sound, Steve pushed back the frontiers of what was possible at the time, with the equipment available, to pioneer a whole new style of music.

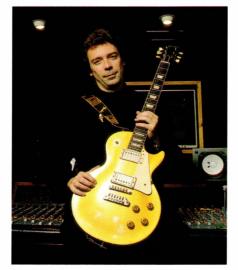
Changing directions

Now, this same drive for originality has resulted in yet another change of direction. After releasing his first rock album for 10 years, *Guitar Noir*, earlier this year, Steve is currently hard at work putting the finishing touches to 13 rhythm 'n' blues tracks. What started out as little more than a jamming session with a few blues cronies now looks as though it will see the light of day early next year as the first rhythm 'n' blues album he has worked on.

"It's funny how things turn out," explained Steve, hitting the pause button on his DAT machine. "I'd always loved the blues, which is why I started playing the harmonica, and I'd always wanted to record a blues album. But to record such an album used to be considered the last thing a musician did before retiring. Or dying. Now, it's as if there is nothing more important in a musician's life than playing the blues.

"Which is great for me, since I'm really a harmonica player, masquerading as a guitarist. I play the harmonica at least as much as the guitar on the new album, and I love it. I'm also passionately fond of the blues harp. You know, it sounds a bit like a trumpet, a poor man's trumpet, but with fewer notes. It's brilliant."

Not quite sure if I was really hearing all this from the great man I'd idolised during my student days, following Genesis from one northern venue to the next,



Frustrated harmonica player, Steve Hackett, finds solace in a Gibson Les Paul *Goldtop*.

The studio: why every home should have one

Steve Hackett is luckier than most musicians. His home in Twickenham boasts a fully equipped basement studio that allows him the luxury of recording ideas as and when they occur. Just as useful is the ability to run off analogue and digital tape copies from the analogue studio master to play on his domestic or car hi-fi system.

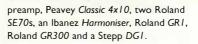
"It's all well and good my listening to a track in a dedicated listening room with thumping big studio monitors," explained Steve, "but I need to know what other people will be hearing when they play the song through their hi-fi systems.

"The studio was designed by Billy Budis, my manager, and myself. A company called Recording Architecture did the building work. We wanted to keep the windows, and had very firm ideas on where the mixing desk and other key items were to go, as we didn't want next door to know we even had a studio, never mind that there might be crazy musicians in it beating hell out of a drum kit all night."

The studio is built around an AMEK Angela 36/24 mixing desk, linked to a Studer A80 24-track master recorder with Dolby SR, plus a Fostex E22 half-inch two-track recorder and both Sony DTC-1000ES and Casio DA7 DAT recorders. Monitoring is via Yamaha NS10s driven by an Omniphonics

amplifier, and UREI 813C professional drivers suspended in concrete and powered by a JBL 6300 amp.

The famous guitar sound is preserved and developed with the help of a Mackie 1604 16/2 mixer, a Groove Tube valve



I sat back in the recording engineer's chair and prepared to be disillusioned as Steve punched the button to play me a rough cut of *Way Down South*, one of the new blues tracks.

It was stunning. A sleazy, raunchy, haunting melody that got under your skin but with a driving beat that even had our photographer tapping out the rhythm on his tripod. The Omniphonics amp driving the Yamaha *NS10* monitors in the compact studio sounded raw and powerful, yet never obscured Steve's deft touch on the harmonica, itself a revelation.

"The band comprises Julian Colbeck on keyboards; on drums, Hugo Degenhardt, and a couple of bass players, Doug Sinclair and Dave Ball. There's no special guest situation. We just wanted to create a blues album. In fact, we started out with the idea of making the album in two weeks. A year later, we're still putting the finishing touches to it.

"It's been great fun, though, and the fact that everyone and their uncle is now doing it just goes to prove what I've always believed; that blues is the classical music of rock 'n' roll. Whatever fads and fashions may come along, the blues will always come back to reach out and grab you.

"With Genesis, the emphasis was on producing a good verse and a good chorus all the time. There were so many do's and don'ts. Blues is quite different. With the minimum of technique, you can produce something really special. It's almost a denial of technique, with the emphasis on presentation and interpretation. The lyric is secondary."

The appeal of the blues is obvious, given Steve's preoccupation with getting a sound just right. The huge success of the early Genesis albums owed much to this quest for perfection, and his continuing appeal as a solo artist comes largely as a result of developing a musical style that both enthralls and intrigues an audience. So how does he do it?

"When Genesis was first formed, we used to work a lot as a live band. I desperately wanted to recreate on stage the sort of sound that had previously only been possible in the studio. I was looking for a haunting sound, and the arrival on the scene of the Echoplex was the answer to my prayers. The Echoplex gave you echo, controllable, repeat echo.

"Basically, it was a playback head, on a stick, which you moved backwards and forwards in a slot to achieve the desired effect. You could produce slap echo, *Heartbreak Hotel* style, or the very long Pink Floyd type of sustained echo. It would

The wall of sound (left). Steve Hackett's rack of guitar effects and amplification.

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even feed back on itself! It was a frightening sound that nobody uses any more, like an amp about to blow up. Now there's a thought. Maybe I should try using it again . . . "

Standing the test of time

So which of the Genesis albums, I wondered, did Steve rate most highly? Which of the early works had stood the test of time?

"Selling England By The Pound is the best sounding. Most of the fans agree, but not all the band. One or two thought that it didn't have enough great songs on it butthe production values were truly stateof-the-art. The following album, *The Lamb Lies Down On Broadway*, didn't sound nearly as good. Great ideas but not such a good sound. What *Lamb* did have, though, was a great guitar sound. I was using a Hi-Watt amp at the time and it just went louder and louder without distorting. That, paired with a Marshall Super Fuzz, had real grunt."

When Steve left the band, in 1977, Genesis were on a roll. After *Lamb*, the albums *Trick Of The Tail*, *Wind & Wuthering* and *Seconds Out* had followed in quick succession, all chart toppers. Did Steve have any regrets, I wondered, at having left the band when he did?

"Well, I'd certainly like to have earnt some of the money that they have since I left! But no, it was the right move at the right time. I had a yearning for fresh blood, as Dracula would say. I really wanted to work with other people, and it wasn't until I started new projects that I realised just how little I'd learnt to communicate with other musicians.

"As a band, Genesis had its own language. I didn't know what a shuffle was until I left. We used to call it a choke. It

> was just like being in a school band, and very suffocating. I wanted to work with new people; in particular, I wanted to work with black artists. In fact, my first solo album *Please Don't Touch*, in 1978, gave me the chance to work with Randy Crawford, who I'd discovered singing in a Chicago nightclub.

"Different people come up

Steve Hackett — the playing that spawned 1,000 fifth form air guitarists.

with different techniques for playing instruments as well. This has allowed me to develop my own sound, if you like to call it that, in my own albums. A guitarist is always looking for a range of sounds that enable him, or her, to compete with the much wider range of the keyboard player."

Looking around the superbly equipped studio Steve has had built in his own basement, with just about every bit of kit a musician's heart could desire, I ventured to suggest that the latest recording technology might be killing the need to innovate that has made all his work so distinctive.

"No, I don't think so," he said decisively. "From time to time, a piece of gear comes along that's fashionable to use, sure, but really great music is forever. For example, *Heartbreak Hotel* is a great song with a terrific vocal sound, still sought

The professional's choice

The huge living room in Steve's house dwarfs the compact Yamaha CC-70W stack system he chooses to listen to for his own entertainment. "The studio is the room for toys, the living room is for living. That's why I chose a system that would be unobtrusive. Yamaha's Active Servo Technology boosts the bass available from quite compact speakers, but it's critical enough for me to get an idea of how good, or bad, my latest studio creations may sound."

The system comprises a three-disc CD changer, 50 watts per channel receiver with

the aforementioned YST technology, a twin cassette deck and a pair of ultra compact speakers.

"I also have one of the original Sony CDP-101 CD players (the first CD player on sale in the UK) which still sounds good and is better built than many players today. I also try out all my recordings in the car as well. I use a Blaupunkt Melbourne

radio/cassette player that reveals if I need to tweak recordings for best effect on less sophisticated music playing systems." after by many a recording engineer. Yet Elvis argued, years after its release, that the fashion for lots of echo at the time had spoilt it. It hadn't. The song survived the technique."

Sustaining interests

But don't any of today's innovations impress you, I asked?

"Well," mused Steve, "I always used an *E-Bow* to get complete sustain when playing the guitar. It's basically a magnet going from a positive setting to a negative one in order to set up a vibration in the string. However, it has to be held over the strings and positioning is difficult. Now, you can get devices built into guitars that do exactly the same thing. I've a Fernandez guitar that gives you feedback on a note, and a harmonic too.

"For me, that's more exciting than all the guitar synthesiser technology you care to name. The problem with a guitar synthesiser is that, at best, you only end up sounding like last year's keyboard player.

"I'm a great fan of miniaturisation. To get a seriously deafening sound in the old days, I'd have to hook up a stack of Marshall amps. Today, I'd be lost without my Groove Tube, a valve preamp no bigger than a briefcase that mimics the stack's tonal characteristics. Miniaturisation. That's why I'm able to record in my own basement what would have required a huge suite of studios only a few years ago. It's great."

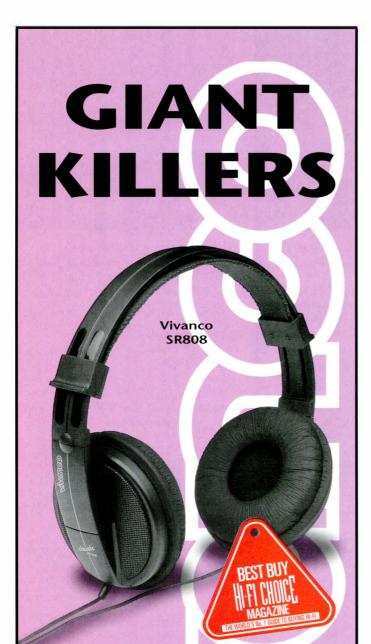
Are we likely to see more varied projects from his studio in the future?

"Well, we're still working to complete the blues album, which should be finished early next year. We're also about to go on tour in the States to promote the *Guitar Noir* album, so the next few months at least are pretty well accounted for. But after that, who knows?

"I'm pretty lucky in that I can pick and choose the projects I want to do and, after a really wild time putting the blues album together, I just look forward to working with as

many people as I can. Life's too short to worry about planning all the right moves. If it feels right, do it!"





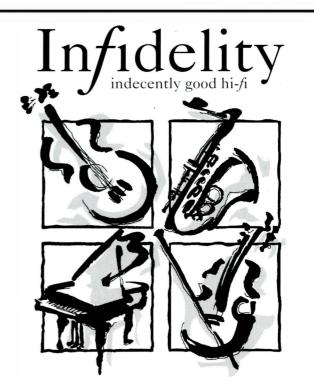
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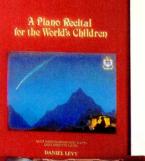
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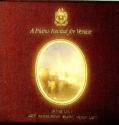
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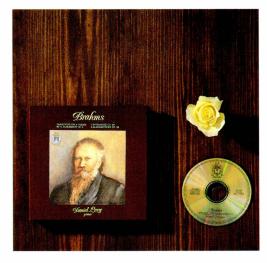
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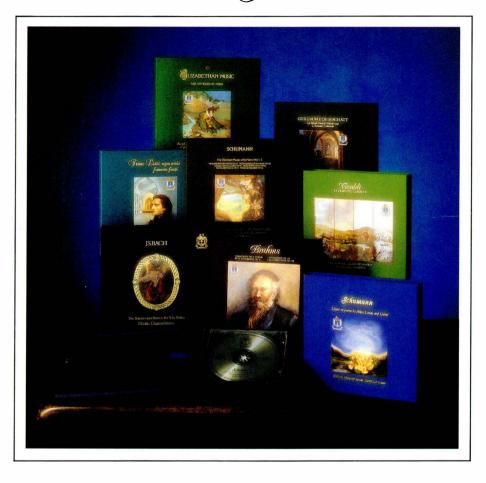
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STACK SYSTEMS

On test: stack systems

Paul Messenger looks at the evolution of the stack system and considers its pros and cons for the enthusiast.

The cast list

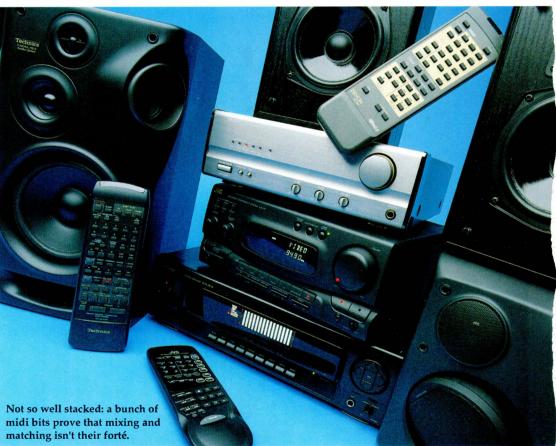
Denon D110	£800/£870
Goodmans System 700	£625/£735
JVC Mini Adagio MX-G7	N/£799
Philips FW91	£999/N
Pioneer N53M	N/£549
Technics SC-CH950	N/£999

QUOTED FOR SYSTEMS WITHOUT/WITH SPEAKERS



t all started with the radiogram, longer ago than this particular memory. By the fifties and the introduction of stereo LPs, the radiogram begat the stereogram. This gargantuan piece of furniture could space the loudspeakers as much as five feet apart.

It took a few years for the penny to drop. Simply chop the loudspeakers off the ends, put up with a couple of trailing wires and the music



centre was born — much easier to fit into the modern lounge, where the television set was now king. The original stereotype music centre combined turntable, cassette deck, tuner and amplifier in a rather bulky flat-bed central box that needed to sit on a shelf or sideboard.

In the meantime, separate component hi-fi had started evolving into matched 'onemake' packages where the individual items could be stacked up vertically with the record player perched on top. The whole caboodle could be mounted into a free-standing 'tower', with room for records and tapes, castors on the bottom, and a smoked glass door to keep the dust out.

Music centre manufacturers simply followed the fashion, changing the shape of their one-piece packages from flat top-loaders into frontloading towers at a fraction of the price of separates. Separates have kept the 430mm full-width component faith ever since, but in the late seventies more compact alternatives were developed, including 'midi' (350mm) and 'mini' (270mm) width components. The LP record player was still king, and couldn't be shrunk below midi size, so minis didn't catch on until a decade later, come the CD era.

But the midi system was an immediate hit in cramped

Japanese and British homes, providing a compact shelfmounting alternative to the full size tower. Electronic components and assembly methods had been getting smaller for years, so the shrinkage didn't involve much performance compromise, except perhaps for the record players, and the ultimate power output available from the amplifier. And it wasn't long before the music centre makers were producing single-box midis at lower and lower prices.

Even though the CD player is now a more integral part of the package than the record player (which was always better bought as a separate specialist item), the sheer practicality and flexibility of the midi system has ensured its survival well past the expected sell by date. It's a convenient, compact and easily installed option with performance and features to match prices from £70 right up to £1,000 or more.

With CD now established, the late eighties saw the successful second coming of the mini system, Sony leading the way with what has now become the most important and innovative part of the system market. The mini hasn't swept the midi aside, any more than midis supplanted separates, but instead has become a third and quite distinct alternative, with its own advantages, disadvantages and stereotypes.

To bring the story right up to date, the mini system had hardly had time to get properly established when JVC introduced the even tinier micro system a couple of years back. It's been suggested that the micro system is rather less a hi-fi system, rather more a jumped up clock radio.

Certainly it doesn't seem to be having any significant effect upon the growth in mini system popularity. Instead, the micro is finding more of a niche role as a personal hi-fi system around the house.

The current stage therefore remains set, with separates occupying the high credibility and flexibility ground, while the minis and midis deliver very similar feature-rich remote-control packages at every conceivable price point.

How the tests were done

The collection of six systems assembled for this test — five minis and a midi — cover a price range from ± 550 to over $\pm 1,000$, which roughly represents the top half of the marketplace. Given the pretty basic performance we found here at ± 500 plus, a search for genuine nuggets from the under ± 500 sector would likely have proved futile.

The wide variations between the different systems, including surround sound and bi-amp operation, as well as the considerable complexity of each individual system, would have made any attempt to organise comparative listening tests between the group equally futile.

Instead, each was auditioned and played with separately, both with its own speakers and feeding a reference monitor pair of specialist loudspeakers. The former sets the tone for the review whole, defining the total experience, while the latter avoids the gross coloration and balance shifts changing loudspeakers always involves, thus helping us from getting fooled by system compensations.

Individual notes on performance from CD, cassette (record and playback), tuner (and, where relevant, video-surround) sources, plus

system operation and processing facilities as well as amplifier and speaker drive, were then augmented by ad hoc comparisons between various systems and components. This helped to build up the total picture which is hopefully reflected in the reviews.



Paul Messenger demonstrates that the life of an audio guru is not all zen and serenity.

Swing tags

Products that make the grade are awarded Hi-Fi Choice's unique Best Buy or Recommended accolades. This sets them apart as being capable of a higher standard of fidelity than average at a particular price point.

A product carrying the Best Buy swing tag is significantly better than the alternatives in its price band. It is of excellent quality and very good value for money. Watch out for this logo, it is your guarantee of quality.

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 to be more compatible when assembling a first class system.

Mini's marketing paradox

The stereotype mini system is a bit of a paradox. Its main rationale is to satisfy the three Cs — cuteness, compactness and convenience. But the mainstream market for packaged systems is marketing led, and the marketeers must needs create a number of carefully differentiated models through an extended range of price points.

The net result is that cheaper models are more friendly and approachable, but their basic performance is inevitably price constrained. The more upmarket packages at least have some potential for hi-fi performance, but also end up adding a fourth C, complexity, which tends to undermine the convenience factor to a significant degree.

As years go by and new features like AV processing and switching are added to the top models, all the widgets from previous years work their way steadily down the price hierarchy to the less expensive packages. Even the least expensive mini has more features than a typical separates system; what it lacks is good basic performance. The argument remains: why fit two inadequate decks when one half decent one should cost no more?

Alice in Massproductionland knows the real answer (as does Denon, see review). If you don't put in two cassette decks the shop floor salesman will use this supposed oversight to switch sell to another brand which does.

What this all comes down to in practice is that if you want a mini system capable of a half decent hi-fi performance, you've no alternative but to buy one that's also overburdened with widgets you may not want, nor have the time or inclination to learn how to use. Which is where the traditional hi-fi system's relative simplicity offers a real alternative (though the spread of unified remote control over one-make separates systems leaves me worried how long this will last). Where the mini leads on compactness, cuteness and (convenience?) complexity, separates reply with performance, simplicity and flexibility. And the price you end up paying isn't necessarily going to be all that different either way.

The midi alternative

The current Argos catalogue lists a Goodmans 2550 midi system for £79, as well as the £735 System 700 reviewed here. Such a vast 10:1 price differential will be reflected in an enormous performance and construction gulf between what is among the cheapest of music centres, and a fully separated midi-size hi-fi stack.

At System 700 level, the midi looks very like a complete cosmetically matched hi-fi system — which in a sense it is. By borrowing the bulky clothes of midi separates, it can be bought piecemeal.

Today's midi system, therefore sits somewhat uneasily between the cute, compact little mini, and the serious performance of separates. But while it may be a bit bulky for the adolescent bedroom (which now has to find room for computers, colour monitors, keyboards et al), it's still arguably the best compromise for the family lounge. All things being equal, greater bulk allows more power to be dissipated and generated, so the trend towards AV-oriented surround sound systems with extra power amplification should continue to justify the midi system's existence for many years to come.

STACK SYSTEMS

Denon **N-110**

s a company with a strong presence in hi-fi separates and no distractions in other consumer electronics arenas. Denon approaches the mini system market from the high ground. Its first generation of exquisitely presented, titanium finish minis enjoyed both critical and commercial success, despite selling at a healthy price premium above the normal market rate. A major reason was that it successfully clung onto the remaining threads of proper hi-fi reproduction, including offering its systems with or without loudspeakers.

Indeed, the three-box D-70/S was a Best Buy at £500/£600 in last year's system roundup (issue 113).

It's since gone up to £590/£690, which puts this new fourbox f 800/f 870D110/S into context. Set side by side, the new model looks altogether more impressive, hampered perhaps by the rather garish bright yellow

illuminated background to the two modest LCD displays, but

the rest in the group. deck machine.

Champagne gold aided by a pleasing new symmetry to all styling makes this components bar (rather inexplicably) the system stand out from amplifier. It also includes a twin cassette

But being virtually the only mini system with just one cassette deck was another factor which gave the Denon minis a modicum of hi-fi respectability --- on the basis that serious hi-fi people wouldn't consider dubbing cassettes anyway, and would rather have one good tape transport mechanism than two cheaper ones. Does this mean the beginning of a sell-out to crass commercialism?

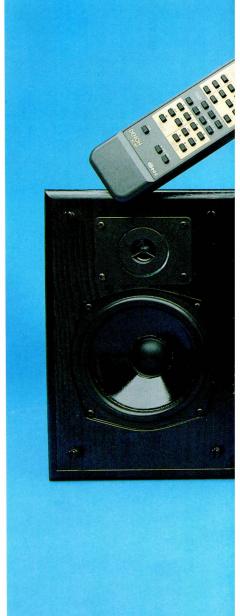
Maybe just a bit. I gather John Lewis (or maybe his teenage son) was partly responsible. Denon's minis have been steadily building a mainstream following, probably as much for their classically different styling as any other reason — I can't be the only person who welcomes a change from the charcoal grey uniform.

However, a change of clothes doesn't make this Denon any easier than usual to use, even though the system is simpler than most. White-on-reflective champagne gold is as antiscrutatious as grey or gold on black, and the handset certainly wouldn't pass the granny test.

The stack

One big difference between Denon and the rest is the complete absence of any form of equaliser/processor (apart from a little button labelled Super Dynamic Bass). Hands up those who agree this is a wonderful omission — no, don't get carried away; one hand will do. What you get instead is something wonderfully simple and straightforward called tone controls — just two little knobs, one labelled bass and treble, which are so intuitive to use I wonder no-one thought of it before.

Another handy feature is RDS (Radio Data System) decoding on the tuner. It's not essential — I'd much rather have a decent signal strength meter — but the fact that the name of a tuned station automatically comes up on the display



does make finding your way around just that much easier

Which is certainly not the case when you're lost among the permutations of the two auto-reverse tape transports. The sliding drawer mechanisms do look very neat and tidy, but the significance of the inability to see the tape and which way it's going should not be underestimated.

The ergonomics may be a case of swings and roundabouts, but the fundamentally solid and consistently serious sound quality across the various sources is a major bonus here in miniland. I suspect the amplifier can claim much of the credit. That it is the only amp in our group to have proper 4mm socket/binding post terminals may be coincidence, but its sound quality also reflected a welcome degree of confidence with a modicum of grip, drive and transparency.

Both tuner and CD player comfortably pass muster, and Denon's cassette expertise is seen in the high degree of mechanical transport integrity shown by both decks. There's good overall sonic consistency between the four play directions, as well as the ability to make fundamentally balanced, stable and



The *D-110* is a serious mini with aspirations. It has two auto-reverse cassette decks, tone controls replace a processor/equaliser, the tuner boasts RDS and a CD player and amplifier will appeal to the more purist hi-fi system user.

musically coherent tape recordings.

SC-M2 loudspeakers

These optional loudspeakers add a very modest £70 to the total cost of the system, which doesn't sound a great deal compared to the cost of the electronics. They don't look like a big deal either, being tiny little seven litre miniatures which will do little to impress the neighbours.

But appearances are deceptive. Small size is often a positive advantage with budget speakers, because the cabinetwork — and the colorations inevitably introduced by cheap cabinets is kept to a minimum. The miniature has certain loudness and deep bass constraints, but often works rather better than cheaply made models (which are twice the size) over the most important parts of the audio band.

Such is the case with the SC-M2 — which is actually made for Denon by British speaker specialist JPW, and which

bears more than a passing resemblance to the latter's *Mini Monitor* — a Best Buy in our most recent multiple speaker review (issue 122).

It's not a great hi-fi speaker, but it is a hi-fi speaker, which is more than can be said for many minisystemland offerings. Sensitivity is a little below average, which will limit ultimate loudness, but being a sealed box there's even a modest amount of sub-50Hz bass output. Provided the speaker is placed quite close to a wall, the room response above 50Hz is unusually well balanced, but there's a certain amount of upper-mid forwardness and a rather thin quality, as well a slightly pinched and nasal character.

In all, the SC-M2 should make sense as a partner for the rest of the D110 in many applications, but something bigger and more sensitive could well suit larger rooms and those with a taste for the loud.

Ensemble

Although there's no disputing the fact

that both the electronics and the loudspeakers are good by mini system standards, I have to add that the whole is rather less than the sum of the parts. The *D110* sounds very superior driving a serious loudspeaker, and the *SC-M2s* sound surprisingly acceptable driven by a serious hi-fi system.

But unfortunately, both have a tendency to emphasise the treble and gloss over the weight and momentum at the bottom of the musical register. Putting them both together does rather stress this fact, and lead to a thin and slightly fatiguing overall sound.

Even though the optional speakers may not necessarily prove an ideal match for the rest of the system, there's still no denying that this Denon package comes significantly closer to sounding like a real hi-fi system than any of its rivals assembled here. That alone is sufficient to ensure Recommendation, for a product which is certainly pretty enough to justify its asking price.

Hayden Laboratories Ltd, Chiltern Hill, Chalfont St Peter, Gerrards Cross, Bucks SL9 9UG. 🕿 (0753) 888447



Goodmans System 700

he death of the midi system, or rather its gradual replacement by the mini system, has been predicted for years, but the midi's resilience has been confounding the pundits. It may lack mini-come-lately chic appeal, but it arguably looks more like a real hi-fi system (to non-cognoscenti at least). And it also doesn't imply the discarding of all those fond memories wrapped up in black vinyl.

The thing about the midi system is that it gives you practically everything you might want in the way of features, and does so at a price that's very appealing. No hi-fi reviewer's going to go into raptures over the performance, and the supplied vinyl

record players in particular invariably scrape the bottom of the barrel. But at the same time no reviewer will be able to come up with a comparably priced hi-fi system with anything like the s a m e number of signal sources or

facilities. The midi may be

a victim of the need to provide maximum perceived There's no denying that value at a minimum price, but this Good-

the styling is bang up mans Industries System 700 package does to date — cosmetically have at least one major advantage over its it's very attractive. mini rivals. It may give the best in terms of compactness and convenience, but it's also by far the most flexible and future

proof of our group of systems, coming individually packaged and priced in seven separate boxes.

For the record, these various Delta 700 series components comprise the £120 700A amplifier, £100 T tuner, £55 P vinyl record player, £100 EQ graphic equaliser, £140 W double cassette deck, £110 CD compact disc player, and £110 Maxim 3 loudspeakers. These variations may well reflect the relative engineering content, but the hi-fi enthusiast might well be inclined to re-prioritise, say by ignoring the equaliser and devoting rather more budget to a half decent record player. At least you have the choice

There's no need to buy all the bits at once either, but if you do decide to put a system together bit by bit, remember model cycles can be as short as one year, and that next year's package will probably have different cosmetics.

More useful still, this is not a 'boomerang' product that goes back to the dealer a year or so later when you want to upgrade or if something stops working. Each item is fundamentally independent and self-sufficient in everything except the system remote control, so any can be upgraded (or fixed) without disrupting the others (unless the amp goes down).

The down side is six separate mains leads to find sockets for, six instruction manuals to muddle up, six separate on/off switches (four of which are linked), the plateful of spaghetti around the back, and some limitations on system control integration — which the less computer literate might well consider a positive and major advantage.

The size may look dated, but the styling is definitely de rigueur, with curved wrap around symmetrical facias and large



grinning displays. It doesn't have quite the same total visual coherence as most of the mini systems, because the CD player clearly comes from a different source from the rest, but even this is a pretty good cosmetic match apart from its display and back panel. The CD player also has its own little subsidiary handset, and has to have its input separately selected.

The rest of the stack may be midi in width and separate in construction, but it does enjoy some system convenience, with relatively full remote control overthe amp, tuner, cassette deck and equaliservia bus links to the amplifier. Reflecting its separate ancestry rather than promoting the cause of system integration, the CD player has its own little handset, while you fly the vinyl record deck hands-on, with semi-auto assistance.

The system's level of artificial intelligence is more limited than most, but at least that keeps everything relatively simple and intuitive. Each of the components are pretty basic too, with little of the elaborate interactivity found among the minis — but there's more than enough to perform all normal stereo tasks.

The CD player started poorly, with a

12 0



Looking to the future with a glance at the past; the Goodmans system is more old style midi than modern mini — is that a turntable? But separate components give it the advantage of greater flexibility and fixability.

loading drawer which initially stuck halfway, and always rattled worryingly, and a sound that grated irritatingly too. A day or two's burn-in seemed to sweeten things up, but the sound was never particularly driving, exciting or invigorating — a characteristic of the system as a whole, and therefore probably attributable to the amplifier. Note also that said amplifieris specified for highish (8-1 60hm) impedance speakers, which is fine for *Maxim 3* but not every model.

The cassette deck also feels clunky, and nostalgic with its little (and useful, if forgetful)mechanical counter. Automatic level control, poor transport mechanics and restricted bandwidth limit the recording quality, although the replay only transport performed significantly better in both respects, so prerecorded tapes didn't sound too bad. Track skip is available, as is Dolby B.

The record deck was predictably foul — all top and no bass, but what can you expect for 50 quid? Though beset with timer buttons, the tuner is blessed with a real (digital type) tuning knob, and behaves well, achieving good selectivity at the expense of perceived bandwidth.

Maxim 3 loudspeakers

This Goodmans Industries system was supplied with a pair of *Maxim 3* loudspeakers, made by the other Goodmans (now known as GLL, for Goodmans Loudspeakers Limited), a model which was fully reviewed and Recommended back in issue 106. GLL itself now sells a more recent model which reverts to the original *Maxim* name (reviewed in issue 122), but that doesn't mean the *M3* is anything but a perfectly serious and competitive product.

It's smaller than many speakers supplied with these systems, which is bound to place some restriction on the absolute loudness available. But small size confers positive benefits in agility, stereo imaging and reduced box coloration.

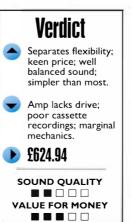
A quick listen immediately confirms

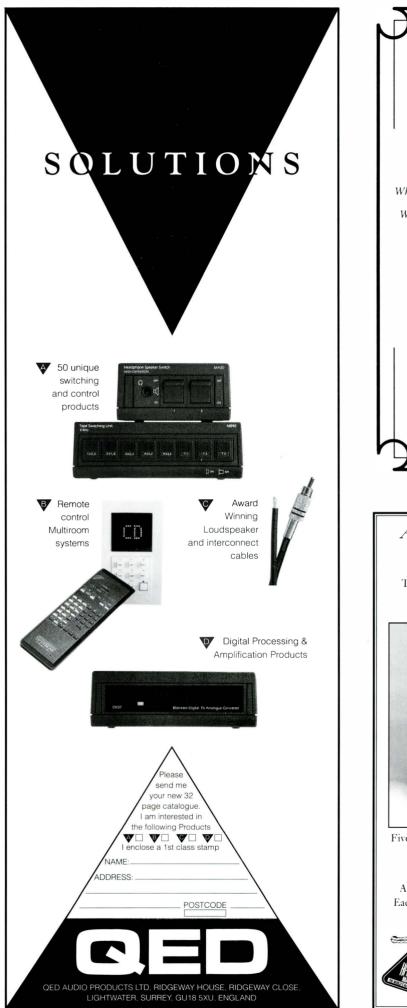
this speaker's genuine hi-fi pedigree, which does much to lift the complete Goodmans package clear of the pack. Sensitivity is rather below average, and there's certainly no abundance of bass either, but close-to-wall siting does give a splendid in-room overall balance above 50-100Hz, with a smoothness, neutrality and flatness that many expensive rivals should envy.

Ensemble

There's no question this Goodmans system delivered a very decent overall sound balance, thanks in no small part to the relatively good quality of the little *Maxim 3* loudspeakers. Trouble is, the sound is also disappointingly lacking in grip, weight, timing and dynamic drive, such that much of the enthusiasm of a musical performance seems to evaporate along the way. It's for the most part pleasant if a little empty sounding, especially on simpler material, but simply lacks the urgency to really come to grips with rock or dance music.

Goodmans Industries Ltd, Units 2 & 3, Mitchell Way, Portsmouth, Hants PO3 5PR. (0705) 673763





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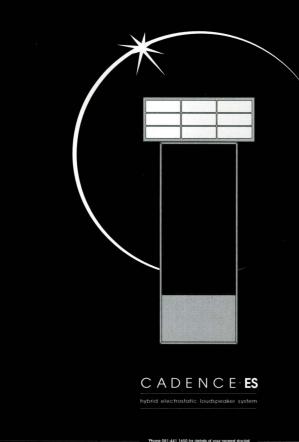
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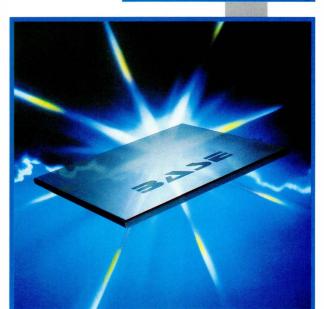
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JVC Mini Adagio G7

ccording to a rival manufacturer's representative, these latest JVC Mini Adagio models have grabbed the high ground for mini system styling, which is one reason why they're selling very well indeed. Another factor may be that this particular £800 package picked up the EISA EuroAward for System of the Year (issue 123)

The bug eyed look seems to be the shape to be in for '93, whether you're looking at JVC mini systems, the latest Sony televisions, or Vauxhall's Corso car. It's all a matter of fashion and taste, of course, not to mention the evolution of plastics moulding techniques. If you go for today's fashion statement,

at least your friends will know you bought it this year. Come the millennium however. they'll also know how old it is.

What really distinguishes this IVC fromits rivals is its sheer assertıveness. Where most minis sit there on the shelf trying to look cute and self-effacing, the

Neat and sweet, the you, from behind four anthropomorphic Adagio styling is very visors. I always thought Adagio meant 'a

distinctive, but will it gentle walking pace': the G7 looks more date too quickly? likely to pounce on your cat. By no means the most expensive of

Mini Adagio positively glares at

our assembled systems, the G7 is still

pretty upmarket. It's also the tallest of our minis, with the biggest speakers (not necessarily a good thing). The manual states the latter are optional, which is certainly not the case here in the UK, and wouldn't make any sense anyway (see later).

The usual rattly cases apart, it all feels pretty solid, and should survive the cat's retaliation. The amplifier has a little fan at the rear to help get rid of heat, which bodes well for the power output, but this part of the package is very different from the norm. Besides whatever (unspecified) amps are used for the Panorama feature, the normal stereo speaker drive uses four instead of two power amplifiers. This technique, known as bi-amping, improves sound quality although each amp is only rated at 20W per channel. Fortunately, the speaker sensitivity is high, so loudness is not significantly compromised.

Two fat and two slimmer separate units with ribbon interconnections allow side-by-side or vertical orientation. There are plenty of inputs and outputs here, including the ability to route and switch (composite) baseband video signals alongside some stereo audio pairs. In certain respects, therefore, the MX-G7 could usefully function as a combined AV and hi-fi system, though the AV processing is limited to JVC's own proprietary techniques, rather than the full Dolby Pro-Logic surround decoding fitted to the MX-G9.

However, the surround simulation is rather more inventive than usual, thanks to the so-called Panorama feature. This involves physically adjusting the distribution pattern, spectrum and phase of sounds fed to an extra swivelling midrange drive unit, for different surround effects and/or room conditions. The laudable if optimistic intention (see also Technics) is to



create a reasonable imitation of surround sound without the need to run extra wires to additional speakers placed behind or beside the listeners.

Although it's next to impossible to read the legends on the hundred and one facia buttons without a torch and magnifying glass, the handset is thoughtfully shaped and laid out, and refreshingly legible, given the almost absurd complexity of this system. My only gripe is that the tuner doesn't receive the same importance as the CD and tape sources. You can't graze up and down the FM and MW/ LW AM radio bands by remote control. You can only scan established presets.

The stack

The tuner performed adequately enough. Although it was rather basic in terms of features (no signal strength, RDS or autotuning), and despite limited top end transparency, it provided a reliable source which was certainly up to the capabilities of the rest of the system.

The CD player is a bit slow getting off its butt in the first place, but boogies along well enough when it gets going, even if it doesn't exactly ooze subtlety and could



The surround sound effect of this system goes a long way towards creating that home cinema illusion — without having to have a gaggle of speakers scattered around the living-room, trailing yards of wires and cables.

do with better midband dynamics.

The clunky twin auto-reverse cassette decks, however, head the downhill trend. You can record on one transport and play on both, and there are all sorts of different trick functions, including various ways of fitting a CD onto a tape, and recording it with the help of fuzzy logic. Personally, I would have been happier with a tape counter and a pair of record level controls and meters.

The trouble is, the basic recording quality on our sample was pretty dire, and inconsistent from tape to tape. The record deck's replay capability was no better, but the play only deck did passably well with prerecorded material.

With the amplifier I'm sure the biamp feature did its best to help but the basic sound quality is not terribly endearing or transparent. The 'source direct' button made little difference either. Then there's the vast range of options presented by the equaliser/processor, which provide plenty of fun and games for experimentation. Even though few actually improve upon the short straight path, at least they're amusingly labelled.

The Panorama feature, used in Cinema mode, is the saving grace of this whole system. It may not carry the formal Dolby logos, but it does create a remarkably effective illusion of surround sound when used with appropriate Dolby Surround encoded movies. It's not as good as doing the job properly with speakers all around, it doesn't have the subtlety or dynamic control, but it does get a surprisingly long way down the road. It adds a splendid, if echoey, spaciousness, and a remarkably enveloping illusion.

SP-MXG7 loudspeakers

The rotating 'surround effect' driver and artfully moulded baffle makes this an unusually elaborate loudspeaker design, but it still has to function as a stereo loudspeaker, and its abilities in this prime role are significantly compromised.

The quite large (15 litre plus) box

promises decent sensitivity and/or bass extension, both of which are achieved to a degree, but also at the price of significant unevenness and consequent substantial coloration.

Frankly, the enclosure is too big for the build quality, and the drivers are of the budget variety. Positively over-exuberant, in point of fact, with unwelcome unevenness and more than a hint of treble aggression. The net balance is as good as it's going to get when the speaker is sited close against a wall.

Ensemble

Award winner and style setter it may be, but in this reviewer's opinion the G7 is hampered by over-colourful and uneven loudspeakers and indifferent amplification, and cursed by a poor tape recorder. However, its Panoramic AV capabilities are quite spectacularly impressive, and in this respect at least the G7 does deliver a truly magical performance for the price — and arguably deserves that Award.

JVC UK Ltd, JVC House, JVC Business Park, Priestley Way, London NW2 7BA. 2018/1450 3282



Stylish; lovely ergonomics; great surround effect from two speakers.

Amp and speakers sound coloured; indifferent cassette performance.

SOUND QUALITY

VALUE FOR MONEY



Philips FW-<u>9</u>1

his sober and conservatively styled Philips mini system comes in on the top rung of our price ladder, with an asking price of £1,000, on top of which you have to add your own loudspeakers — usually a blessing in disguise.

The most important justification for the price (from the marketing perspective) is that the cassette deck is not an auto-reverse double deck with the usual cost compromises built-in. Instead, it's the latest in whizzbang high-cassette-decktechdom, a pukka Digital Compact Cassette machine — or what we in the trade call DCC. And if you've never heard of it before, you haven't been reading your

Hi-Fi Choice lately.

ACT DISC CD-91

PLAY /PALIS

53.3

18

For the uninitiated, DCC is essentially an attempt to bring the humble compact cassette into the digital age, and put it on a (very nearly) even footing with CD. DCC's really clever trick is that it

not only records and replays these new style digital cassettes, but also replays conventional analogue cas-

The FW-91 is a pretty settes (albeit rather less well than a top

looking mini with its flight conventional deck). What it doesn't bow window effect of course do is dub (copy) either analogue plastic facia. or digital cassettes, onto either A or D casset. You only get the one transport here, which even Denon's mini customers

appear to find irksomely restricting.

The cheapest DCC recorders to date are listed at \pounds 450, so this mini DCC deck represents at least a third of the cost of this system — an unusually hefty tape bias for any system, though an inevitable consequence of the latest technology. It's obviously been a bit of a squeeze to get it down to mini size, and in fact the DCC91 deck is a complete standalone component, with separate mains, manual and connecting sockets. The small intermittent rear cooling fan suggests the chip reduction processes are only partly complete

Another plus with this mini is a 60W (RMS per channel) rated power output, which is more than most manage. Apart from a mild surfeit of Philips badges, it's also very pretty, imaginatively using plastics to create a bow-window effect — not the latest in fashion maybe, but it won't look like history five years from now. Despite four separate boxes, the ensemble is slightly lower than most, though deeper too by way of compensation.

Operation

The usual overabundance of features makes rather a nonsense of the so-called EasyLogic interactive controls, whose cause is not assisted by an obtuse and pedestrian instruction manual, a number of unfamiliar facia legends, and a busy if well shaped handset. Having successfully defeated the usual variety of tone-bending, surround and DSP options, I found the crucial task of input selection quite confusing: a single button push will select the tuner straight away, but you have to hold a key down to find the other inputs. And attempts to access the external input changed channels on the (Philips) TV long before the



audio input itself came on line.

I was also mystified by an extra pair of speakerterminals for connecting surround speakers, as the manual gave absolutely no mention of what sort of signals might be sent under different sound effect modes, or what such an arrangement might be trying to achieve. It turns out to be merely a simple Hafler type arrangement, but with this shining example, it's not surprising the general public so misunderstands the ins and outs of surround sound.

If I'm picking on Philips here, it's not the only company whose manuals deserve censure. These mini systems are infernally complicated, especially at the top end of the market, and information supplied assumes a great deal. What we end up with here is page upon page of how to do all sorts of tricks with the system, and very little mention of why one would want to do such tricks — or how doing them will increase your enjoyment enough to compensate for the effort involved in learning how to do them in the first place.

And while I'm in a niggly mood, when the facias have been so carefully designed to match and stack, using identically shaped and placed buttons on both the CD and



At the top of the price ladder the Philips system boasts a digital compact cassette deck as well as all the usual features. Could it be that the digital tape recording medium has found a home in the world of mini systems?

DCC decks for key functions such as open/close, play and stop, why were the respective track-skip button pairs at opposite ends of the facias, and labelled entirely differently from each other?

The stack

The chunky little amp has plenty of rear heatsinking, rather closely spaced spring clip terminals for main and surround speakers, and only a couple of spare inputs (one for vinyl) once you've connected in the DCC deck. You can, of course, temporarily unplug the DCC, should you need extra access.

A seven-band analyser doubles as equaliser, with a handful of preset curves and several more vacancies. A DSP function adds five options of artificial reverberation. Even with controls set flat, the amp was not entirely convincing. It sounded quite solid and well controlled at the bottom end, but also a bit pinched, nasal and thin higher up, and seemed rather lazy and unenthusiastic as a whole. And the amp, as is often the case, imposes its signature firmly on the system as a whole. Despite doubling as a clock/ timer, the tuner seemed particularly confident, with good alignment symmetry and the ability to sound quite transparent to studio artefacts on strong signals, even if it doesn't have the best stereo sensitivity around. But the sound also seemed a bit flat and compressed, somehow lacking space and the freedom to breathe.

The feature-rich CD player (FTS and all) has an engaging confidence and drives along well, but again sounds dynamically rather flat and uninspired, with the slightly fat bass and detached tinkly top which is indicative of some time smear.

Analogue cassettes seemed very lacking in bass drive and somewhat fluttery, but on DCC the deck showed itself able to provide good quality reproduction free from many of the foibles suffered by mini system cassette decks — as it should, given the relative costs involved. CD copies get quite close to the original, with the same impressive solidity and just a slight loss of crispness and focus, and some loss of energy and precision at the top end.

The way track titles were displayed with prerecorded material was effective, and track access was confident if slower than CD. The quality seemed pretty close to CD too in terms of stability and balance, although the sound somehow seemed a little emptier and less involving. The top end balance between samples seemed slightly uncertain as well.

Conclusion

This system at least proves that DCC could have a worthwhile role in the mini market though not, I suspect, for a year or two given the lack of tape-to-tape dubbing facilities which this market demands, and the high price. Despite this factor, and the various ergonomic foibles, the FW91 remains a neat and attractive proposition for those seeking an upmarket audio package.

Philips Consumer Electronics Ltd, City House, 420-430 London Road, Croydon, Surrey CR9 3QR . ☎ 081-689 2166



VALUE FOR MONEY

Pioneer N53M

east expensive of the six assembled systems, this £550 Pioneer mini, collectively code-named N53M, consists of just two identical pudgy little main electronics units plus a pair of small, lightweight speakers. This, of course, is the maximum electronics integration possible while still permitting either vertical stacking or side-by-side low-line disposition, though the styling of the speakers favours the former

Dark charcoal grey and soft radiused edges are the fashionably dominant themes, each unit having a split moulded plastic facia to give the impression of four separate components. All is neat

> enough, though there's an odd contrast between the symmetric sobriety of CD, cassette and tuner sections, and the asymmetry of the amplifier's contoured control surfaces. There's

the usual elaborate status display provide to plenty of user feedback on what's happening, and a twee little handset for refreshingly

The split moulded simple, if somewhat limited, day to day facia gives the donkey work. However I had to up the impression of four wattage of the room lighting in order to separate components. make out the small, faint legends on the units themselves — though to be fair this is a generic rather than exclusively Pioneer

criticism

All is ludicrously easy to get up and running. A single mains lead supplies power, and the two main units are connected through a short length of ribbon cable. A feeble set of spring clip terminals supplies the speakers, which are fitted with similarly feeble captive leads barely two metres long. This is unnecessarily mean, giving little siting flexibility beyond stretching the whole thing out on a convenient shelf or sideboard. You can, of course, extend the cable, but this practice is always better avoided. A small (3.5mm) headphone jack provides the intimate alternative.

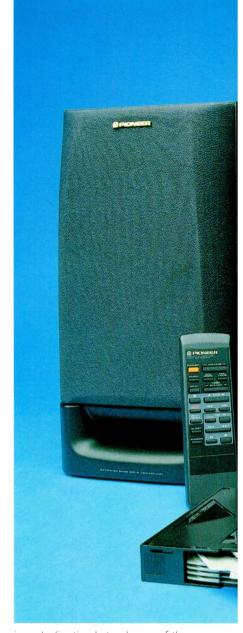
Even more mean is the solitary external input provided, which can be used for either a line source such as a video recorder, or as an equalised high gain input for a (moving magnet type) vinyl record player, but not both (an attendant switch provides the option).

If the external flexibility is rather limited, there can be no complaint about a lack of features on the units themselves. Well, there is the one complaint, that the more you try and stuff into these systems, the more inscrutable they become. And in this respect, the Pioneer is pretty tricky to scrute.

The stack

A multi-disc CD player heads the list of components, so you have to load your disc into a six-pack magazine before play, and try and remember which is which. This is supercaliwhatsit if you happen to have a Pioneer multi-disc player in your car, and can keep your magazines well loaded, but as has a 10-disc Sony changer, I think I might have settled for the straight single-play N53 and saved 50 quid.

The usual two cassette decks operate



in each direction but only one of them records. Both clunk loudly and discouragingly. There's an exquisitely complicated pre-programmed and programmable equaliser system called Sound Field Control Operation, with an even more incomprehensible set of instructions. And then there's **a** clock, with various permutations for waking you up, sending you to sleep or letting you snooze for five more minutes. Sadly, it doesn't make the tea.

Still, once you've come around to accepting that most of these widgets are more trouble than they're worth, and that an alarm clock is really the best device for waking you up in the morning, the N53M becomes easy enough to use. Compared with the other more expensive minis, this Pioneer does feel a bit lightweight and lacks some class and luxury touches. It's difficult to guess the volume level, for example, or see what's going on down in the cassette wells. And switching to the tuner from other sources causes the volume to jump.

The tuner sounds a bit coloured rather pinched and spitty at the top, and a bit chesty at the bottom, but it locks on accurately and handles weak signals well,

00:00



The N53M consists of a multi-disc CD player, twin cassette deck, equaliser, tuner, amplifier and alarm clock. In fact, it's so packed with features it can be rather difficult to operate — unfortunately, it doesn't make the tea.

and has a natural dynamic quality which is refreshingly informative. Much the same is true of the CD player — sonically a bit coloured and crude but fundamentally lively with good drive and fine timing. All of which suggests that the amplifier is playing an important role.

The cassette decks lived down to clunky expectations, with obvious flutter robbing the sound of any solidity. Prerecorded tapes at least balanced reasonably well, but its own recordings were exasperatingly muffled, and rather different from one deck to the other.

S-P530 loudspeakers

Sardines rather than loudspeakers, surely? From Portugal I mean. Good fisherman and navigators certainly, but not a country with an illustrious reputation in acoustic or electromechanical engineering. The labour, of course, is as cheap as these little two-way Portuspeakers, which maybe account for about £30 of those £550 (I'm in a generous mood). Anchovies too. Never touch 'em myself; much too powerful a flavour. Bit like these speakers really. Pretty plastic mouldings give the front a touch of curvaceous cosmetic class, but the grille section only serves to put the drivers down short tubes, with predictably horrid acoustic consequences. Take off the grilles and the unfinished chipboard looks even worse than the cheap little paper cone tweeter held in place by two woodscrews.

They'll get you started, but even the quite modest capabilities of this little mini system deserve something better than these. Sensitivity is adequate but there's little bass, even when placed close to a wall, and both midrange and treble are coarse and coloured, more in the manner of a TV than a hi-fi speaker. The strongest point in their favour is a reasonably flat overall in-room balance, but the memory of that spikey treble lingers on . . .

Best solution? Take a Stanley knife to the tweeter until it stops working, then save the rest of the speakers until you want some surround sound action. Buy a pair of cheap JPW speakers instead, for not much more than you could save by opting for the single play CD machine.

Ensemble

This is a relatively inexpensive system, so some allowance can be made for the economies in build and lack of luxury touches. The sound has its crude aspects too, with a lack of delicacy and transparency that will make many serious hi-fi listeners flinch, while both cassette deck and speakers are well out to lunch.

But despite these criticisms, and with half decent speakers substituted, I developed great respect for this system's sheer coherence and lively honesty. The presentation of the sound may be a little crude, but its ability to communicate some semblance of reality and handle difficult rhythmic interplay is, perhaps paradoxically, more than a match for the other systems assembled here.

Pioneer (GB) Ltd, Pioneer House, Hollybush Hill, Stoke Poges, Slough SL2 4QP. (0753) 789789



Technics **SC-CH950**

his impressive new upmarket Technics mini system had taken the scenic path en route to this reviewer, shedding one or two useful items like the instruction manual and unique rear speaker lead along the way. Encouragingly — not to say surprisingly — this proved only a minor impediment in getting at least the basics of a potentially elaborate system up and running

Ease of use and intuitive familiarity are not qualities normally associated with the mini system, but this Technics example covers the basics better than most. The £1,000 price-tag puts it nearthe top of our list, though this does (unlike the Philips)

> include a pair of loudspeakers for the very good

reason that these are not like normal loudspeakers. Rather, they attempt the impossible (see also JVC's system), which is to combine extra surround sound speakers within the nor-

mal stereo pair. Since these 'rear' channels therefore sit there at the front like any nor-

dISC

MASH

The Technics looks mal speaker, it would appear patently very pretty; beautifully obvious that they're not going to surround brushed and artfully anything. The master plan is that, with a bent metal facias. little clever jiggery pokery, it might be possible to get some way towards real surround sound without all that dreadful

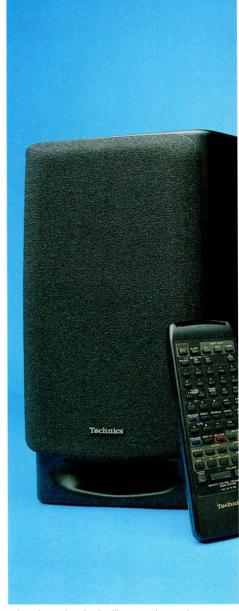
inconvenience of running wires around the room

The four electronics units consist of a double cassette deck, a CD player, a tuner amplifier and a stereo sound processor, the prominence of the latter reinforced by a Dolby Pro-Logic logo. Yes, the key to this mini system's highish price is an unusual degree of AV capability, with the socketry to switch several V-with-A sources, as well as conventional audio ones (including vinyl disc). You have to add your own stereo VCR, TV set and so on, but this mini should — at least in theory — enable you to make the most out of Dolby Surround feature film soundtracks, as well as all the usual conventional stereo music sources.

I say in theory, because a centre-front 'dialogue' speaker is not part of the supplied package. However, a little phono socket found hidden beneath the ribbon cable provides a variable line-level centre output, and Technics can supply compact amplified, magnetically shielded SB-AV30 unit which will do the job at a modest additional £129. Alternatively, you can operate the standard two-speaker set-up in 'phantom' mode for something of the same effect.

The stack

Another excuse for this system's price is that you get a set of beautifully brushed and artfully bent metal facias. Despite the two-dimensional constriction and awkwardness of end caps, the result somehow has a touch of extra class over even the best of the plastic moulded variety. Presentation is at the dark end of the grey scale, with the usual overabundance of displays but a generally pleasing symmetry - save for the disappointment of discov-



ering that what looks like a real round tuning knob is only some rare species of jog control for the sound processor.

This processor is as inscrutable as most of the breed, but the rest of the system is rather more user friendly than the norm, thanks to legends which are refreshingly legible, and the retention of useful basic amplifier features like input selection pushbuttons and a balance control functions which many rivals have discarded in favour of altogether more perverse microprocessor complexities. That said, the handset has more than 50 buttons to contend with, so despite Technics best efforts to group and distinguish them, it's never going to be altogether friendly.

The endless volume control is a bit odd at first, but it has a lovely progressive feel and a digital level read out that's great when you get used to it, even though handset response seems a shade slow. There's the usual surfeit of rather bright displays on each unit, including clock, timer, spectrum analyser and such like (I couldn't find a dimmer switch). But some are genuinely useful, like the Dolby Pro-Logic display mode, and the counters (not real time)for the two cassette transports.



With a twin cassette deck, tuner, compact disc player, amplifier and Dolby Pro-Logic sound processor, this is a mini system with a fair degree of AV capability to bring that cinema experience to your living room.

The tuner seemed a little weaker than the other sources here. It was slightly asymmetrically aligned and occasionally prey to low level grain and interference.

The CD player sounded altogether more authoritative and assured, and the cassette deck was even more impressive. The powered loading helped inspire more confidence than usual, and the sound of its own recordings and prerecorded material was unusually stable and solid. It was more like a proper separates deck than a mini component.

The system as a whole sounds very crisp and clear, but rather lacking in dynamic freedom and a bit self-consciously 'hi-fi' in the chromium plated sense. Some of this is down to the unusual balance of the loudspeakers (see later), but the overall consistency suggests the amplifier is rather constrained and plodding.

SB-CH950 loudspeakers

Even ignoring the reflective surround feature, these loudspeakers are rather different from the others used to partner packaged systems — and from the budget hi-fi norm. The enclosure is quite large (around 14 litres), which is not necessarily wise from a sonic point of view, and there are three main drive units (bass, mid and treble), which is also not wise from a sonic point of view.

More significant, however, is a balance that differs quite markedly from the other system speakers here, and from the bookshelf speaker norm. This speaker has a laid-back midband and a touch of boom 'n' tizz at the bottom and top, not unlike a mild 'loudness' contour.

The result is that the Technics sounds big and relaxed at low volumes, but the boom 'n' tizz becomes more obvious when you pump up the levels. Mini system speakers normally sound better at higher volumes. Furthermore, the bass balances best if this speaker is kept well clear of walls (and floor). Perhaps surprisingly, in view of the size and 3-way lineup, sensitivity is below average and bass extension nothing special.

Used in Dolby Surround modes, with the reflective sideways speaker in action, I have to say the surround sound was not particularly convincing. Possibly my room is less than ideal, but here the much less orthodox JVC two-box surround illusion was significantly more impressive. However, this Technics does allow you to use your own surroundspeakers, placed properly at the rear.

Ensemble

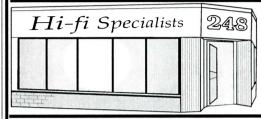
The SC-CH950 is not the most dramatic or involving mini system around. The sound is a little too tightly under control, and a degree of time smear takes the edge off the excitement. But you get the impression that close attention has been paid to the fine detail of construction and operation, and so it conveys a feeling of confidence. The supplied equipment only goes a little way down the AV road, but fortunately the system is flexible enough to be extended quite easily.

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STACK SYSTEMS

Stack systems: conclusions, best buys and recommendations

few
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conclugroup of half a
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systems was
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tional, but also
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less is
the reviewer
approaching
from a real hi-fi perspective.

Certainly the minis are

compact and cute, and have

the automatic convenience of full remote control. But don't

kid yourself they're top notch.

of the bunch here, but it still

only gets halfway down the

hi-fi separates road, and it's

est system, the Pioneer N53M

Although cheap loudspeak-

certainly no sonic bargain. Paradoxically too, the cheap-

was arguably the most

communicative of the lot.

ers are a perennial limiting

factor in packaged systems, at

least there's often the option

to swap them for something

with the amplifiers, and the

burden, draining so much life and vigour from the music it

was often difficult to tell how

were. Six examples cannot be

considered representative, so

maybe there is a mini or midi

better. Such is not the case

amps here proved a real

good the various sources

system somewhere

to find it.

out there with a really decent amplifier. It's just that we have yet

My other main gripe concerns the sheer over-complexity of these systems, due to a gross surfeit of largely unnecessary features, and com-

pounded by poor, cluttered

facia and handset layout, and

manuals (Technics apart) put

The Denon *D110*'s the pick

Paul Messenger concludes his first stack system review with the thought that, when it comes to sound quality, less is often more.

together with the creative flair of an Income Tax return. It's sad that the new Denon no longer uses the little fold down flaps that kept its facias well ordered. Like the others, personal

interaction (that is to say, using it) is now a technologically intimidating experience.

While none of these systems ever looked like receiving a Best Buy rating they're far from cheap, even by separates standards — I could have found grounds to Recommend all or none. Good points invariably seemed to balance out with weaknesses elsewhere, and unevenness was widespread.

In the event, I picked the Pioneer *N53M* as good fun at the price — but do replace the speakers, and note you can't plug in both a record player and a video recorder.

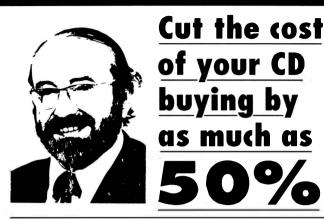
The JVC qualifies for its surprisingly effective and very innovative 'two-speaker surround' system, though performance otherwise was very marginal. Denon's *D110* succeeds by approaching hi-fi performance, while the Technics *SC-CH950* combines all round competence with serious AV potential.



Denon's *D110* at least acknowledges the notion of high fidelity, and it's not even black!

HOW T	HF S	VSTF	MS	COM	PAR	
MAKE		GOODM'S 700	JVC MXG7			TECHNICS SC-CH950
PRICE INC SPKRS PRICE EXC SPKRS	£870 £800	£735 £625	£799 N	N £999	£549 N	£1000 N
STACK: HEIGHT WIDTH DEPTH WT (kg) NO OF UNITS REMOTE MAINS LEADS	37 27 33 15 4 Y I	68.5 34.5 37 23 6 Y* 6	42 27.5 28 12 4 Y I	36.5 26 32 12 4 Y 2	36 26 28 9 2 Y I	42 27 34 13 4 Y I
SPEAKERS: SUPPLIED? DRIVERS HEIGHT WIDTH DEPTH WT CABLE LENGTH	OPT 2 28 19 20 2.8 3M	Y 2 26 17 20 3 N	Y 2+1 43 23 28 6.5 1.5M	2 2 2 2 2 2 2	Y 2 36 18 22 3.3 2M	Y 3+1 42 24 29 6 2.5M
COMPONENTS: CD PLAYER SINGLE PLAY MULTI PLAY FTS	Y Y N	Y Y N N	Y Y Z Z	Y Y N Y	Y N Y N	Y Y N N
TUNER FM MW LW PRESETS RDS	Y Y N 30 Y	Y Y Y 20 N	Y Y Y 40 N	Y Y Y 30 N	Y Y N 24 N	Y Y Y 39 N
CASS PLAYER CASS RECORDER AUTO-REVERSE DOLBY B DOLBY C	2 2 Y Y	2 2 Y N	2 I 2 Y Y	I* DCC* I Y Y	2 2 Y Y	2 I 2 Y Y
VINYL DISC CLOCK/TIMER PROCESSOR ANALYSER BANDS EQUALISER BANDS HANDSETS	Z Y Z Z –	Y Y 7 7 2	N Y 7 7 I	N Y 7 7 I	N Y 5 5 I	N Y 20 20 I
EXT INPUTS LINE IN VINYL DISC VIDEO IN	2 I N	2 I N	3 3	 N	0.5* 0.5* N	3 2
EXT OUTPUTS LINE OUT VIDEO OUT MAIN SPKR HEADPHONE SURROUND SPKR * see text for details	2 N Y N	2 N Y Y N	 Y Y*	N N Y Y Y	Z Z Y Y Z	2 2 Y Y Y

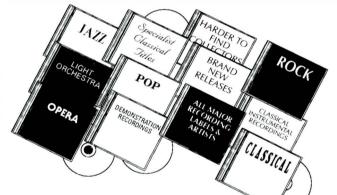
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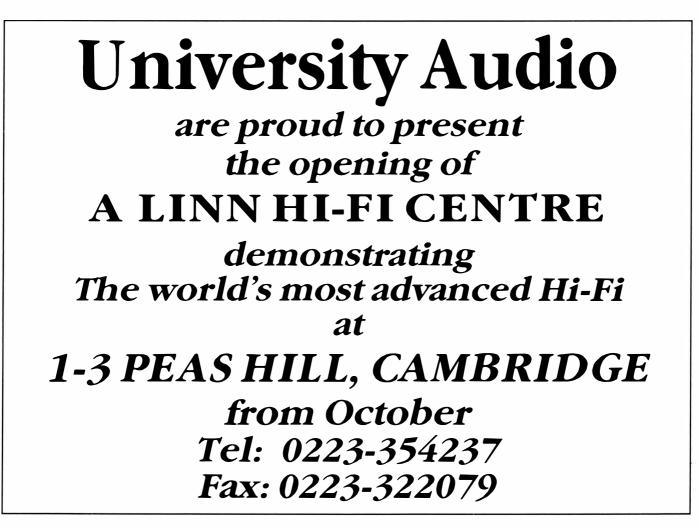
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THX HOME CINEMA

THE BIG MAC

Tim Frost takes a close look at the McIntosh THX home theatre system and rates its abilities from the point of view of the film buff and the dedicated audiophile.

he McIntosh is already a bit of a landmark system, combining all of the THX elements in one manufacturer's elegant package.

The system is built around a preamp which contains an internal Dolby Surround/THX module, a six channel power amp (each channel rated at 100W), three main front speakers, a sub bass unit and a pair of dipole surround speakers.

The inspiration for the system comes straight from Hollywood. Imagine sitting next to Spielberg as he puts the last touches to the dinosaur footfalls in *Jurassic Park* and hearing it exactly as he does in the dubbing theatre. That's the aim of the new THX home theatre system, the most

THX by McIntosh,, £11,860

C39 PROCESSOR (£3,190): Dolby Pro-Logic, 6 outputs (left, centre, right, sub-bass, two surrounds) with additional circuits for Re-Equalisation, Timbre-matching and De-correlation.

MC7106 AMPLIFIER (£2,895):

Low distortion, stable devices with adequate power to drive the speaker systems to 105dB SPL.



HT-ISPEAKERS (£2,685): 80Hz-20kHz within very close tolerances. SPL capability of 105dB. Dispersion narrow in the vertical plane and wide in

the horizontal plane. All three front speakers to be of the same type. HT-2 SUB-WOOFER (£1.295):

20Hz-80Hz within tight tolerances. SPL capability of 105dB.

HT-3 SPEAKERS (£1,795):

125Hz-8kHz within tight tolerances. SPL capability of 105dB. Nominally with a dipole response — radiating sound towards the front and the rear with out of phase signals so that there is a null point on the axis with the listener's ear. significant development in home entertainment sound since Dolby Surround.

Several years ago Lucasfilm — of *Star Wars* and *Indiana Jones* fame — wanted to improve the technical quality of its soundtracks. They brought in Tom Holman, an engineer with a number of successful audiophile designs behind him, to completely reassess the film audio chain from top to bottom and THX was born.

Many of the ideas for the film replay system he developed for Lucasfilm were eventually put together as a standard for cinemas to work to. If a cinema uses the right equipment and putsit together along the engineering principles laid out in the THX specifications, then it will almost certainly sound excellent and very close to what the director intended. In the UK there are nine THX theatres and all are well worth a visit to hear sound as it should be presented.

With Laserdisc putting high quality film transfers in the hands of the likes of you and me, it became a natural step to develop a second specification for Home THX. After a lot of additional research since a living room is somewhat different to a cinema — Holman came up with a set of specifications and additional features that would move the original soundtrack faultlessly and totally accurately into the home. These specifications are open to any manufacturer to follow and over 30 are now building products licensed to Home THX specifications. THX products can be freely matched to create a total THX Home system, whisking the listener to the seat next to the director in the studio theatre. It enables him/her to hear the sound track exactly as it was intended.

So, taking the electronics first, the C39 processor and the *MC7106* power amp have all the elegance of early seventies Americana electronics, massively built solid black boxes with champagne trim



and glowing green lettering — this is industrial design with history and soul.

Controls on the preamp are kept to a minimum by home cinema standards. These include bass and treble controls with a centre position that switches the EQ circuits out, separate 12 position input and record-output selectors and volume and balance controls. The only indication that the system is a THX/Dolby Surround processor at all is the delay and cinema mode controls. The preamp also links up with more multi-room and remote switching facilities than you can throw a stick at.

Despite being a seriously analogue beast, the surround system within the preamp uses digital delays and a DSP (Digital Signal Processor) to create the de-correlation. This is achieved with Analogue Devices, DSPs and Crystal codecs handling the A/D and D/A conversion



cal dispersion and wide horizontal dispersion that Holman believes is essential for stereo accuracy. More impressive is the fact that the tweeter sub-baffle can be unbolted and turned through ninety degrees so the whole speaker can be used upright and on its side.

The HT-3 surround units are effec-

Now you've got the system, what can you play on it?

As THX is not a specific format like Dolby Stereo but more a way of building a replay system for a given application, anything that can be played on a hi-fi system can be played through a THX approved system, from LP to TV.

The THX setting is used to get the best out of Dolby Stereo/Surround encoded film and video material, but this can be sourced from VHS hi-fi, Nicam TV, Laserdisc, stereo satellite or the new CD video discs; of course, the better the source material the better the sound iust as with hi-fi.

THX has recently extended its work into software, where it assists film makers transfer films to Laserdisc in the best possible way, so that the picture and sound quality is as good as possible and reflects what the film maker

> intended. Two THX disc releases are now available -The Abyss -Special Edition and the, just released. Star Wars Trilogy. Future titles are going to include several 70mm

Can your living room handle the hardware? The army of boxes that move in and create major movie magic.

— the whole thing could be considered a mite overkill for 'just' the surrounds, but that's how McIntosh has always worked.

Talking speakers

The 7106 has much in common with professional power amps. It can be bridged, to allow two units to drive the system instead of one, and offers several levels of protection including thermal, short circuit and a soft clip overload protection which works by comparing the input quality to the output. If there is a difference equivalent to more than 0.3 per cent distortion between the two, then this Power-Guard system pulls back on the amplifier gain to reduce the clipping distortion that not only sounds nasty but can easily take out high frequency drivers.

The *HT-1* front speakers are identical and each use a pair of eight inch mid-bass drivers and three one inch aluminium dome/neodymium iron magnet tweeters. The latter are all in a row and mounted on a separate metal sub-baffle. This array of tweeters helps create the narrow vertitively a pair of two-way speakers in a single box with one baffle angled forward at 45 degrees and one angled 45 degrees towards the rear. The dipole design means that they should normally be side wall mounted rather than fixed to the rear wall. The only disappointment in the whole system was the horrible tin grills supplied with the *HT-3s* — throw them away instantly.

The surrounds have to be specified with the same power handling as the front speakers. So the drivers are small but perfectly formed, and built to massively high standards to cope with the punishment that they may get from a particularly 'impressive' surround effect.

The *HT-2* sub-bass is big and wonderfully elegant in its black ash finish. It contains two 12 inch bass drivers and works only in the 20Hz to 80Hz range. This is true sub-bass — not so much sounds that you can hear, more an energy you can sense. Although large, there is some flexibility as to where the *HT-2* can be placed in the room, since sub-bass like this is non-directional — put the box behind you and you still won't know where the sound is coming from.

Run up as a full system and properly aligned, so that the levels coming from

musicals like Oklahoma, South Pacific and The Sound Of Music, as well as the somewhat older Wizard Of Oz and the considerably newer Hoffa and Terminator 2: The Special Edition.

The irony about the *Star Wars* discs is that these were remastered from the original soundtrack material using better equipment than George Lucas had when the movie was being put together. On a well set-up home THX system (with all the same performance characteristics as a THX dubbing theatre), you can hear more of the *Star Wars* soundtrack at home than Lucas could ever have heard while making the movie in the seventies.

The Abyss is worth experiencing on THX not only for the surround sound effects but also to check out the latest in groovy subaqua garb.



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Next, try the Alpha 5 tuner. Again, don't let its surprising

affordability seduce you. Instead, listen to broadcast sound that is natural, clear and dynamic, without annoying sibilance or harshness.

Finally, feast your ears on the Alpha 5 CD player - quite simply, the best value high performance CD player ever produced by a UK manufacturer. And, September's What Hi-Fi? agreed, calling it "the player to beat" and giving it a class leading 5 star rating. They concluded, "it's one remarkably transparent player, seeming to be at home with all genres of music, and equally enjoyable with all."

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



For more information, including the nearest place you can listen to Arcam, complete the coupon and post it to: Arcam, Pembroke Avenue, Waterbeach, Cambridge CB5 9PB. Or telephone: (0223) 440964 (24 hours)

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THX HOME CINEMA

each speaker are perfectly matched, the film sound is extraordinary. Overall balance is excellent, stereo imagery spot-on and there are no evident anomalies when sound moves in any direction. Dialogue punches through complex mixes and the surrounds fill the room with whatever atmosphere the director wanted.

On low frequency effects, the bass end does just what it should — it rattles the windows. And it all sounds as great when everything's hushed. On a good soundtrack, you hear exactly what the sound mixer heard during production.

Hi-fi hang-ups

But the pre-occupying question is how good is the system as a hi-fi set up? The electronics make it easy going with virtually any music source and even though the 100W per channel output is not overmassive, there was rarely an occasion when the Power-Guard would trip in, making itself just detectable.

There are few speakers with the energy and dynamic capability of the *HT*-1s. The sound isn't the most transparent I've ever experienced but the balance is fairly even, although a little light on high frequencies. However, the dispersion characteristics of the *HT*-1 can confuse these judgements, especially when used in two, rather than three speaker mode.

Sub-bass is a revelation to anyone who hasn't experienced it. It gives energy, power and majesty to virtually every recording played through it. Take a good recording of Mahler's *Second Symphony* as a great test. In the last moments, the organ creates a nineteenth century 'Sensurround' effect. With the sub-bass active, the organ gets no louder but the room moves, giving Mahler's resurrection vision the amazing impact

The sub-bass *HT*-2 resting back on its smart black ash finish to reveal two 12 inch bass driver units.

he desired.

Is it value for money as a hi-fi system? Well, I don't think anyone would normally consider buying three times as many speakers and amps as they

need for just two channel stereo replay, so on that basis you really have to do a bit of fancy footwork to pull out a realistic pricing comparison.

In pure two-channel hi-fi terms, this is a £6,000 system that performs like one around £4,000 — though I certainly wouldn't say no-thank you to it for just playing LP or CD. In cinema terms, it is a £12,000 system working like Lucasfilm's \$600 an hour dubbing theatre at the Skywalker Ranch. So after your first 20 Multi-room and remote switching facilities galore lurking beneath the cool, dark green exterior.

movies, I reckon you are quids in.

MPi Electronic UK Ltd, Wood Lane, Manchester M31 4BP. 20 061-777 8522

Understanding how THX works

S G 🖕

THX RE-EQUALISATION

Every Dolby equipped cinema and dubbing theatre is set up with a 3dB/octave roll-off above 2kHz as this gives the most 'natural' sound in a large auditorium. When a film is mixed in a treble-light dubbing theatre then the soundtrack will have a certain amount of treble boost. This treble boost is quite noticeable as 'over-brightness' when a videotape or Laserdisc is played back on a system with a completely flat frequency response like a home cinema or hi-fi system.

The THX re-equalisation is a filter curve that makes the soundtrack sound the same at home on a flat response system as in the cinema with its mid/high frequency roll-off.

THX DE-CORRELATION

The surround sound should fill the room and not appear to come from any one direction. In a cinema there are a lot of surround speakers placed high up which fill the room with an enveloping sound.

To duplicate that effect in the home, the THX de-correlation circuit splits the single surround channel into two paths and then alters the phase/time relationship between these two paths. By the time the sound hits

> the speakers it is sufficiently altered in terms of phase and time to provide a spacious surround effect.

THX TIMBRE MATCHING

Place six identical speakers in a circle, sit in the middle and then pan a signal around and you will find that the sound changes as the signal moves from the front speakers to the back. This is because the ear's response alters markedly from front to back — an essential part of our hearing since it is one of the keys to detecting where sound is coming from. But in the ideal world a film sound effect that is panned from behind you to the front should not change its tonality as it moves. Timbre matching is an additional equaliser section placed on the surround channels to even out these timbre differences.

FRONT SPEAKERS - ALL THE SAME

In a two channel stereo system the sound is shared between the left and right speakers in proportion to where the signal is supposed to be coming from. The three channel system used for films works in the same way, only the signal is placed between three speakers instead of two.

The idea of using an entirely different speaker for the centre channel seems ludicrous to the film industry in the same way that using two totally miss-matched speakers for a 'stereo' pair is an absolute no-no to a hi-fi user.

DIPOLE SURROUNDS

Dipoles are ideal for the surrounds since the last thing you want is to be aware of the sound coming from the surround speakers. Put two speakers back to back and wire them out of phase and you have a simple dipole. Because the speakers are out of phase the sound gets cancelled out in the area between the two. With the dipole mounted on a side wall with the speakers facing towards the front and back wall, the room gets all the energy and only very little sound gets projected toward the listener.



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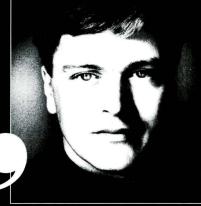
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AV AMPLIFIERS

On test: AV amplifiers

hat possible interest could you have in an all-singing, alldancing audio visual amplifier? Good question. On the other hand, if you enjoy good films as much as good music you'd be daft not to merge the two.

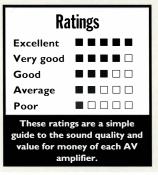
AV amplifiers are nothing new but this is the first time such devices have been taken to task in the strict *Choice* tradition. It's the first time Dolby Pro-Logic Surround Sound has been objectively tested with precise level matching of all front, centre and surround channels.

In practice, an AV amplifier provides all the standard CD, tuner, tape, auxiliary and phono inputs offered by a standard amp. In addition, many also incorporate a tuner.

More importantly, a modern AV amplifier includes a Dolby Pro-Logic decoding chip along with extra circuitry

The cast list

Denon AVC-3530	£999.99
Harman Kardon AVR-30	£999.99
Kenwood KA-V8500	£699.95
Marantz PM-700AV	£449.95
Philips FR940	£449.99
Pioneer VSA-D802S	£599.95
Sherwood RV-6010R	£349.95
Technics SA-GX550	£379.95
Yamaha DSP-A2070	£1,099.95



to effect the rear delay. There's at least four channel's worth of amplification to feed the five loudspeaker outputs (front left and right, centre and rear mono left and right).

Dolby Surround Sound: a brief encounter

Dolby Surround is all about recreating a cinematic wrap around sound at home. And with over 4,000 Dolby-encoded titles available on video alone, this fantasy can become a reality on a surprisingly modest budget.

The concept is very simple. During filming, four audio channels are encoded onto a two-channel stereo soundtrack, channels that are then decoded in an AV amplifier by comparing the relative phase of both (left and right) channels. Sound that appears mainly on the R is steered towards the front R speaker (the same for front L) while any sound inphase on both L and R channels is steered towards the centre speaker. This technique is used to localise dialogue on the screen.

Meanwhile, the surround or special ambient effects that are recorded in anti-phase (L-R) are steered towards the two rear mono speakers. Unfortunately, there's always some spillover of front information to this rear channel. Consequently, the rear is delayed by 20msec to ensure front-orientated sounds always arrive at the listening position first. This process flies under the banner of Dolby Pro-Logic. Most also include a line-level subwoofer output.

The AV amps in our budget (under £500) category offer other surround modes such as

simulated stereo, Hall surround (left and right is fed





ing those in our £500-£900 category, will use an element of DSP to steer the Dolby Pro-Logic or permit a variable rear channel delay. This also opens up further Surround modes which use different delay and steering levels to generate different sound fields.

The most sophisticated (over £900) amplifiers permit manual adjustment of effect level, the initial delay plus the reverberation time

and delay to simulate almost any acoustic venue.

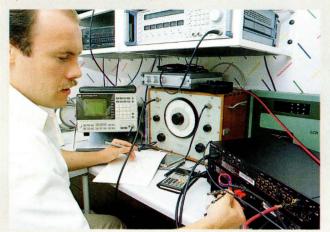
OLBY PRO LOGIC

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CLEAR DOWN-CENTER-UP

ASS TREBLE

How the AV amplifier listening (and watching) was done



Look at the quality of that dial. Paul Miller gets down to the nitty gritty with the business end of an AV amplifier.

Rather than use a mish-mash of front and effects speakers we opted for a single brand of similar high sensitivity speakers, each voiced in the same fashion and capable of producing a very

00

 $\circ \circ \circ$

detailed and transparent soundfield.

Furthermore, the use of a backprojection TV (Philips 0985,

46inwidescreen) permitted us the luxury of

traditional, nonmagnetically screened centre ' and front channel loudspeakers.

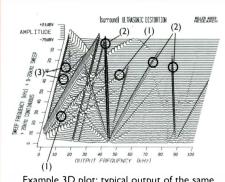
The final choice? Audio Note AN-Es for front L and R, a single Audio Note AN-K for centre and a pair of Audio Note AN-Js for the mono surround channel. Incidentally, we decided against an additional active subwoofer as this tended to mask any inadequacy in the bass performance of the AV amplifier itself. Remember, the goal was to reveal the inherent quality of each contender, not mask their strengths and weaknesses.

Before the popcorn was handed round, we auditioned each amp in its conventional twochannel stereo mode using selections from our favourite jazz (Marty Paich), classical (Prokofiev) and pop (Julia Fordham) CDs.

Switching into four channel Dolby Pro-Logic mode, each amp was subsequently assessed with film clips from Indiana Jones and The Last Crusade, Terminator 2, The Abyss, Twin Peaks plus an excerpt from a US baseball match recorded in a large stadium.

Measuring Dolby Pro-Logic performance: a reader's guide

Every Pro-Logic amplifier has four distinct channels and this test is the very first to probe each in isolation. Compare the relative power output of each channel but remember that Dolby specifies a limited 100Hz-7kHz bandwidth for the surround channel, which



Example 3D plot: typical output of the same signals from the surround channel into a four ohm load.

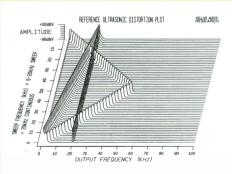
inevitably restricts any significant output at 20kHz. Experience suggests that both front and centre channels should offer a similar output, for example, while the frequency response chart (IW into 80hms) compares their bandwidth.

Theoretically, the effectiveness of the Dolby steering logic is directly linked to the impressiveness of the surround sound and this is reflected in the spillover or separation figures given for the front-to-centre, centre-to-surround, and the rest. Spillover from frontto-surround is a lot more distracting than from surround-to-front.

Just as important are the differences in distortion that exist between the channels where, because of the extra processing involved, the surround channel almost always comes off worse. The example 3D plot highlights the influence of the 7kHz filter in the surround channel, cutting back all three original signals (compare with reference, below, and plots taken via centre channel).

It's not all blind listening; this month the panel got to watch some telly.

We can also see conventional harmonic distortions (1) alongside strong digital sampling images (the V-patterns, 2) which are introduced if the audio signal is digitised at any point in the chain (usually in the delay



chip). These sampling images also appear in comparable plots of CD players, though here their influence stretches directly into the audio band (3). Massive differences in performance are obvious from plot to plot and amp to amp.



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Marantz PM-700AV



either particularly new nor especially innovative, the strength of the Marantz *PM-700AV* lies in its straightforward and user-friendly operation. Manual input balance and level controls ensure the (Sanyo) Dolby chip is never overloaded, yielding more headroom than amplifiers that make such adjustments automatically.

Otherwise the Hall, Matrix and Pro-Logic surround modes are selected directly on the uncluttered black facia, a simple choice joined by equally straightforward normal, phantom and wide (full bandwidth) centre channel options.

Then there's the intelligent infra-red remote with fine volume controls that operate over the full dynamic range of each channel. The rear channel outputs are connected in series to make life easier for the mono surround amp, though this means that two rear channel speakers must be connected at all times to avoid silence.

Sound quality

The *PM-700AV* proved to be a mixed performer. The soundfield is extremely detailed in front of the listener yet lacks a sense of depth or ambient surround. So, despite the attraction of fine detail and crisp balance, there was still a lack of genuine low-end grunt to drive home the impact of the movie clips. Even the dynamics of our music CDs would not disguise the wooden feel of its bass.

Back with the films, the dialogue, movement of vehicles and firing of the 6lb gun (*Last Crusade*) were all pitched with pin-point accuracy across front left, centre and right. However, the shell was interrupted in mid-flight as its image or path was confused by the weaker surround channel.

The baseball clip again sounded crisp and the commentator extremely clear, yet the hubbub

of the crowd was less convincing. The sense of drama and ambience was also reduced in our submarine scene (*Abyss*), the incidental effects sounding clear enough but failing to promote that feeling of 'being there'.



Conclusion

All too often, the *PM-700AV* builds up false expectations, the detail of the front channels dominating the whole performance. Turning up the rear channel doesn't enhance the sense of height or focus of rear effects — they become louder but no less bleary. This amp is something of a tease, frustrating the audience with unfulfilled promises of a genuine wrap-around sound.

Marantz Hi-Fi UK Ltd, Kingsbridge House, 575-583 Bath Rd, Longford, Middlesex UB7 0EH. (0753) 680868

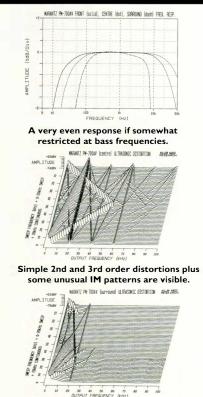
TEST R	ESU	LTS	
Channel Maximum Continuous Bauro	Front	Centre	Surround
Maximum Continuous Powe 80hms, 1kHz 20kHz 40hms, 1kHz 20kHz	68.6W 65.1W 88.4W 85.7W	51.8W 50.3W 73.5W 72.4W	51.3W No Output 73.2W No Output
	Hz-32kHz	29Hz-58kHz	85Hz-6.7k
Dynamic Headrm (IHF, Front Peak Current (5msec, 1% TH Output Impedance Damping Factor		8.3A	7.5A
Effectiveness of Dolby Steeri Spillover from Front to Spillover from Centre to Spillover from Surround to *Output Matching Error	ng Logic N/A -25.8dB -35.7dB 0dB	-40.8dB N/A	-55.8dB -46.3dB N/A
Input Sensitivity (for 0dBW)	-76.8dB -71.2dB -80.2dBV 70.2mV	-73.5dB -85.5dB -75.4dB -76.4dBV	-48.7dB No Output -72.4dB -73.3dBV
(for full output) Input Overload Maximum DC Offset Input Loading Serial Number		2.58V +11mV cohm (CD) / 42 MZ029	4.45V +9mV 7kohm (VCR) 9302360169

*Centre/rear levels set to 0dB

The design of the Marantz PM-700AV relies largely on integrated circuits and integrated power amplifier stages, though the broad equivalence of its 69W (front) and 52W (centre and surround) outputs is fairly promising. Unfortunately, their low frequency responses are quite limited.

This is particularly true of the surround channel, the top-end extension of which is limited not only by the customary 7kHz filter but also by the 24.9kHz sample rate of the rear-channel processor. This is achieved using a 14-bit YM3428 digital delay from Yamaha, boosting total harmonic distortion to 0.37 per cent and compromising the real-life dynamic range of the amplifier (see 3D plot).





Low 25kHz sample rate means digital images (dark line) move into audio-band.

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SPK 100	Twin-core white cable, each core with 130 copper strands (total 260 strands).
SPK 200	Triple-core grey cable for bi-wiring with twin-core treble (260 strands) and 3-core bass (390 strands).
SPK 300	7-core blue cable having 13 strands per core (each strand laminated). Requires soldering.

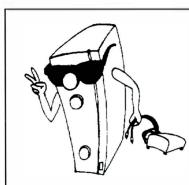
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> WHF? APRIL 1993 PIONEER A400

Philips FR-940



ith its latest 900 Series already brimming with DCC and CD players, digital loudspeakers and a digital tuner, you'd expect the complementary AV receiver to be similarly digital. In practice, only the FM/AM tuner section with its 30-presets, direct frequency access and station title memory has a digital heart.

By contrast, the NJM2175 Dolby Pro-Logic processor is connected to what looks like an analogue bucket-brigade delay line. As a result, you've only four possible rear-channel delay settings (15, 20, 25 and 30msecs) in DPL mode and eight (5-40msecs) in any of its alternative Hall, Stadium or Theatre surround modes.

Even the input balance must be adjusted manually, altering the relative L/R level to achieve the clearest centre channel and surround outputs. Still, the bold fluorescent display makes for clear instructions, just as Philips' multi-function cursor cuts down on clutter. Just watch out for the programmable bass contour (80Hz, 150Hz and 250Hz) and use a pair of rear channel speakers as the surround outputs are wired in series.

Sound quality

The squeezed and strained sound of our music selection highlighted the inadequacy of this amplifier, its bleary performance carrying through into every AV mode. Even our atmospheric jazz CD lacked left to right separation and failed to build a convincing picture between the speakers.

With DPL engaged, its very lean bass stripped any sense of weight or momentum from our adventure movies. This was joined by a pinched and sibilant dialogue struggling to emerge from the centre channel. Moreover, the loudest movie clips sounded hard, compressed and very fatiguing, tempting us to turn down the volume. Sadly, our baseball commentator sounded as if he were broadcasting from a transistor radio while the ambience of the stadium took on an unpleasantly spitty quality. *Terminator* 2 was dynamically restrained, the music, effects and dia-



logue coasting along in monotonous fashion.

Conclusion

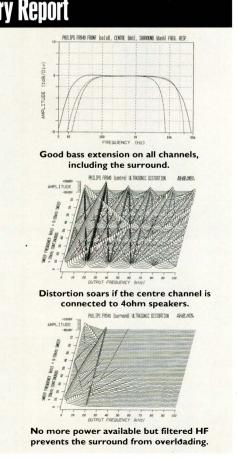
In every test one product will disappoint and, in this instance, Philips' FR940 is the unfortunate candidate. Perhaps Philips' engineers were working to a compromised design brief. Either way there remain substantial technical and subjective quirks to address if the FR940 is ever to provide a creditable home cinema experience.

Philips Consumer Electronics Ltd, 420-430 London Road, Croydon, Surrey CR9 3QR. 🕿 081-689 2166

TEST	RESU	LTS	
Channel	Front	Centre	Surround
Maximum Continuous Pow			
8ohms, 1kHz	179.1W	23.6W	23.9W
20kHz	149.6W	20.6W	No Output
4ohms, 1kHz	203.9W**	17.9W	21.9W
20kHz	191.3W**	17.5W	No Output
Response (80hm/0dBW, +/	-30B): 8Hz-32kHz	13Hz-26kHz	19Hz-6kHz
Dynamic Headrm (IHF, From		13112-20K112	13112-0112
Peak Current (5msec, 1% T		2.8A	3.1A
Output Impedance	0.116ohm		
Damping Factor	68.9		
Effectiveness of Dolby Stee		(500m)/ in 0	BW out)
Spillover from Front to	N/A	-51.5dB	-48.5dE
Spillover from Centre to	-55.6dB	N/A	-59.3dE
Spillover from Surround to		-42.7dB	N/A
*Output Matching Error	0dB	-1.7dB	-0.4dE
Total Harmonic Dist. (0dBV	V) -68.5dB	-63.5dB	-43.7dE
CCIR Intermod, Dist, (0dBV		-64.7dB	No Output
Noise (A wtd, 0dBW)	-80.3dB	-85.6dB	-80.7dE
Residual Noise (unwtd)	-69.6dBV	-73.0dBV	-70.6dBV
Input Sensitivity (for 0dBW			
(for full output) Input Overload	232mV 1.85V	1.85V	1.25
Maximum DC Offset	+1mV	+22mV	-19mV
InputLoading		kohm (CD) / 25	
Serial Number	201		251-000717
** Relay protection			
*Centre/rear levels set to (dB		

A sad story. To begin with, the 24W centre channel will be plunged into clipping before the 180W front outputs even begin ticking-over, its distortion climbing rapidly from the 0.06 per cent recorded at 1W into 80hm. The problem proved so acute that the (multi-tone) centre 3D plot could not be run in excess of a few watts output.

Otherwise, the excellent 80dB signal to noise ratio disguises the very poor dynamic range suffered by the surround channel under real conditions (see 3D plot). This, and the high 0.6 per cent total harmonic distortion, are probably linked to the primitive delay circuit. The low 1.85/1.25V input overload limits that were recorded are also a tad worrying.



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Components of Excellence

Sherwood RV-6010R



nere pennies are desperately tight, Sherwood and its agents Hi-Fi Direct will always makes a concerted attempt to come up with the goods. Hence the RV-6010R, the cheapest AV centre in our survey by some £100. There's even an onboard FM/AM tuner to sweeten the package.

In practice, its AV facilities are actually rather limited. Sure enough, the PMI SSM-2126 Pro-Logic decoder is a quality part, but the alternative Dolby three-Channel, Stadium and Theatre surround options aren't complex. Even the limited rear-channel delay (15-30msec in DPL and 5-40msec in surround) appears to be digitally-timed rather than truly digitised (sampled and quantised).

A limited number of phono video rather than S-type inputs are available, ensuring the basic appeal of the RV-6010R lies with its ease-of-use rather than flexibility. On-board and remote control of centre and rear channels is a bonus, as is the motorised main volume and automated L/R level balance adjustment for accurate Dolby decoding.

Sound quality

Right from the outset the character of this amplifier was betrayed by its standard CD input sounding lightweight, and lacking the warmth of an amp like the Technics. What's more, with very little sense of ambience in standard stereo mode, the insubstantial and phasey quality of its Stadium and Theatre options offer little respite.

In DPL mode, the bass line from our Twin Peaks excerpt was similarly weak — Donna's expressive intake of breath was replaced by a faint sigh. But then central vocals generally lacked any sense of urgency or fine expression. Sean Connery sounded more sibilant than usual (Last Crusade) and, though well-steered, the overflying six pound shell only had a quarter-pounder pay load.

Meanwhile, the electric ambience of the baseball stadium was softened, the crack of hardball sounding like a snapping twig. Even our 'Bad to the Bone' excerpt (T2) lacked any sense of weight or

VERDICT Good steering of simple effects; includes 30preset AM/FM stereo tuner; cheap. Lacks bass weight and impact: effects can sound thin and weedy as a result. £349.95 SOUND VALUE FOR OUALITY MONEY

drama. Arnie's motorbike was as menacing as a moped, seriously undermining the film's mood.

Conclusion

This is one of those unfortunate occasions where Sherwood's cost-cutting has reduced the sound quality as effectively as the price tag. Consequently, its mediocre AV performance suggests the RV-6010R, however generous in appearance, is actually something of a false economy.

Hi-Fi Direct Ltd, 202 Long Lane, London SE1 4QB. O71-827 9827

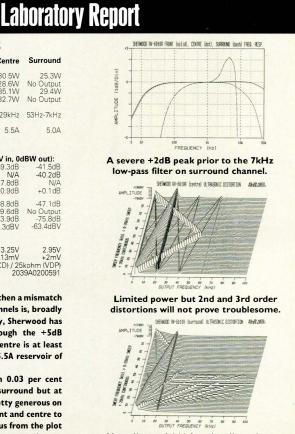
TEST RESULTS Anamel Front Maximum Continuous Power Output into: 80hms, 1kHz 99.2W 20kHz 94.4W Surround Centre 30.5W 28.6W 35.1W 25.3W 99.2W 94.4W 152.2W No Output 29.4W 4ohms, 1kHz 20kHz 146 Response (8ohm/0dBW, +/-3dB): No Output 146.8W 32.7W -88kHz 6Hz-29kHz 53Hz-7kHz Dynamic Headrm (IHF, Front)+0.81dB Peak Current (5msec, 1% THD) 0utput Impedance 0.0990hm Damping Factor 5.5A 5.0A Effectiveness of Dolby Steering Logic (500mV in, 0dBW out): Spillover from Front to N/A -59.3dB -41.5d Spillover from Centre to -66.3dB N/A -40.2d Spillover from Surround to -31.5dB -37.8dB N/ -40.2dB +0.1dB *Output Matching Error OdB +0.9dB Total Harmonic Dist. (0dBW) CCIR Intermod. Dist. (0dBW) Noise (A wtd, 0dBW) -70.5dB -68.8dB 47.1dB -69.6dB No Output -69.5dE 75.3dE 73.9dB 5.8dB Residual Noise (unwtd) -63.1dBV -61.3dBV -63.4dBV Inpu (for f Inpu Max

It Sensitivity (for 0dBW)	22.7mV		
full output)	228mV		
It Overload	3.05V	3.25V	2.95
imum DC Offset	+55mV	+13mV	+2m
ItLoading	25kol	hm (CD) / 25ko	
al Number		20394	4020059
ntra/rear levels set to Od	R		

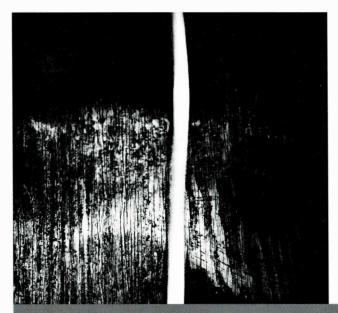
Inpu

If the Philips FR940 taught us anything, then a mismatch in power between front and centre channels is, broadly speaking, not good news. Unfortunately, Sherwood has slipped into a similar trap, even though the +5dB disparity in watts between front and centre is at least partially offset by the more generous 5.5A reservoir of (centre channel) current.

Once again, distortion climbs from 0.03 per cent (front) to some 0.45 per cent on the surround but at least the input overload margins are pretty generous on this occasion. But the spillover from front and centre to surround is another matter. As is obvious from the plot (bottom right), the Sherwood is the poorest in our survey at -40 to -42dB.



Very distasteful high-order distortions are permitted to leak out.



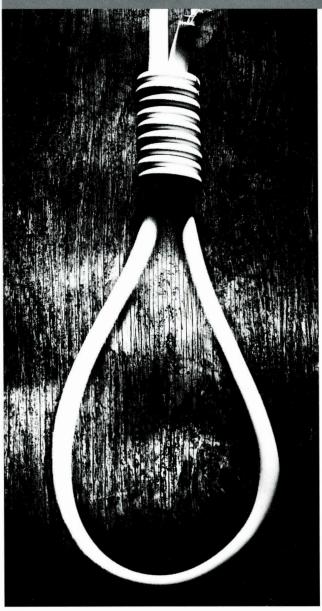
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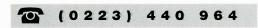
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Technics SA-GX550



ow here's an interesting twist. Read Technics' own literature and, I assume, any subjective review and you'll be told the SA-GX550 AV receiver is equipped with a combination of 60W (front), 60W (centre) and 20W (rear) amplifiers. The official Service Manual even follows suit. But in reality it's equipped with four identical 76W amplifiers (into 40hms).

This makes the SA-GX550 a more powerful version of the cheaper SA-GX350, complete with a loudness facility and variable rear-channel delay. As far as surround sound goes your only options are the basic Dolby three-channel and pukka Pro-Logic, all courtesy of Sanyo's LA2780 processor and the bucket-brigade delay we saw in Philips' *FR940*. Here, the centre and rear level volume adjustment is graduated in smooth 1dB steps, though other facilities, including genuine video inputs, are only represented in token quantity.

Also, its rear speaker outlets are connected in series, so a single surround speaker would need to be wired into the L+/R- terminals otherwise you won't get a peep from the amplifier.

Sound quality

So many AV amplifiers are dashed on the rocks of a thin and insubstantial film soundtrack that the warm, full, lively but very secure sound of the SA-*GX550* comes as a most pleasant surprise. Music has more ambience, strings and horns sound dynamic while bass instruments resonate strongly.

For our audience, differences in balance between individual film clips were now packed with contrast. Subtle low-level detail became more obvious, including the squeak of glass doors that marked the intro to our *Twin Peaks* selection. Equally, there was now a feeling of participation in the baseball clip, the commentator's voice ample and welcoming rather than thin or sibilant.

The creak of leather and the flick of the sunglasses were similarly highlighted on *T2*. Even the squeak made by a pen drawn across the navigation chart (*Abyss*) was revealed to marvel-

 VERDICT

 Image: Strain Strain

lous effect. Oodles of detail then, and great fun.

Conclusion

The very great success of the SA-GX550 as an AV receiver is only reinforced by its surprisingly low price-tag, ensuring that Technics gains an impressive lead on all the immediate competition. A mere Recommendation would be an insult — this is an out-and-out Best Buy.

Panasonic Consumer Electronics, Panasonic House, Willoughby Road, Bracknell, Berks RG12 8FP. (0344) 853943

TEST RESULTS

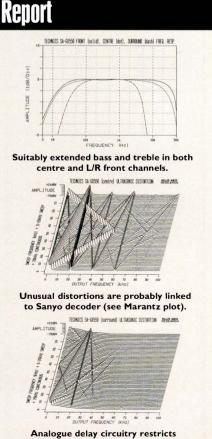
Laboratorv

Channel	Front	Centre	Surround
Maximum Continuous Power	Output int	0:	
8ohms, 1kHz	47.9W	47.9W	48.8W
20kHz	46.9W	47.4W	No Output
4ohms, 1kHz	75.8W	75.8W	75.8W
20kHz	74.9W	74.9W	No Output
Response (8ohm/0dBW, +/-3d		74.000	No output
	1z-57kHz	8Hz-43kHz	60Hz-5.3k
Dynamic Headrm (IHF, Front)		OT IZ HORT IZ	00112 0.01
Peak Current (5msec, 1% THD		12.7A	12.4A
	1440hm	12.76	12.4/1
Damping Factor	55.6		
Damping Factor	55.0		
Effectiveness of Dolby Steerin	g Logic (50	0mV in, 0d	BW out):
Spillover from Front to	N/A	-50.1dB	-49.6dB
	-26.6dB	N/A	-43.5dB
	-40.4dB	-37.8dB	N/A
*Output Matching Error	OdB	+2.9dB	+8.0dB
o alpar matoring inter	oub	12.000	
	-74.5dB	-73.4dB	-50.2dB
	-66.1dB	-73.4dB	No Output
	-80.6dB	-81.5dB	-78.6dB
Residual Noise (unwtd) -7	75.4dBV	-73.7dBV	-69.6dBV
Input Sensitivity (for 0dBW)	35.7mV		
(for full output)	247mV		
Input Overload	2.05V	1.85V	1.85V
Maximum DC Offset	+8mV	+7mV	+7mV
Input Loading	33.6kohm	(CD) / 33.6	kohm (VCR)
Serial Number		F	L3GB01034

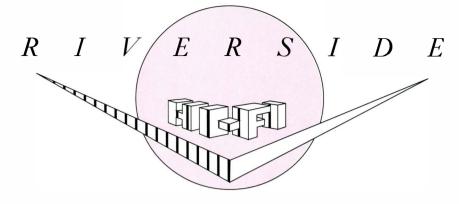
*Centre/rear levels set to 0dB

The great success of the SA-GX550 is largely due to the very consistent performance of its front, centre and surround channel amplifiers. These identical power amp integrated circuits deliver a full 48W into 80hm with a firm 12-13A of current in reserve. Even the 79-81dB A-wtd signal to noise ratios are common to all three amplifiers.

Otherwise the poor -27dB spillover from centre-tofront and quirky multiple-order intermodulation patterns visible on the centre-channel 3D plot seem to be linked to Sanyo's LA2780 Pro-Logic processor. In this instance there is a parallel with Marantz' PM-700AV (see page 93). As we observed, the Marantz also uses a Sanyo decoder, the LA2770.



Analogue delay circuitry restricts dynamic range (see also Philips plot).



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Pioneer VSA-D802S



op of Pioneer's AV range, the VSA-D802S is the only one able to simulate Hall, Theatre, Jazz, Church and Dance soundfields using genuine DSP logic. This is as part of Yamaha's YSS215 AV processing circuit which includes a Pro-Logic decoder plus a 15-bit digital delay section that also adds extra reverb to the surround channel during DPL Theatre mode.

The surround delay may be adjusted in DPL mode just as the effect level may be altered in anything other than DPL mode. Otherwise, five acoustic memories are available to store personal bass/treble contours along with centre/rear level and balance commands from the Smart (programmable) remote handset.

Other options are available via its disc (MM), CD, tuner, two tape, two VCR, LDP and TV inputs, including both phono (composite) and S-Type (separate Y/C) video connections. It also has line outputs for a subwoofer plus outboard front, centre and surround power amplifiers.

Sound quality

Rather than pumping the room with a thick ball of effects, this amplifier infuses the air with an insubstantial mist, a slightly grey if undistorted sound that lacks weight and conviction. As a consequence, our stereo music selection appeared both small in scale while lacking in distinct bass, despite remaining quite chirpy, clear and tidy.

In DPL mode certain sound effects, particularly the whistle of an overflying shell (Last Crusade), were thoroughly impressive, even though surround detail that required a stronger bass content simply lacked attack and confidence. So our baseball excerpt sounded clear and open yet, once again, our audience felt very detached from the atmosphere of the event as a whole.

Even with DPL Theatre engaged, any sense of build-up, of tension or menace in either our T2 or Abyss clips was diluted by the amp's lightweight performance. This undermined not only the effects' impact but also our interest in the films.

VERDICT
Quick, slick and moderately detailed; intelligent, multi-function remote control.
What detail exists is sadly uninteresting; as potent as a cup of decaff.
£599.95
SOUND VALUE FOR QUALITY MONEY

Conclusion

This is neither a blotchy or obviously coloured performer but its sheer weediness and lack of character is as effective a downfall as any other. So though the VSA-D802S will rarely be heard to struggle, neither will it tackle the atmosphere of potent Dolby Surround head on. A subwoofer would add extra wallop — and can be wired in quite easily — but this is no cure for an amplifier that has lost its heart.

Pioneer (GB) Ltd, Pioneer House, Hollybush Hill, Stoke Poges, Slough SL2 4QP. 🕿 (0753) 789789

Laboratory Report

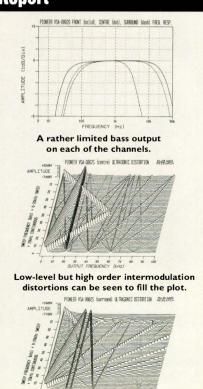
TEST RESULTS

Channel	Front	Centre	Surround
Maximum Continuous Powe	er Output i	into:	
8ohms, 1kHz	53.3W	54.8W	31.6W
20kHz	48.5W	47.9W	No Output
4ohms, 1kHz	80.2W	81.1W	45.8W
20kHz	74.1W	71.5W	No Output
Response (8ohm/0dBW, +/-3	BdB):		
	3Hz-42kHz	33Hz-30kHz	43Hz-4.6k
Dynamic Headrm (IHF, Front)+0.75dB		
Peak Current (5msec, 1% TH		5.9A	7.1A
	0.239ohm		
Damping Factor	33.5		
Effectiveness of Dolby Steer			
Spillover from Front to	N/A	-63.5dB	-62.5dB
Spillover from Centre to		N/A	
Spillover from Surround to			
*Output Matching Error	0dB	+0.5dB	-1.8dB
Total Harmonic Dist. (0dBW)	-75.3dB	-61.3dB	-56.4dB
CCIR Intermod, Dist. (0dBW)		-66.5dB	No output
Noise (A wtd, 0dBW)	-79.4dB	-73.8dB	-72.3dB
	-87.1dBV	-81.3dBV	-85.2dBV
Input Sensitivity (for 0dBW)		01.000	00.2001
(for full output)	167mV		
Input Overload	2.72V	1.8-2.8V**	1.65V
Maximum DC offset	-1mV	+39mV	
Input Loading		ohm (CD)/450	
Serial Number	4710		C9500016S
* centre/rear levels set to 0c	IR		000000100
** depends on centre level s			
acpentas en centre lever a	ering.		

*Centre/rear levels set to 0dB

The influence of Yamaha's digital delay is clear enough from the surround 3D plot which highlights the poor (<5dB) stopband rejection at high frequencies and strong odd-order harmonic distortions. It's also possible to see some digital interference breaking through at 24.1kHz alongside the smattering of low-level distortions on the centre channel 3D plot.

Otherwise, its modest 53W/55W/32W output just falls below Pioneer's 55W specification. Then again, any leakage of front-to-surround is well controlled while both total harmonic distortion (0.02-0.15 per cent, 80hms) and signal to noise ratios (79dB to 72dB) are very average for an amplifier of this ilk.



10 20 40 50 60 70 T FREQUENCY (kHz) Strong sampling images and odd-order distortion from the digital delay.





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	Deltec DRA1 (DAC)	£1200.00	£395.00	£355.0
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9				
	DPA PDMI	£1200.00	£350.00	£315.0
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	Musical Fidelity A100 Naim NAC 425	£399.00 £399.00	£299.00 £175.00	£269.0 £157.0
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Š	Nakamichi BX 300X	£649.00	£279.00	£251.
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Kenwood KA-V8500



f soundfield features are a top priority then Kenwood's KA-V8500 AV amplifier is a purpose-built halfway house to Yamaha's DSP-A2070. In similar fashion, Kenwood employs a top-quality ADC to digitise incoming analogue signals before feeding samples to both a DSP (digital signal processor) soundfield synthesiser and digitally-steered SM5851 Pro-Logic chip.

Phantom, normal and wide centre channels are available in DPL mode, along with a (15-30msec) rear channel delay. For standard audio sources, its DSP mode has eight pre-programmed soundfields as well as continuous adjustment of room size (early reflection time), wall (liveliness), seat position (front/rear dominance) and overall effect level. Here, the rear channel delay is fixed at 20msec, despite what the manual says.

Meanwhile, its Logic mode adds a variable 0-80msec rear channel delay to the DSP options. This enhances the localisation of the soundfield even if its execution still sounds incredibly dubious.

Sound quality

Our initial impression was one of a forward, slightly forced but vague tonal balance, one that manifested itself as a slight loss of ambience and weight on jazz and classical music selections.

Switching to DPL mode, the Laserdiscs reinforced this feeling of forwardness and eagerness. The *Last Crusade* excerpt was dominated by a strong central vocal image and superb front-toback steering of effects. Yet the soundfield itself was strangely dirty and the sense of diction muted despite individual images being nailed to the spot.

Neither was subtle low-level detailing particularly obvious, forcing us to tease out ambient clues and effects from memory rather than from the soundfield itself. Though far from disappointing, it also struggled through our bustling action clips, failing to reveal the menacing aural backdrop of the Corral Bar (T2) or the sudden explosion of space that occurs as the titles to the *Abyss* merge

 VERDICT

 Image: Display in the image: Display

with its opening scene. But keep it simple and the KA-V8500 can sound immediate and impressive.

Conclusion

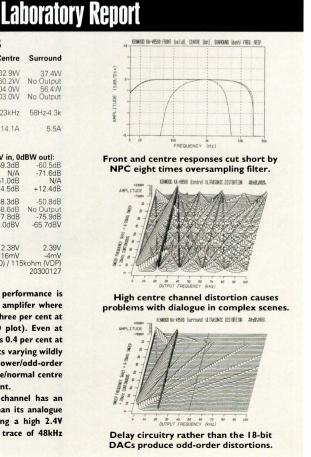
Earlier reviews of Kenwood's *KA-V8500* have failed to expose the technological strides hidden within. And it's this pursuit of advanced technology and mind-boggling flexibility, rather than its superficially confident sound, that earns Kenwood a high value Recommendation.

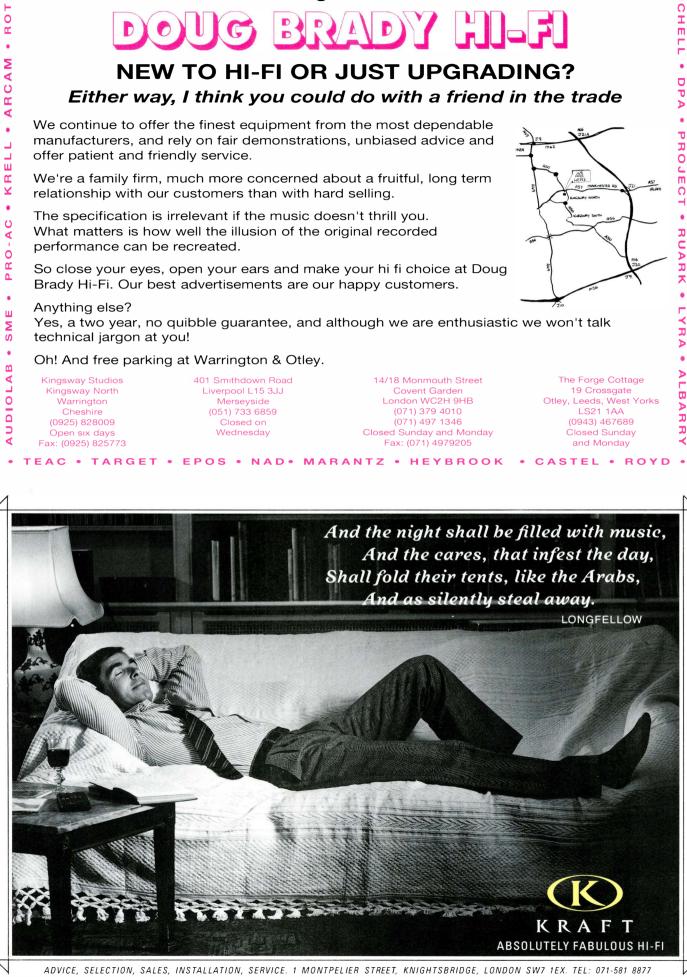
Trio-Kenwood UK Ltd, Kenwood House, Dwight Road, Watford, Herts WD I 8EB. 22 (0923) 81 6444

TEST RESULTS Maximum Continuous Power Output into: 80hms, 1kHz Surround Centre 62.9W 37.4W No Output 20kHz 61.8W 60.2W 4ohms, 1kHz 56.4W No Output 102 114 20kHz Response (8ohm/0dBW, +/-3dB): 3Hz-23kHz 103 OW 3Hz-23kHz 58Hz-4.3k 3Hz-23kHz Dynamic Headrm (IHF, Front)+0.78dB Peak Current (5msec, 1% THD) 15.1A 14.1A 5.5A Output Impedance 0.105ohm Damping Factor 76.4 Effectiveness of Dolby Steering Logic (500mV in, 0dBW out): Spillover from Front to Spillover from Centre to Spillover from Surround to *Output Matching Error -59.3dB 5dB -58 8dB N/A -51.0dB -71.6dB -39.5dE N/A OdB +14.5dB +12.4dB Total Harmonic Dist. (0dBW) CCIR Intermod. Dist. (0dBW) Noise (A wtd, 0dBW) Residual Noise (unwtd) Input Sensitivity (for 0dBW) (for full output) Input Overload Maximum DC Offset Input Joading -60.5dB -48.3dB -50.8dB -68.6dB No Output -75.9dB -81 8dB 76.2dBV -68.0dBV -65.7dBV 202mV 2.38V 2.39V 2.38 -6m\ +16mV -4mV 53kohm (CD) / 115kohm (VDP) Input Loading Serial Numbe 20300127 *Centre/rear levels set to 0dB

Digital or otherwise, the KA-V8500's performance is dominated by its ropy centre channel amplifer where crossover distortion climbs to two to three per cent at 20kHz before 60W is reached (see 3D plot). Even at 1kHz, total harmonic distortion exceeds 0.4 per cent at 1W, the nature and spread of harmonics varying wildly with volume level (even-order at low power/odd-order at higher power), regardless of the wide/normal centre mode or remote centre level adjustment.

Then again, Kenwood's surround channel has an extra 12dB or more dynamic range than its analogue peers while at the same time enjoying a high 2.4V overload margin and just the merest trace of 48kHz sampling noise (compare 3D plots).





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Denon AVC-3530



or a combination of power, great flexibility and battleship-style construction look no further than Denon's AVC-3530. There's a certain majesty about the bold fluorescent display upon a massive black alloy facia. Unfortunately, the remote control is a technophobe's nightmare, so study the instruction booklet closely before tackling the Dolby Pro-Logic and nine digital signal processor soundfield modes.

The digital rear channel delay can be altered in DPL, Matrix, Wide Screen and Live surround modes, but other options like the surround phase, directional enhancement, sound simulation and 7kHz filter settings are only available for Live and Wide Screen. The initial delay (reflection), room size (reverberation) and effect level can be adjusted in all save DPL and Matrix modes.

Meanwhile, the AVSE and Cinema facilities enable you to ressurrect preferred tonal flavours. Much of this comes courtesy of Yamaha's everpopular YSS215 DSP package which has been programmed to offer a wider range of options than in the Pioneer or Harman Kardon amplifiers.

Sound quality

This amp oozes power yet the balance is slightly dark and a little heavy-handed, especially with Denon's AVSE contour engaged. Nevertheless, the sound is warm and friendly rather than menacingly confident, a generous balance that slows the pace and urgency if not the appeal of its music.

With the film clips this proved very impressive, its warm balance off-setting the peaky treble of many soundtracks. Effects are also handled faithfully — the 6lb 'banana shot' from the *Last Crusade* seemed to circle the room before exploding with a bone-crunching thud.

On the other hand, its left/right positioning

was less definite, blurring the movement of the *Abyss* sub. Yet with plenty of grumbling weight to reinforce the T2 motorbike and shotgun scenes, the sense of tension left our panel chattering with excitement long after the lights came up.



Conclusion

At last, a Dolby Pro-Logic amplifier that counters the mid/treble dominance of so many popular movies. It's doctoring, yes, but the result is a fullbodied sound that contrasts markedly with the insipid performance of some of the more politically correct competition. All it lacks is a bit of nimbleness. Not that this bothered our panel. They were too busy munchingpopcorn to notice.

Hayden Laboratories Ltd, Chiltern Hill, Chalfont St Peter, Gerrards Cross, Bucks SL9 9UG. 2 (0753) 888447

Laboratory Report

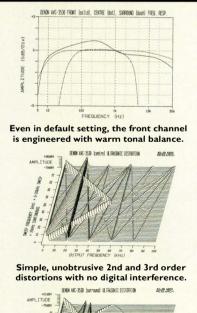
TEST RESULTS

Channel	Front	Centre	Surround				
Maximum Continuous Power Output into:							
8ohms, 1kHz	142.0W	141.1W	46.4W				
20kHz	126.6W	125.0W	No Output				
4ohms, 1kHz	231.8W	227.2W	77.5W				
20kHz	205.3W	198.2W	No Output				
Response (80hm/0dBW, +/-3d		100.200	No Output				
	z-100kHz	5Hz-100kHz	30Hz-4.8k				
		SHZ-TUUKHZ	30HZ-4.8K				
Dynamic Headrm (IHF, Front)		10.01	0.04				
PeakCurrent (5msec, 1% THD)		19.2A	9.6A				
	0.073ohm						
Damping Factor	109.4						
Effectiveness of Dolby Steering Logic (500mV in, 0dBW out):							
Spillover from Front to	N/A	-47.7dB	-55.3dB				
SpilloverfromCentreto	-44.8dB						
Spilloverfrom Surroundto	-39.8dB						
*Output Matching Error	0dB	+14.1dB	+12.0dB				
Total Harmonic Dist. (0dBW) -63.2dB	-63.7dB	-55.9dB				
CCIR Intermod. Dist. (0dBW)	-63.3dB		No Output				
Noise (A wtd, 0dBW)	-79.7dB	-77.9dB	-76.1dB				
Residual Noise (unwtd)	-69.0dBV	-67.5dBV	-67.7dBV				
		-07.50BV	-07.70DV				
Input Sensitivity (for 0dBW)	17.6mV						
(forfull output)	208mV	1	4 5014				
InputOverload	2.06V	1.94V					
Maximum DC Offset	+20mV	+5mV	+15mV				
Input Loading	49kohm (CD /49kohm (VDP)						
Serial Number							
*Centre/rear levels set to 0c	iΒ						

At its heart lies an SSM-2125 Pro-Logic Decoder from PMI, the D-grade selection furnishing wide 80/78/76dB signal to noise ratios for front, centre and surround channels respectively. In common with Kenwood's NPCderived chip, this leads to the wide dynamic range that is clearly visible on the surround 3D plot, bottom right.

Meanwhile, AVSE introduces a bass boost that climbs from +1dB at 500Hz to a peak of +9.5dB at 23Hz just as Cinema mode cuts treble from -1.5dB at 5kHz to -5dB at 20kHz.

The internal amplifiers provide power-a-plenty though the Denon AVC-3530's overload limits fall to just 1.05/1.0/0.8V respectively with the input adjustment set to +6dB.





TAKING THE INDUSTRY BY STORI

Since it's launch just months ago, Hi-Fi Direct and its exclusive Sherwood, JPW and Ariston products have all received wide acclaim by the distinguished hi-fi press. Hi-Fi Direct is a distribution company set up by Richer Sounds, the UK's biggest hi-fi retailer, dedicated to saving the customer money, by buying and importing direct from manufacturers and selling at the lowest possible prices by mail order and through their own stores nationwide.

Sherwood's entire CD player line up, Ariston's PRO1200 and JPW's loudspeaker and subwoofer systems have all been wholeheartedly recommended, the words "stunning" and "unbeatable" being repeated time after time, by knowledgeable reviewers. Watch this space for yet more exciting products.....





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Verdict * * * * * Sound quality * * * *

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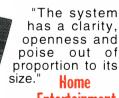


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Verdict * * * * *

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- CD2010 (CD) see above
- RX1010 (tuner amplifier)

hi-fi direct

"staggering value"

The central component of this Mini Monitors (pr. spks) see below
 Stunning system; Sherwood's
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Yamaha DSP-A2070



4ohms, 1kHz

Spillover from Front to Spillover from Centre to Spillover from Surround to

Spillover from Surround *Output Matching Error

Noise (A wtd, 0dBW) Residual Noise (unwtd)

Input Loading Serial Number

20kHz

idely admired for its AV technology, Yamaha has already taken the 1993 European EISA Award for Home Theatre with its DSP-A2070. Nevertheless, this is the first time that the unit has been up against its latest rivals in a blind listening test.

The amp's features are unsurpassed, thanks to an all-digital Dolby Pro-Logic decoder and soundfield processor. Standard DPL is provided with an Enhanced 35mm Movie mode which adds further soundfield processing to the rear channels for that big screen feel. This is bolstered by an extra pair of front effects channels.

Yamaha provides some 12 pairs of soundfield programs, the most advanced controlling such things as directional enhancement, simulated front/ rear room size and the reverberation level, delay and time. By modifying these preset soundfields you can create, and memorise, personalised acoustic environments for later recall.

Sound quality

Listening to the DSP-A2070 as a standard twochannel stereo amplifier is a bit of an anticlimax, for its music is detailed but lacks vigour. Switching into DPL mode could not disguise this underlying character, one that dredged oodles of subtle detail from our film clips but presented it in a peculiarly academic manner.

Yamaha's Enhanced mode, by contrast, was voted a vast improvement. Sure enough, the grey disposition of the amps was still apparent but there was now a far greater sense of ambience, of front-to-back imaging and transient detail. This is achieved by making any natural acoustic sound far bigger and brassier than is strictly plausible.

The cramped acoustic of the submarine (Abvss) took on cinematic proportions while the kitchen scene (at the start of T2) echoed to the sound of guns and keys being exchanged. In these instances, the acoustic representation was clearly bolder than the visual image itself would suggest. But blow reality. This is great home cinema.



Conclusion

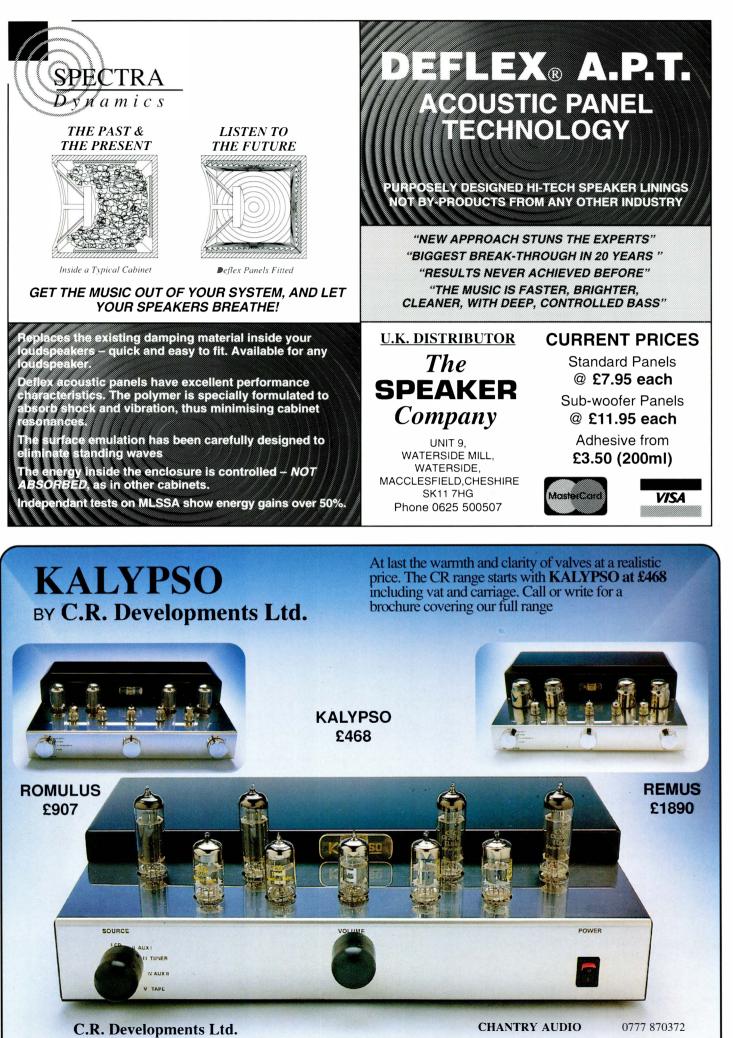
To assess the DSP-A2070 purely on its performance as a 4-channel Dolby Pro-Logic decoder would be an injustice. The plain fact is that Yamaha's digital effects are very much more enthralling than the detailed but uncharismatic sound of its on-board amplifiers. Consequently, the DSP-A2070 is Recommended for its matchless flexibility rather than ultimate sound quality.

Yamaha Electronics UK Ltd, Yamaha House, 200 Rickmansworth Road, Watford, Hertfordshire WD1 7JS. 🕿 (0923) 233166

Laboratory Report YAMAHA DSP-A2070 FRONT (solid), CENTRE (dot), SURROUND (dash) FRED. RESP **TEST RESULTS** Channel Front Maximum Continuous Power Output 80hms, 1kHz 100.6W 20kHz 04.4W Centre Surround 99.2W 34.9W 92.3W 32.0W 166.0W 162.9W 56.4W 148.6W 51.0W 20kHz 151.0W 148.6W Response (8ohm/0dBW, +/-3dB): 2Hz-21.4kHz 3Hz-21.4kHz Dynamic Headrm (IHF, Front)+0.80dB Peak Current (5msec, 1% THD)14.5A** 14.5A** Output Impedance 0.0056.0hm Damping Factor 123.1 23Hz-7kHz 7 5A EQUENCY (Hz) Effectiveness of Dolby Steering Logic (500mV in, 0dBW out): The 44.1kHz rate means front/centre response -64.7dB -72.1dB -60.7dB N/A is no more extended than a CD player. -72.5dB -48.5dB -43 5dE N/A -1.3dB 0dB +2.6dB Total Harmonic Dist. (0dBW) CCIR Intermod. Dist. (0dBW) -78 2dB -73.8dB -82.2dB -85.5dB 78.6dB -60.4dB -80 1dB -83 5dB 72.0dBV -72.9dBV -74.8dBV Input Sensitivity (for 0dBW) (for full output) Input Overload Maximum DC Offset 14.0mV 1.31-2.58V -13mV 0.91-1.80V 0.9-1.79V nV 0mV 0mV 48kohm (CD) / 47kohm (LDP) E086013SU ** Relay protection *Centre/rear levels set to 0dB A mix of amplifier and CD-like distortions The DSP-A2070 is digital through-and-through, beginas digital filter bites above 22kHz. ning with the two AK5339 ADC's that sample and THE BURN WITCHTOLD THOSE IN INCOME IN 1000000 10000000 quantise the analogue input. DPL steering and DSP is then accomplished in Yamaha's latest YSS213 processor followed by digital-to-analogue conversion using no less than four PCM69 hybrid DACs (seven channels in total).

Consequently, the DSP-A2070 measures like a mix of amp and CD player, especially as far as the bandlimited 2Hz-21.4kHz response is concerned. Otherwise, it offers an unbeatable blend of high power (100W front and centre), low distortion (0.008-0.02 per cent), very low noise (-80 to -84dB) and very little spillover (<-44dB). Clearly, the DSP-A2070 is a technical triumph.

Low distortion and gentle V-shaped images



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Harman Kardon AVR-30



aving already received a clutch of Best Buy and Recommended swing tags in earlier *Choice* amplifier issues, Harman Kardon has applied its sonic know-how to a new AV receiver, the AVR-30. A £150 price cut brings it into competition with Denon's AVC-3530 but HK's choice of a YSS215 Dolby processor means its DSP facilities are closer to the Pioneer's.

In this application, the processor offers six basic digital signal processor modes, all with a fivestep variation in effect level to influence the liveliness of the synthesised soundfield. In Dolby Pro-Logic mode, there is a 15, 20 or 30msec rear channel delay while the DPL Movie setting brings extra control over the degree of reverberation.

So in practice the AVR30 is no real DSP thinktank. However, the clear fluorescent display and motorised centre/rear level controls ensure it's very much easier to comprehend than its overlycomplex DSP-obsessed competition.

Sound quality

Considering that all front, centre and surround channels were precisely level-matched across every amplifier in this test, the extra forwardness and loudness of the HK came as a surprise. Its music sounds robust yet is tonally lightweight, so our jazz CD sounded open and detailed if also slightly raspy or gritty through the treble.

In DPL mode, however, the AVR-30's strength lay in steering effects rather than the faithfulness of its balance. The overflying 6lb shell (*Last Crusade*) had the panel ducking even if the ensuing explosion was rather an anti-climax. Incidentally, our first sample suffered a low-level buzz but even a second clean AVR-30 added little extra wallop.

Without an external subwoofer, the slight loss of bass weight and bite persisted with both our 72

and *Abyss* movie clips. Yet, once again, the pool of effects were marvellous to experience, especially the changing acoustic from sea to submarine (*Abyss*) and from one cabin to another, giving us a genuine impression of being there.

	VERDICT		
	Excellent control over movement and positioning of effects; includes 16 preset AM/FM tuner.		
$\overline{\bullet}$	Limited DSP flexibility for the money; no S-type video connections.		
	£999.99		
	SOUND VALUE FOR QUALITY MONEY		

Conclusion

This amplifier prompted an enthusiastic response from our listeners. Its clear diction and rail-like steering of effects held us completely enthralled from film to film. And this — lest we forget — is what home cinema is all about. So, assuming the poor front signal to noise figure is simply a rare sample fault, the cut-price AVR-30 comes strongly Recommended.

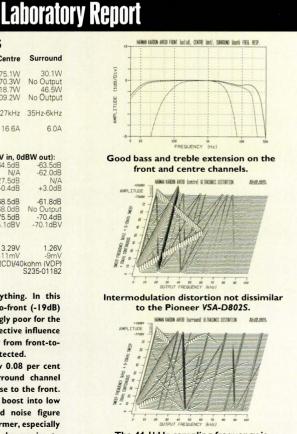
Harman Audio, Unit 2, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Herts WD6 5PZ. 2018 081-207 5050

TEST RESULTS				
Channel	Front	Centre	Surround	
Maximum Continuous Power	r Output i	nto:		
8ohms, 1kHz	73.9W	75.1W	30.1W	
20kHz	70.9W	70.3W	No Output	
4ohms, 1kHz	120.9W	118.7W	46.5W	
20kHz Response (80hm/0dBW, +/-3	111.2W	109.2W	No Output	
	dB): Iz-37kHz	4Hz-27kHz	35Hz-6kHz	
Dynamic Headrm (IHF, Front)		4112"Z / KI1Z	33112-0K112	
Peak Current (5msec, 1% THI	DI 13.9A	16.6A	6.0A	
	1360hm			
Damping Factor	58.8			
Effectiveness of Dolby Steeri		500mV in Oc	BW out)	
Spillover from Front to	N/A	-64.5dB	-63.5dB	
Spillover from Centre to	-47.5dB	N/A		
Spillover from Surround to				
*Output Matching Error	OdB	-0.4dB	+3.0dB	
Total Harmonic Dist. (0dBW)	-70.5dB	-68.5dB	-61.8dB	
CCIR Intermod, Dist. (0dBW)		-68.0dB	No Output	
Noise (A wtd, 0dBW)	-65.9dB	-75.5dB	-70.4dB	
	47.3dBV	-55.1dBV	-70.1dBV	
Input Sensitivity (for 0dBW)	21.9mV			
(for full output)	187mV			
Input Overload	2.93V	3.29V		
Maximum DC Offset Input Loading	+15mV	+11mV kohm (CD)/40		
Serial Number	40	konm (CD)/40	KUTITT (VDP)	

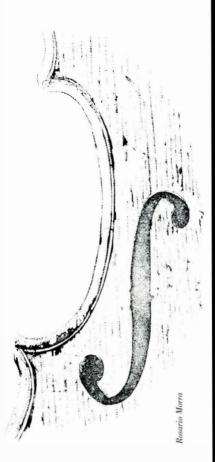
*Centre/rear levels set to 0dB

Implementation, as they say, is everything. In this instance, the spillover from surround-to-front (-19dB) and centre (-28dB) channels is surprisingly poor for the YSS215 processor. Fortunately, its subjective influence is far less damaging than, say, spillover from front-to-surround where the AVR-30 is well protected.

Otherwise, the AVR-30 enjoys a low 0.08 per cent total harmonic distortion on the surround channel which, incidentally, is wired in anti-phase to the front. Power output enjoys a healthy +2.1dB boost into low (4ohm) loads but the high unwanted noise figure (-47dBV) suggests a rogue mains transformer, especially as a second sample was free of hum harmonics to -70dBV.



The 44.1kHz sampling frequency is betrayed by strong V-shaped images.



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AV AMPLIFIERS

AV amplifiers: conclusions, best buys and recommendations

nevitably, there is a learning curve associated with every new product category and AV amplifiers are no exception. In fact, the complexity of their multichannel operation and various soundfield options quickly steepens this curve into a learning cliff.

So, having just scrambled over the brow of the AV precipice I can report several very reliable correlations. The first concerns amplifier quality, which seems more important than the choice of Pro-Logic decoder or DSP chip. Basically, any amplifier that sucks with stereo music also tends to bomb-out in multi-channel surround mode.

Power output matching between channels is also very important. Ideally, all four left and right front, centre and mono surround amplifiers should be matched in an effort to create a balanced output from all channels.

In this test, the Philips *FR940*, Sherwood *RV-6010R* and, to a degree, the Marantz *PM-700AV* all possess an imbalance in output from front to centre and not one seemed capable of sustaining a believable 3D soundfield.

Having found the secret to great home cinema sound, Paul Miller unveils the cream of this year's AV amplifier crop.

Pioneer's VSA-D802S avoids any such mismatch yet the inherent sound quality of its various amp blocks was equally uninspiring, whatever the mode selected.

Even Kenwood's *KA-V8500* tended to shy away from heavily-produced material, sounding a little boring into the bargain. But with its vast range of onboard digital trickery, witholding a Recommendation would be churlish.

In a similar way, Yamaha's *DSP-A2070* is exhaustively equipped with user-modifiable DSP soundfields and it's these gadgets, rather than the uncompelling sound of the basic amplifier, that ensures our Recommendation for a sophisticated package.

By contrast, the *AVR-30* from Harman Kardon relies on a fairly basic Dolby

Swing tags

Products that make the grade are awarded *Hi-F* Choice's unique Best Buy or Recommended accolades. This sets them apart as being capable of a higher standard of fidelity than average, at a particular price point.

A product carrying the Best Buy swing tag is significantly better than the alternatives in its price band. It is of excellent quality and very good value for money. Watch out for this logo, it is your guarantee of quality.

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 to be more compatible when assembling a first class system.





Denon AVC-3530, £999.99. A true heavyweight with a richly detailed sound and versatile features to match.



Technics SA-GX550, £379.95. Gutsy and involving performance from a modestly-priced package.

RECOMMENDED



Harman Kardon AVR-30, £999.99. Limited surround options are offset by a very secure sound.



Processor and DSP package. Nevertheless, it's the quality of the four amps, ensuring good sound in either twochannel stereo or four-channel mode, which carries the day.

Equally straightforward, but significantly cheaper, is Technics' Best Buy *SA-GX550*. Identical front, centre and surround channels maintain a very clean, controlled and sure-footed sound, dredging up subtle ambient clues that make the Dolby Surround experience well worth the effort of extra wires and speakers. And any sins are simply those of scale rather than omission.

Which is where the Denon *AVC-3530* comes into its own,



Kenwood KA-V8500, £699.95. Can sound a tad forced and immediate but is remarkably well-equipped.

Yamaha DSP-A2070, £1,099.95. The ultimate in AV flexibility with full manual control provided over every conceivable soundfield.

the only product in our survey to combine great sound quality, gripping soundfield effects and a generous helping of DSP trickery. Where the Technics is even-handed and transparent, the Denon is ruddier, more powerful and — in terms of special effects consistently more impressive.

Overcoming the conspicuously bright and thin balance of many movie soundtracks without muddying the natural sound of music CDs, for example, is a tricky business. But it's here that Denon is arguably most successful, earning the *AVC-3530* a transient Best Buy in what is an ever-changing and rapidly developing marketplace.

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Koss JCK/200-S • VIVANCO IR9001S Beyer IRH790

а

Infra-red remote control headphones form an almost microscopic part of the headphone market, but the few leading models, represented in this test by designs from Beyer, Vivanco and Koss, have been attracting increasing interest.

For genuine couch potatoes, cordless headphones probably offer no real benefits and suffer the traditional problems of the breed — erratic signal reception, audible background noise and so forth. But for those who don't like being rooted to a single spot when listening, the story may be a very different one as the freedom from trailing wires can come as a blessing.

Construction

Beyer			
Koss			
Vivanco			

Our three models hold few surprises. They all come with infra-red transmitters, which can be saton a convenient shelf overlooking the room, and which connect to the hi-fi, TV or VCR through a long wire terminated in choice of 3.5 and 6.3mm jacks. Each make allows additional infra-red transmitters to be added for use in other rooms. Cordless components apart, the headsets are standard in design, with simple fixed headbands. Ear cushions can be detached for cleaning or replacement. Each head set is designed to use batteries which fit inside the unit itself- two MN1500 (AA size) for the Beyer and the Vivanco, and a single MN1604 (PP3 size) in the case of the Koss.

The Vivanco and Beyer look astonishingly similar and although close examination shows that most of the mouldings and fittings do differ in detail, some un-

derlyingsimilarities are unmistakable. The two transmitters, for example have different bases and fronts, but identical back mouldings and socketry. It turns out that they will each drive the other headphone satisfactorily. There are differences, however, as the Beyer power supply is a 13A plug top device whereas the Vivanco, though also supplied as a plug top, is the two pin shaving type. It's a 220V unit too, which may be within tolerances, but is certainly not desirable.

On questioning, it turns out that both manufacturers draw on the same source for the transmitter, receiver and external parts. I am assured, however, that the transducers buried inside are proprietary, despite the fact that they look very similar.



All three models are fitted with on/off switches plus LED power indicators, volume controls and stereo/mono switching. The two German models allow the left or right signals to be fed to both earpieces, which has a possible application with multi-lingual films where two languages are carried on separate channels. This could be a distinct advantage for the satellite TV enthusiast in search of foreign film or sport channels.

Who needs them?

Infra-red headphones should be of interest to anyone who likes to listen while they carry out other activities, and don't like to do so using speakers, perhaps because others within earshot don't want to be disturbed. In short, they are a natural for those who listen while they work but never get a chance to sit down. The lack of cables strung between the listener and the audio system means there are fewer hazards, especially where young children are playing. Similarly, in a busy professional environment, cordless headphones can be helpful in reducing clutter, and allow greater freedom of movement.

Comforl	
Beyer	

Beyer			
Koss			
Vivanco			

There is nothing to choose between the Beyer and Vivanco—the Vivanco's wider headband is not an issue here. They both fit snugly if a little firmly around the head, the ear cushions bearing directly on

the ears. As they are fairly heavy (inevitable with cordless designs), they will tend to drop off when moving around vigorously. Although comfortable in the short term, fatigue set in after a while.

UMPLETE IN THIS ISSUE

The rather awkward looking Koss turns out to be the most comfortable of the three. Inwards pressure on the ears is low, while good weight distribution and careful shaping of the ear cushions keep the Koss stable and comfortable. The ears can breathe more easily too. Long-term wearability is ahead of its rivals.

Sound quality

		-	
Beyer			
Koss			
VIVANCO			

Unfortunately for Koss, sound quality didn't match comfort. Tonal colours were

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CORDLESS **HEADPHONES**

dark, and most music was reproduced with a curiously distant feel. The bass was reasonably well extended, but had a leaden quality, less boomy than simply smeared. Orchestral bass passages were slurred and uneven, and it proved difficult to pick out individual instruments when more than a few were playing together.

The higher frequencies were marred by some high Q (sharp, narrow band) resonances, which were heard as a thin, rasping quality with female vocals, strings and other instruments rich in upper frequency harmonics. Almost subliminally perceived behind the music was a quality reminiscent of holding a conch to the ear, which tended to confirm that structural problems in the earpiece design were largely to blame for these findings.

It's not all bad news, however, as the Koss was a more dynamic performer than the other two. It went loud cleanly as the music dictated, and on a couple of occasions I found myself snatching the headphones off my head in surprise. By contrast, the other two were rather lazy in their response to dynamic changes. The overall feeling was of restraint and mild compression. It was as if the music (or whatever) was being squeezed into a relatively narrow volume band. At the same time, neither of these models could play as loud as the Koss, though the compression described was obvious at low as well as high volume settings.

This just about covers the down side of the Beyer and Vivanco. Both were warm, lively and comparatively uncoloured designs by Koss standards. While not the last word in high fidelity - sheer com-

plexity ensured they could not hope to perform as well as comparably priced wired headphones - on the whole they sounded transparent and clean.

Differences between the Beyer and the Vivanco are

intriguing. Their physical similarity had led me to anticipate that they < might sound the same. They don't, though a com-

🏊 shows in their heritage mon modest coloration signatures.

First impressions were that the Vivanco was less couth and had a greater mid/ treble 'zinginess' than the Beyer, but more extended listening confirmed that the Vivanco was the more revealing of the two, which led it into trouble with certain

We are used to the beams can carry by their use in

idea that infra-red useful information. remote controls. Infra-red is simply the name given to

the part of the electromagnetic spectrum (which includes radio waves) near the visible spectrum, but with wavelengths too long to be visible. Technically, it is not a difficult matter to modulate an infra-red beam with high frequency carriers, 2.3/2.8MHz for the Beyer and Vivanco and 95kHz/250kHz for the Koss, and in turn to frequency modulate these carriers with the music.

FM modulation for headphones has similar properties to FM radio, one of which is called limiting, which results in a volume level independent of the strength of the signal received. The level limits with a very low voltage input signal. Stronger signals result in improved signal to noise (that is, background hiss), up to the limits set by the receiver and transmitter. FM also means strong immunity to normal sources of electrical interference, since the receiver is relatively insensitive to AM signals, if it has been properly designed.

types of music, and which meant that the inherent limitations of the headphones themselves were sometimes more apparent. The Vivanco was more open and spacious sounding, contrasting with the Beyers' smoother, more constrained quality, and it was the Vivanco that had the greater vitality.

Understand that these differences were minor compared to the gulf that separated them both from the Koss. At the same time, it would be wrong to suggest that the differences were subtle or difficult to identify.

Background noise levels on all three models was not great, though it was the Koss that proved the most obtrusive of the three. This was in part because the noise had a coloured quality, shaped by enclosure resonances, and partly because it was susceptible to hum and impulsive spits of interference from other electrical equipment in the vicinity.

Value for money

Beyer	
K oss	
Vivanco	

Here is the clincher. The Koss will cost you around £175, and the Beyer just undercuts the Koss, at a few pence short of £170. The Vivanco, however, weighs in at only £119.95. For those not schooled in simple arithmetic, that represents a saving of about £50, which is considerably better than a slap round the face with

How they wor

The disadvantage of infra-red is that it works in line of sight only. It won't work around corners (the Koss produces masses of hiss when signals are lost, and the other two simply mute), and there will be 'blind' spots even in the same room where the transmitter beam doesn't reach, or where there is destructive interference between the transmitter beam and its reflections.

Infra-red headphones have one or more receivers on the headset itself. The Koss has a single receiver perched on top of the headband, where it is least likely to be occluded by the head. The Beyer and Vivanco, on the other hand, have transmitters on each earpiece, which should mean that one receiver is always in the line of sight. In practice, the second method does seem to give

more reliable results. The transmitter is mains powered and can be placed anywhere, but ideally high up to avoid obstructions.

a damp halibut.

The final ranking order is, therefore, not hard to work out. The Vivanco wins overall, not for sound quality (where it trades points with the Beyer, and doesn't always end up sounding superior), but simply due to its bargain basement pricing. The Beyer trails some distance behind, though its smoother and gentler sound might appeal to some. Finally, the Koss loses out on sound and reception quality. The only area in which it had an undisputed lead was comfort.

Beyer Dynamic (GB) Ltd, Unit 14, Cliffe Ind Estate, Lewes, Sussex BN8 6JL. ☎ (0273) 471825

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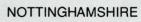
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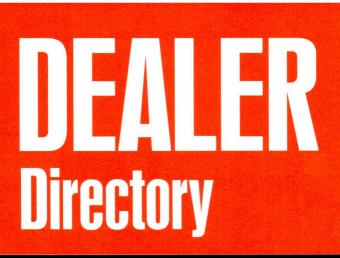
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BRENTWOOD HI-FIDELITY, 2 Ingrave Rd, Brentwood, Essex, CM15 8AT. (0277) 221210. Audio Innovations, Denon, DNM, EAR, Marantz, Micromega, Mission, Pink Trianngle, Quad, Tannoy plus many more. Single speaker dem rooms, home trials, evening appts (high 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, Rotel, KEF, Rogers, Marantz, NAD, Tannoy. Dem facilities. Mon-Sat9-6. Installations. Access, Visa, Instant credit. Service dept.

RAYLEIGH HI-FI, 44a High Street, Rayleigh, Essex. (0268) 779762/747571. 216 Moulsham St, Onthe-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.

GLOUCESTERSHIRE

AUDIO EXCELLENCE, 58 Bristol Road, Gloucester. (0452) 300046. Great Hi Fi carefully selected and demonstrated by friendly and enthusiastic staff. Closed Mon.

AUDIO T, 40-42 Albion St, Cheltenham, Glos. GL52 2RO. (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. Horne dems. PX. Single speaker dem room Free del. and instal HUTCHINSONS, 295-297 High Str, Cheltenham, Glos. GL50 3HL. (0242) 573012. Pioneerreference point, Technics, Dual, NAD, JWharfedale, Celestion, Marantz, Aiwa, Kenwood, Sennheiser. No apts 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,Linn,Meridian, Mission, Rotel, Yamaha and many more. Mon-Sat9.30-5.30pm. 3 yr gnteeon Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. Single speaker dem room. Free del. and instal.

HAMPSHIRE AUDIO LTD, 2-12 Hursley Rd, Chandlers Ford, Hants SO5 2FU. (0703) 252827/ 265232.3hi-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.

JEFFERIES HI-FI (Portsmouth) 29 London Road, Portsmouth PO2 OBHTel: 0705 663604. 2 Dem Rooms, closed mondays. Late night Wed. Free Parking Bus route. Credit facilities.

HEREFORDSHIRE

ENGLISH AUDIO, 95 Whitecross Road, Hereford HR4 0DG. (0432) 355081 Cyrus Centre, Pink Triang;e, 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. GOSPEL MUSIC AUDIO, 32A High St Kington, Herefordshire. (0544) 230254. New Shop open: Castle Video, 1 Spa Centre. Station Crescent, Llandrindod Wells (0587 824 0200) Alphason, Alison, Revolver, Luxman, Yamaha, QED, Audio

Systemline, Wharfedale, Jamo, Micromega,. No

appts nec., home trial facilities, service dept. -

HERTFORDSHIRE

5.30 +evening dems.

ACOUSTICARTS 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. HERTFORD MUSIC. Music is pleasure. good when choosing your system in our, appointments only, demonstration rooms (and bar)! Home demonstrations encouraged. Systems form £1,000 to £15,000. CR Developments, Micromega, REL Acoustics, Acoustic Energy, Michell, Magnum, Diamond Acoustics, Beard, Lumley, Renaissance, etc. Access, Visa. Mail Order. Tel: (0992) 471110 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. Home trial facilities, Free Install, Service Dept. Visa, Access 9-5:30 Mon-Fri 10-5:30 Sat 1082, 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. 9-5.30pm (Mon;Sat). Closed Weds.

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.

Open Mon-Sat, Appointment Service or just pop in. Tel: 0233 624441. Exact 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.

V J HI-FI, 119 High Street Margate. (0843) 226977. For full details see our above entry.

LANCASHIRE

NORMAN AUDIO, 131 Friargate, Preston, Lancs, PR1 2EE. Tel 0772 53057. Fax 0776 562731. Marantz, Pioneer, Yamaha, Audiolab, Arcam, Mission, Cyrus, B&W, KEF, Sendeor Catalogue. Home Cinema Dem room. No appt nec, Home trial facilities, free installation. Instant credit subject to status. Open 9.30-5.30, late nightWed till 8.00pm.

NORMAN AUDIO, also at216 Church Str, Blackpool, (0253) 295661, Fax (0253) 295722. 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 afer 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 4LO. 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. Meredian, Rogers, Roksan, "and oodles more". 2 Dem rooms, home trial arranged, freeinstall, servicedept, Creditfacilitiexs, Access, Visa, Diners, Amex, 6 days 9.30-5.30. Bada Member

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. SOUND ADVICE, The Factory, Duke St,

Loughborough LÉ11 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 Speciality. 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. Denon, Quad, Nakamichi, Arcam, Marantz, NAD, Castle, Tannoy, Rogers, etc. Separate demo studio. Free installation. Access, Visa. Tues - Sat 9-5 pm. STAMFORD HI-FI ;CENTRE, 9 Red Lion Square,

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-Fipurchasedforcash. No appointments necessary, home trial facilities, free installation, service department. Mastercard, Visa & credit charge, finance available. Mon-Sat 9-5.30pm, closed Thursdays.

SUPERFI, 271A High Str, Lincoln LN2 1 JG. (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.

BILLY VEE SOUND SYSTEMS, 248 Lee High Road, London SE13. (081) 318 5755. Arcam, Linn, Naim, Ouad, etc. 2 dem rooms. Int. free credit. Access, Visa. Closed Thurs. CONFLAKE 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 preffered. 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, & 16X9TV'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 specialisthi-fi from Britain, America and Japan. 3 dem rooms. Closed Monday.

GRAHAMS HI-FI, CanonburyYard, 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.

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, Kingstonupon-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 crdeit usually available - ask for details. Mon-Sat 10-6pm. (Late night Thurs till 7pm)

MUSICAL IMAGES LTD. 173 Station Road, Edgeware & 45 High Street, Hounslow, Middlesex. See under Middlesex & full pge 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 preffered. Free Installation. Service Department. Open Tues -Sat. 10-6. Late dem by appointment.

SOUND SENSE, 350 Edgeware 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, Standardcredit 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 speakerdem room, AV demos. Multiroom. Service dept. Visa/Access credit facilities. 10-7 Mon-Fri, 10-6 Sat.

SUPERFI, 2-4 Camden High Street, Camden, NW1 0JH (071)388 1300. See main entry under Notts for full details.

UXBRIDGE 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 Middx entry for brands stocked. 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 Iab, Arcam, KEF Reference, Marantz, Mission, Micromega, Pioneer, Rotel, Sony, Tannoy, and Iarge 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!

MIDDLESEX

AUDIO T, 159a Chase Side, Enfield, Middx EN2 OPW. (081) 367 3132, Fax (081) 367 1638. Great



hi-fifrom 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. AVV Dept.

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.

MUSICAL IMAGES LTD. 45 High Street, Hounslow, Middlesex TW3 11R. (081) 569 5802. FAX (081) 569 6353. & 173 Station Road, Edgeware 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, Spendor, Systemdek, Tannoy, Yamaha. One demo room, in-car demo for car hifi 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. SIGHT N SOUND, The Treaty Centre, Hounslow,

SIGHT N SOUND, The Treaty Centre, Hounslow, Middlesex TW3 IES. 081 572 5418, fax 081 572 5417. Sony, Kenwood, Finlux, Toshiba, Philips, Sanyo, Grundig, Pioneer, Technics, Akai. No appts nec, free intall, service dept. Access & Visa, financing available. 9-6pm Mon-Sat.

MERSEYSIDE

W.A. BRADY & SON, 401 Smithdown Rd, Liverpool L15 3JJ. (051) 733 6859. 'Largest choice of specialist Hi-Fi in N.W. £100-£20K'. All credit cards. 3 dem rooms. Closed Monday. Example & 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

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, 8 High Street, Bromburgh, Wirral.

(051) 334 1874/2825. Open 9-5.30 6 days a week. See Cheshire entry for details.

WEST MIDLANDS

AMADEUS 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.

FRANK HARVEY HI-FI EXCELLENCE, 163 Spon Street, Coventry CU1 3BB. (0203) 525200. Audiolab, 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, home trial facilities.

All credit facilities available. Mon-Sat 9.30-5.30. Wed til 8pm.

GRIFFIN AUDIO LTD, 94Bristol Street, Birmingham. (021) 692 1359/(021) 622 2230. Arcam, Castle, Cyrus, Denon, Linn, Marantz, Naim, Quad, Rega, Rotel. Open Tues-Sat 10-6.

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. Roksan, Nakamichi, Arcam, Audiolab, 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 10-5.30.

NORFOLK

AUDIO IMAGES, 7 All Saints Rd, South Lowestoft, Suffolk NR33 ODL. 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, Spendor, Audiolab, 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 36291Bang & Oulfsen, Kenwood, Technics, Marantz, Celestion, Mordaunt-Short. No appts nec, Free Install, Service Dept. Open Mon-Sat 9-5:30pm

Open Wolf Sad School (LASSIC 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, Audiolab, Neat, Creek, Quad, Denon etc. 2 Dem Rooms

NOTTINGHAMSHIRE

CHANTRY AUDIO, Chantry Walk, 18-18a Eldon Street, Tuxford, Nr Newark, Notts NG22 0LH. (0777) 870372. Pink Triangle, DPA, Rotel/Michi, 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 form the followinf 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-Sat10-7pm, 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-Sat9-5.30. 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, Armex. 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.

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WESTWOOD AND MASON, 46 George St, Oxford. Tel: 0865 247783 Arcam, Rotel, Rega, Epos, Tanoy, Royd, JPW, Mission, Nakamichi, Denon, Aiwa, Naim, Quad, Aura, Teac, Tannoy. Open 9:30-5:00pm. Dem room. Closed Thur.

SHROPSHIRE

AVON HI-FI, 12 Barker Street, Shrewsbury, Shropshire SY1 10J. (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.

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SOMERSET

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STAFFORDSHIRE

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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 Str, Hampton Wick, Kingston Upon Thames, Surrey. Tel: (081) 943 3530. Arcam, Creek, Epos, Heybrook, Micromega, Naim Audio, Roksan, Rega Research, Shaninian, TEAC. Single speaker listening room. Apptspref, 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,

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, Audiolab, Mission/Cyrus.

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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. 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. TERE THE POWERPLANT, 66 Upper NorthStreet, Brighton BN1 3FL. (0273) 775978. Roksan, Musical Fidelity, Marantz, Rotel, Yamaha, Tannoy, Audiolab, 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 10-6om.

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WARWICKSHIRE

CASTLE HIFI, 59 Smith Street, Warwick. CV 34 4HCE. Tel (0926) 499963. A.R. B&W, LPW, Jenson in car, Marantz, Musical Fidelity, NAD, Pioneer, Rogers, TDL, Yamaha, Dolby Pro Logic. Dem Room. No appt necc, Home trial facilities, Free Installation, Service Department. Interest free credit, Access, Visa, Chartered Trust. Open 10-6 6days a week.

FRANK HÄRVEY HIFI, 163 Spon Street, Coventry, Warwickshire, CV1 3BD. Tel 0203525200. Arcam, Mission, Cyrus, Musical Fidelity, Marantz, Rotel, NAD, Tannoy, Yamaha, KEF. Open 9:05-5:30 closed Thursday. STRATFORD HI-FI, 25 Henley Street, Statford Upon

Avon, CV3QW. Tel (0789) 414533. Please call for further details.

WILTSHIRE

THE AUDIO EXCHANGE, 52 Morse Str, Swindon, Wiltshire SN1 5QP. (0793) 539008. Acoustic Energy, Audio Innovations, Beard, Cerwin Vega, Impulse, Magnum, Micromega, Michell, REL, Sequence. AV and single speaker demo room. Home trial facilities, free installation, service dept. 10-6 Mon-Sat.

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YORKSHIRE (NORTH)

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The Directory

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Hi-fi's foremost buying guide

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 Directory

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-
Α	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 \blacktriangle 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.

A 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 A 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:

Check out the components' recommended retail prices in the Directory.
 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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Amplifiers

ne amplifier sits at the heart of the system, processing the outputs from all the various music sources as necessary and then dnving 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, 80hm load, I 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 accomodated. 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

Amplifiers		a	Ipur Will	input	MA	MC	Pourea prea	Head Net a	phone conti mp	SOCH	Sue No.
Product	EPrice	Comments				/		V	V		
Adcom GCA-510	349	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	+ Technically proficient pre/power saddled with a slightly hard and unsympathetic sound.		94	6 •				•		• 124
AMC CVT3030	460	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	∓ Plenty of widgets and an unexpectedly sharp, open and detailed sound. Looks ghastly but sounds strain free.	1	04	4 •						• 10
Akai AM-95	630	- A revamped version of the older AM-93 with newer onboard bitstream DACs. Its sound is just too eager, however	1	10	6 •	• •					• 109
Albarry AP4/S508	850	- 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	A+ Available with or without various MM/MC options, the 'basic' PP1 has an attractively warm, earthy sound.		48	4		•				104
Alchemist Kraken	444	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	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	G Now in mkll guise this established combination has matured into a very articulate, powerful if dry-sounding amplifier.	1	09	4 •	•		•	•	•	• 12
Arcam Delta 290	450	G Combines the dryness and restraint of Arcam's older models with a refreshing sense of detail, dynamics and musical colour.		99	5 •	•	•			•	• 11
Art Audio Quintet	988	G 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	Turns in a fuller and more substantial performance via MM rather than CD. Otherwise its sound can seem slightly bleached		10	5 •			•	•		10
Audio Innovations Series 300II	500	+ Under-powered and over-distorted yet capable of realising an open and captivatingly expressive sound. Sensitive speakers are a	must	9	4 •		•				9
Audio Innovations Series 700	999	🗜 Valve amp that can turn the roughest of digital sounds into music, both understated and graceful. Sensitive speakers are a must		24	5		•				11
Audio Note Ongaku	43125	A single ended, zero negative feedback, triode, line level integrated amp and a half. Probably the best amplifier in the world!		27	6						C
Audiogram MB1	500	+ It'll successfully tackle the most difficult of speakers and still provide a very warm, rich and euphonic sound.		46		e i i				•	• 11
Audiolab 8000A	450	G Recent mods have cured the slightly glassy treble, replacing it with a smoother and more solid style of music making		B1	7 •	•	•				• 9
Audiolab 8000C/8000P	1100	Very distinctive, almost stark neutrality that will not appeal to all listeners. Good value engineering, nevertheless	1	57	7 •	•		•			• 9
Aura VA-100 Evolution	300	+ Might overheat when driving insensitive, low-impedance speakers but was applauded for its sense of scale and drama via CD		81	5 •	i -					• 10
Aura VA-50	250	G 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 •	8					• 9
Beard Audio CA35/P35mkll	1790	G Good build quality and finish and a characteristic valve sound make a first class amplifier capable of great musical enjoyment		35	4 •				•		• 6
Beard CA506	1295	+ 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	+ A substantial British monoblok power amplifier, but not a great deal more impressive than the P35		70					•		50
Concordant Excelsior	1040	Styling might not inspire confidence, but sonically this preamp is tremendously vivid and detailed. Real high-end performance			3 •	i-					77
Conrad-Johnson PV-10	1250	Fabulous preamplifier. Beautiful imaging, superb detail, plenty of gain on the phono stage; classy build quality too.			4 •	ę					78
Conrad-Johnson Premier 7	11000	The 'Seven is designed without compromise, and is clearly one of the finest (valve) preamplifiers money can buy.			4 •	•		•			Co
Creek CAS 4040 S3	220	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 •	0					• 92
Creek CAS 4140 S2	250	F 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	Looks like the old '5050 but employs the sort of big, meaty-sounding electronics used in the earlier '4040. Dynamic and impres	sive.	31	5 •	•					• 104
Cyclone Catalyst	1995	G Exceptionally load tolerant and very refined in delivery. Extra options available in future		74							8
Denon PMA-250III	160	Pretty high resolution for the price, occasionally looses its grip but is generally engaging.and enjoyable		55	3 •	8	•				• 12
Denon PMA-450	250	+ Denon's latest integrated amp swept the board with its big, brassy if somewhat extravagant sound.		99	5 •		•				• 11
DPA Digital DSP-200S/DPA-200	0S 1245 <mark> </mark>	The very dramatic but exceptionally detailed and transparent sound of this combination belies its modest power rating.		48	5			•	•		12
Dual CV600RC	160	A very lively, open and vibrant sound. Slightly sanitised via CD perhaps, but still damn good for a features-first integrated amp!		53	5 •		•			•	• 10-
E.A.R. 549	5400	G Valves imitating trannies give exceptional power delivery but not the delicacy and transparency one expects	2	00					•		6
E.A.R. 802/509mkll	4200	G Extremely well made and combining the sonic strengths of both transistors and valves this EAR combo warrants attention	1	00	6•			•	•		6
EMF Audio Sequel	349	+ A fresh start for Mike Creek has resulted in the Sequel, a minimalist amp with a very refined but mildly restrained sound		17	4 •		•				• 109
Exposure XX	625 🖌	Line only integrated with good sense of timing but limited hf extension. Likely to be very system dependent.		13	4		•				12
Exposure XI/XII/VIII Super	1650	G New preamp and improved power amp led to a smooth and refined sound, MM/MC less transparent than CD		61	5•	•		•	•		80
Grant G60AMS	1300	😝 Neat and compact valve monoblok gave good sound on the 80hm tap, better still on 40hms. The midrange was particularly natur	al	60							57
Harman Kardon HK6150	200	😝 Based on the older HK6100 but with a more solid, punchy and expressive performance that attracted considerable praise		14	5 •		•				• 109
Harman Kardon HK6250	280	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 🖌	Follow up to 6500 is disappointing with grainy hf and limited depth. Quite powerful but ultimately not up to the mark	-	69	6 •	•	•				• 12'
Harman Kardon HK6850	900	This monster is derived from the HK6800 with a similarly deep and powerful sound but a rather steep price tag	1	01	6 •	٠	•	e.			• 109
Heybrook C3/P3	1379 🖌	Heybrook has improved the manufacture of its power amp though flaws in the preamp's disc input remain	1.	16	4 •	•		•	•		104
Heybrook Signature	2014	+ A stunningly powerful and vivid-sounding combination which is equally impressive via vinyl or CD	1.	18	4 •	•		•			109

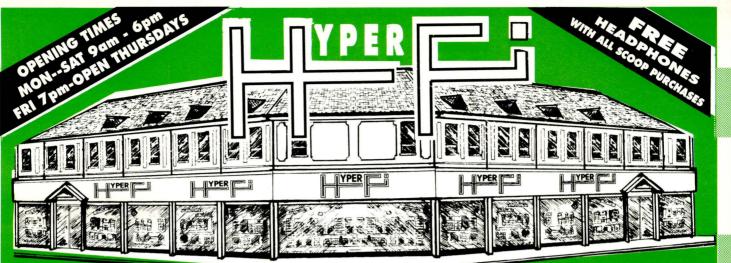
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Amplifiers continued



-					5	3.	14 11		10 1	0.0	1 .61	·0
	Product	£Price		Comments	77	E		(Y		Mag		100
	JVC AX-A342 JVC AX-R562	170		A value-conscious budget amp offering plenty of power but a slightly untidy and inconsistent sound	77	5		-				109
				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			• 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!		6				-	•	109
	Jadis JP30/JA30 Kelvin AZI	10750		French tubes. Beautiful build, nostalgic styling and delightful sounding midrange transcend limitations at frequency extremes	30	4		-	•	•		60
	Kenwood KA-3020	700		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-4050R	170		An unassuming little amplifier that turns in a remarkably balanced and entertaining sound. Lively, detailed and engaging	66	5	-			-		97
	Lecson Quattra	280 420		Respectable but ultimately uninspiring model whose remote control is its main asset.	85 40	5	-			-	-	121 92
	Magnum Quartet A	329		Underpowered but with the flexibility of four independent power amps. Very deep, captivating sound with 3D soundstaging. An integrated model that incorporates four monobloks optimised for bi-wring, but sound is sandy in the treble.	72	5	-	-				121
	Magnum A-Class			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			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		A fine preamp with option of full system remote, plus competent monoblok power amplifiers with generally good performance	100	6						62
	Moth Series 30	587		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/Typhoor			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		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		A spritely and uplifting performance. Sounds loud but never intrusive or fatiguing.	39	5						116
	NAD 304	230		Equally effective with CD and vinyl this is another successful and entertaining NAD amplifier for your shortlist	50	6						121
	NAD 1000S/208			One of the beefiest amplifiers we've ever tested. Unfortunately it sounds too restrained and lightweight	314	5						124
	Nakamichi IA-3	350		A minimalist outing for the cassette heroes that's very confident if a tad restrained.	62	3						121
_	NVA AP20	260		Utilitarian amplifier sounds gentle and restrained but is euphonic and utterly engaging. Optional phono stage	35	4					•	109
	Onix OA-21S/SOAP	730		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 0A22L	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 monobloks 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 Al-2210	80	Р	Lightweight in all respects this is better than you'd find on a midi and at least its reasonably painless.	47	4	•	•			•	121
	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-VX600	220		The first 'tweaked' amp from Technics, its solid and sharply focused sound a taste of things to come.	90	5	• •	•••			•	104
	Technics SU-VX720	250	A+	Big and spacious sound either appears rough and blustery or impressively grand depending on the music at hand.	84	5	•	••		•		116
	Technics SU-VZ220	100	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			Almost valve-like limpidity and excellent soundstaging are star qualities of the Threshold amps	100	7	• •	•	•	•		Col
	Wharfedale 2050A		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		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			Synergistic pairing with a cool, controlled sound, good focus and transparency. More about poise than grunt	35	5			•	•		100
	YBA Integre	1199		Audiophile spec French integrated with good resolution and nice phono stage.	57	4	•	•			•	121
	YBA 1 pre/power amp	7649		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			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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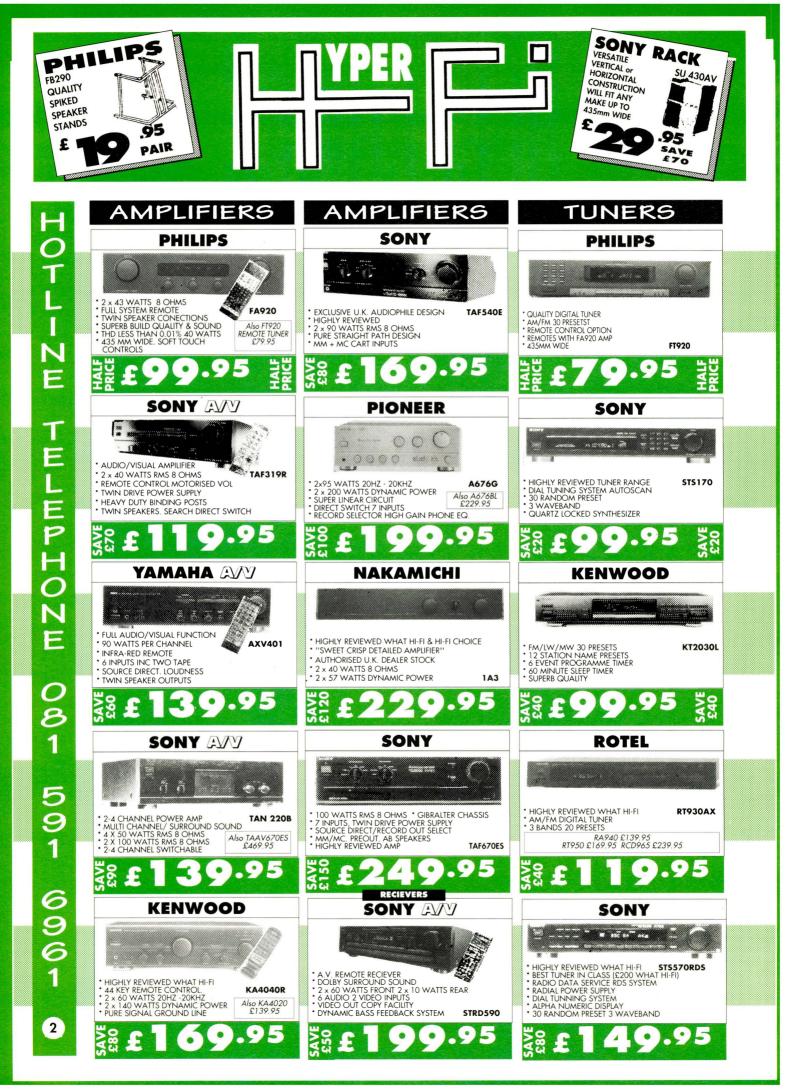
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RA 980 BX P.O.A Alista Airva Sony Sony XT005 £69.95 XT005 £69.95 TAF170B £79.95 XT005 £69.95 CX780 £19.95 TAF270B £79.95 XT005 £69.95 CX804 £19.95 CAMBRIDGE TAF270E £13.97 T50 £99.95 T0 £99.95 AF440E £19.95 CAMBRIDGE ADF410ED £89.95 S TAF540E £14.95 TU260L £119.95 ADF410ED £89.95 S TAF542E £299.95 TU360L £19.95 XK5700D £89.95 S TAV570E £46.95 KT01030L £69.95 S DENON E89.95 S TAF542E £299.95 TU360L £19.95 DENM510 £19.95 DENM510 £19.95 DENM510 £29.95 DENM510 £29.95 DENM510 £29.95 DENM510 £29.95 DENM510 £29.95 DENM510 £29.95 DENM510 £29.95 <th>SiX4316 C149.95 505/2 C129.95 M32UD L249.93 TECHNICS CR5 S129.95 K4300CD C349.93 LBD20 CS4.95 CR55 S129.95 K4300CD C349.95 LD033K P.O.A. 517 S149.95 K4300CD C349.95 LD033K P.O.A. 517 S149.95 TZ20 C449.95 L1200 C349.95 C0ERIDGE NI S29.95 Z720 A49.95 SPEAKERS COERIDGE NI S299.95 W37CD C299.95 OOLERIDGE VIL S299.95 W37CD C299.95 W37CD C299.95 M600ED E99.95 SPAAKERS COERIDGE NI S299.95 W37CD C299.95 M610ED S189.95 SE0 S89.95 KENWOODD CM5ES C799.95 CELESTION ECUALISERST KENWOOD SN900 S149.95 SN900 S149.95 KE1 C99.55 SONY M47 C449.95 SN900 S149.95 KE1 SCOA11 E99.95 ST299.95 M47 C449.95</th> <th>APEST IN U.K.? NO MAIL ORDER ON TV'SI Y CELLPHONE 33 EUNPRINTABLE ENING TIMES - SAT 9-6 pm FRIDAY 7 pm N THURSDAYS OUPON TO CLAIM SIX FREE C.D. DISCS /ITH ALL STAR + HASE C.D. PLAYERS PRICE LIST ABOVE HC12</th>	SiX4316 C149.95 505/2 C129.95 M32UD L249.93 TECHNICS CR5 S129.95 K4300CD C349.93 LBD20 CS4.95 CR55 S129.95 K4300CD C349.95 LD033K P.O.A. 517 S149.95 K4300CD C349.95 LD033K P.O.A. 517 S149.95 TZ20 C449.95 L1200 C349.95 C0ERIDGE NI S29.95 Z720 A49.95 SPEAKERS COERIDGE NI S299.95 W37CD C299.95 OOLERIDGE VIL S299.95 W37CD C299.95 W37CD C299.95 M600ED E99.95 SPAAKERS COERIDGE NI S299.95 W37CD C299.95 M610ED S189.95 SE0 S89.95 KENWOODD CM5ES C799.95 CELESTION ECUALISERST KENWOOD SN900 S149.95 SN900 S149.95 KE1 C99.55 SONY M47 C449.95 SN900 S149.95 KE1 SCOA11 E99.95 ST299.95 M47 C449.95	APEST IN U.K.? NO MAIL ORDER ON TV'SI Y CELLPHONE 33 EUNPRINTABLE ENING TIMES - SAT 9-6 pm FRIDAY 7 pm N THURSDAYS OUPON TO CLAIM SIX FREE C.D. DISCS /ITH ALL STAR + HASE C.D. PLAYERS PRICE LIST ABOVE HC12
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A/V amplifiers

n 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 $\ensuremath{\mathsf{A\!V}}$ receivers

More importantly a modern AV 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 ribshaking impact of 'action' movies for example. Some AV 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. Stype 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.



		S.								
1/V amplifier	S	From output Wige	SUTPOUT NRO	Video di noi	ideo input i	Subw sputs	oofer U	IFM II	Issue Iner	No
Product	EPrice Comments		Y	V		Y		V	V	
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 de	em. 180	24	24	6	8	4 0		• 1	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 8	5 3	•		125
Sherwood RV-6010R	350 A- Another AV 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		• 1	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

ables 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

Analogue inte	rcoi	111E	ects .	Symmetrical Coaxia	Stranded	ore Copp	Der Silve	SSUE NO
Product	£Price	of some	Comments	V		V	V	VV
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
A 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	d.	• •		•	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
A 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 to system to such as the series of the type	stem.	• •		•	108
A 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
A 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.	•		•	•	• 1 <mark>08</mark>
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

The 1993 European and What HiFi Awards, Who Are The Real Winners?

EISA Awards

NAD 302 Amplifier Sony CDP X707ES CD Player JVC MXG7 Mini System Philips DCC 600 Tape Deck Mission 753 Speakers Yamaha DSP2070 AV Amplifier Sony MZ1 Mini Disc

What HiFi Awards

Marantz PM44SE Amplifier Marantz CD52SE CD Player Sony STS 311 Tuner Sony TCK611 Tape Deck Mission 751 Speakers Kenwood KRV6050 AV Amplifier Aiwa NSX360 Mini System

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Analogue interconnects continued

Analogue intel	rconn	ects continued	Symmetrical	Coaxial stranded	id core	pper Sil	SSUE NO
Product	EPrice	Comments	V	VV	V	V	V
Sonic Link Violet	99 G	Another nickel-based cable but with a very much better-balanced sound than Sonic Link Yellow	•	•			10
Straight Wire Laser Link	50 A+	Thanks to its high parallel capacitance this interconnect helps remove ultrasonic noise. Unfortunately it still sounds very odd!				•	1
Straight Wire LSI-Encore	90 A +	 A solid-sounding cable with a strong mid and bass but a disappointingly sat-upon treble 				•	1(
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			•	•	1(
Tara Labs Quantum CD	63 G	Praised by our panel for its lack of obvious vices, Quantum CD encourages a sweet and positive sound.			•	•	1
Tara Labs Quantum II	99 G	Bass power and extension is the key to the sound of this unusual and hi-tech cable			•	•	1
Van den Hul The Source	70 G	 Accurately reflects the life of the music without detail forcibly from the speakers 		• •			• 1(
Van den Hul MC D-102mklll S	80 4	• A rather coloured sound thanks to its full and resonant bass but spoiled overall by a dirty treble					• 10

Digital interconnects

Product	EPrice	Comments	N. N. S.	VV	VV	VV
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 VC	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 750hm 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 VC	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 750hm 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 VC	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

Speaker cables					acitan	Strand	Solid ded	t core Copper Silver No.				
Product	EPrice		Comments			V		V	V	VV		
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	Н		•	•	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	н		•	•	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	н		•	•	109		
A 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-Ran	ge 465	VG	Extra care must be taken to prevent shorting this user-hostile cable. Nevertheless it sounds superbl		L	L		•	•	109		
A 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'		н	L		•		109		



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Speaker cables continued

Speaker cable			Resistance	Strance	Solid Core	Copper Silv	SSUE N
	EPrice	Comments	V	V	V V	Y	
Heybrook Heywire	66 A	This well-meaning facsimile of earlier ribbon-style cables ends up sounding lumpy and uneven	Н	L	•	•	1
Isoda Electric HA-20	400 A	This unorthodox cable employs a combination of copper, brass and aluminium strands. It sounds `oddly impure'!	М	L	•	•	
Mission Stranded	20 🤆	+ This Swedish-made cable proved a real hit with our listeners - a slick performer and Best Buy upgrade	L	Μ	•	•	
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	•	•	•
Monster Powerline 3 Plus	75 A	The archetypal `old-style Monster Cable' that labours under a soggy bass and untidy treble	L	Μ	•	•	
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	•	•	
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	•	•	
Silver Sounds 12/2	300 E	Tonally accurate and exquisitely detailed, this cable opens a very transparent window on the music	L	Н	•	•	•
Silver Sounds 16/4	200 V	$m{G}$ A prime choice for bi-wire systems even if this cable does lack the full finesse of its sister 12/2	M	Н	•	•	•
Sonic Link Grey	80 G	A spaghetti-thin cable composed of silver-plated OF-copper and PTFE insulation. Lacks bass impact and treble `air'	Н	Μ	•	•	•
Straight Wire Waveguide 1.5	20 G	A conventional multi-stranded cable with a refreshingly up-beat, crisp but slightly lean-sounding balance	М	Μ	•	•	
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	н	•	•	
Tara Labs Quantum III	238	An imaginatively-named cable that encourages an equally colourful sound. Described as 'dark and fruity' by our panel!	L	Н	•	•	
van den Hul MC The Clearwater	50 A	Despite its evocative title, the Clearwater turns out to be a disappointingly 'murky sounding' cable	М	L	•	•	•
van den Hul MC The Magnum	265 🗚	Touted as vdH's most prestigious twinlead speaker cable, the Magnum sounds surprisingly soft and old-fashioned	L	L	•		•
van den Hul MC The Wind	330 V	G Blown-in from the continent, vdH's 'Wind' kicks up a storm with its lush midrange and bone-crunching bass!	L	М			



Cassette decks

he 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. (Trial and error is one effective technique, but many decks have manual bias adjustment and some match up to the tape automatically.) 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 degredation than B or C.

Three-head recorders allow you to listen to a recording as it's being made, a useful qulaity control function. Bias adjustment allows you to fine tune the deck to suit different types of tape when recording. Auto calibration is a 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.

 $\begin{array}{c} U_{0} h_{1} \\ D_{0} h_{2} \\ H_{2} \\ D_{0} h_{3} \\ H_{3}$

ISSUE NO.

Cassette decks

Product	EPrice	Comments	VVVV	
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 V	G Refined, exquisitely detailed and solid sounding 'budget' Nakamichi 2-header.	• •	• 123



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PAGE 128

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Cassette decks continued



Product	EPrice	Comments						
Nakamichi DR-1	850 🗸	G 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	500 G	Much better than average auto-reverse deck, well worth considering. Nicely engineered too.	•	•	• •	•	•	• 105
TEAC V-8000S	700 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 facilities shown in the headings are available on a CD player. DAC type indicates the type of convertor 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	EPrice	Comments			
Aiwa XC-300	150 A +	Cheap, cheerful and gratifyingly free of digital 'nasties', well-equipped but safe rather than thrilling on the sonic front.	Toshiba BS	• •	• 10
Aiwa XC-750	200 A	A refined version of the XC-700, sadly it has lost the magic of the original	SAA7350	• •	• 11
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	• • •	• 12
AMC CD6	349 VC	Based on the same 1-Bit circuit as Rotel's RCD-965BX but with a raunchier, beefier but less transparent sound	PDM BS		• 12
Arcam Delta 270	800 G 4	• The dry but tightly-focussed and supremely detailed sound of this player will either beguile or aggravate, depending on taste!	Hybrid	• •	• 12
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	• •	• 11
AVI S2000MC	999 G 4	· A stylish, midi-width player with an exceptionally refined and comfortable sound. Lacks passion	20-bit	• •	11
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	• •	• 10
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	• • •	• • 12
Denon DCD-890	270 G -	Similar to the DCD-1290 in its execution, sounds lively and powerful but lacks subtlety.	18-bit	• • •	• • 11
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	• • •	• • 10
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	• •	• 10
Genexxa CD-4900	129 A	A little thin on detail, build quality and dynamics but thin on price too!	MASH/PWM	•	• 12
Goodmans GCD-650II	110 A+	For all its technical foibles this player has a fresh-faced honesty that's very refreshing.	MASH/PWM	•	12
Goodmans GCD-658	170 A -	A 6+1 magazine-loading autochanger with an exaggerated and often aggressive sound	Hybrid	•	• 11
Harman Kardon TL8500	600 A	This 5-disc carousel player sounds civilised enough but lacks the detail and finesse of its peers	MASH/PWM	•	• 11
Harman Kardon HK7725	800 VC	This flagship implementation of RLS sounds impressively bold and dynamic - a genuine rock 'n roller!	18-bit RLS		• • 12
JVC XL-Z464	200 G 4	This latest variation on a traditional 200 theme is no less impressive than JVC's past generations.	PEM bitstrm	• • •	• • 12
JVC XL-Z1050	500 A	Technically advanced and luxuriously equipped, this player remains rather bland and unsatisfying on audition	PEM bitstrm	• • •	• • 11
Kenwood DP-3050	200 A +	A slightly over-cooked version of the DP-3040 with a highly civilised but uninteresting sound.	NPC bitstrm	• • •	• • 12
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	• •	• • 11
Kenwood L-1000D	830 G	A beautifully constructed and very stylish player that really only gives off its best when used in balanced	1 <mark>6-</mark> bit	• • •	• • 10
Linn Karik	1497 VC	Based on Linn's original CD transport, this player sounds dry but very positive, detailed and engrossing	Crystal BS	• •	• 11
Marantz CD-52II	230 G	Launched to usurp the position of its own CD-52SE, the '52II is less colourful but equally appealing	SAA7350	• •	• • 11
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		• • 11



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NOW £139.95
Celestion 3000/5000, was £1,099.95
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Celestion 3rd Dimension, was £189.00
NOW £145.00
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Infinity Ref. 20, was £249.95
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Infinity Ref. 40 was £399.95
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JPW Minim
Tannoy 603, 5, 7, 13, 15 mk1 TO CLEAR W'dale DIA.IV was £119.95
NOW£79.95
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was £999.00 NOW
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Rotel RA940BX, was £249.95
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Rotel RA960BX, was £299.95
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Rotel RB-960BX pwr-amp
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Sony TAF440E was £199.95
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Denon DCD590, was £179.95 NOW	C120.05
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NOW.	£219.95
Marantz CD72, was £399.95 NOW	£299.95
Pioneer PDM601, was £249.95 NOW	
Pioneer PDS801, was £329.95	1209.95
NOW	
Onkyo DX-1500 Rotel RCD955AX, was £279.95	£99.00
NOW	£229.95
Yamaha CDX560, was £199.95 NOW	£149.95

Suggested Systems

The following suggested system package includes the NAD 5120 Turntable. Alternative items: ie CD Player/Turntable/Cassette deck are available options.

SPEAKERS	JPW Sonata Whartedale DIA.4 Celestion 1 Mission 760i	Tannoy 603 Celestion 3 Boston HD5	Mission 761i BW.DM600i Tannoy 605 AR 152 Infinity Ref/20	Tannoy 607 Mission 780 Boston HD8	BW.DM610 Mission 762 Rogers LS2A2 Infinity Ref/40	Rogers LS4A2 BW DM620i (add £100) Mission 763i Celestion 3/6000 (add £200)	T/T & C.D. PLAYER OPTIONS Awa XC 750, £89 00 Denon DCD695, add £89.00 Denon DCD1290, add £209 00 Marantz CD42/2, add £120 00 Marantz CD52/2 add £120 00
AMPS Kenwood KA3020	£295.95	£309.95	£345.95	£369.95	£409.95	£429.95	Marantz CD 72, add £199 00 NAD 502, add £99.00 Pioneer PDS801, add £189.00
Kenwood KA5040R	£349.95	£369.95	£419.95	£429.95	£459.95	£482.95	Dual CS503-2, add £60.00
Marantz PM40SE	£316.95	£335.95	£379.95	£399.95	£429.95	£460.95	Dual CS505-4, add £99.00 Project 1, add £60.00
Pioneer A300X	£349.95	£369.95	£419.95	£429.95	£459.95	£489.95	Thorens TD280IV, add £120.00 Systemdek 11X/900, add £329.00
Pioneer A400	£409.95	£419.95	£459.95	£479.95	£509.95	£539.95	Many othersavailable on request



Amplifiers:	
Aiwa XA950	£229.95
Denon PMA480R	£219.99
Harman Kardon HK6250	£279.95
Marantz PM44SE NEW!	£199.95
NAD 304	
Pioneer A400X	£299.95
Rotel RA935BX	£199.95
Yamaha AX570	£289.95

CD Players: Aiwa XC.750 £199.95	AV Amps/Receivers:
Aiwa XC 750 £199 95	Denon AVC3020 £729.99
Denon DCD1290	Denon DRA345R
Kenwood DP7050	Denon DRA645RD/RDS£319.95
Marantz CD52SEmk2 £299.90	Kenwood KRV8500£699.95
NAD 502	Kenwood KRA4050
Sherwood CD5010R £139.95	Kenwood KRV6050 RDS
Rotel RCD965BX £299.95	Kenwood KRV7050 RDS
Technics SLPS620A	Marantz PM700AV
Yamaha CDX570 £239.95	NAD 705 £329.95
ramana CDXJ70,	Yamaha DSP E200
Cassatta Dacks:	Yamaha DSP E200
Gasselle Decks.	Yamaha DSP A1000
Cassette Decks: NAD 6100, was £299.95 NOW £259.95	famana DSP A 1000
Kenwood KX5030, was £199.95 NOW£149.95	Turntables: DualCS430 £119.95
NOW£149.95	DualCS430
Kenwood KX3030, was £139.95	Dual CS503-2
NOW£89.95	Dual CS505-4
NOW	Project .5 Ort.510 cart
NOW£169.90	Project 1 Ort.510 cart
Yamaha KX.360, was £199.95 NOW£169.95	Project 2 Ort.MCI cart. £249.95
NOW£169.95	Soundlab & KAM (DISCO) STOCKED
Aiwa ADF410	Systemdek 11X900 + RB250 £329.95
Aiwa ADF8103HD£229.99	Systemdek 11XE900 exc T/A £329.95
Denon DRS810 3HD	Thorens TS180 + AT91 £159.95
Denon DRW760 Twin, £249.99	Thorens TD166 V1 + Rega RB250 £299.95
Kenwood KX-5050 £229.95	Thorens TD280 1V + AT95E
Nakamichi DR3 £349.95	
NAD 602	Loudspeakers: Bose AM3 Mk2 STOCKED
Sony TCK-611S 3HD	Bose AM3 Mk2 STOCKED
Yamaha KX-650 3HD £259.95	Bose AM5 Mk2 STOCKED
	B&W DM600i,610i,620i STOCKED
Tuners: Denon TU260L£119.99	Boston HD3,5,7,8,9/SW10 STOCKED CELESTION STOCKED
Depon TU260I £119.99	CELESTION STOCKED
Denon TU580RD/RDS	Cerwin Vega AT/DC & VC – NEW !! STOCKED Jamo Pro 200/300/400
Marantz ST40L. £119.90	Mission 760i Ex Demo
NAD402 £159.95	
NAD402 £159.95 NAD 4225, was £159.95 NOW £119.95	Mission 760i/SE£149.95 Rogers LS2A/2£229.95
Rotel RT930AX	Rogers LS2A/2
Rotel RT950BX	Tannoy SIXES Mk 2
Sony STS311LB	And many others, call for further details!
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CD players continued



Product	EPrice	Comments	-						
Marantz CD-72	450 G	A heavily-constructed player. This implementation sounds astonishingly solid and immediate but also rather too 'clean'	bitstream	•	•	1	•	• 1	07
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	•	•		•	• 1	12
Meridian 206ΔΣ	995 E	A new variation on the 206 theme with the most liquid and captivating sound to date	Crystal BS	•	•	•		• 1	19
A 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	•	•			1	00
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	•	•			• 1	07
Musical Fidelity CDT	500 G	↔ Oddball player with a cheap top-loading transport and appaling digital gubbins yet saved by the euphony of its valves!	hybrid					1	12
A 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	•	•			• 1	19
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	•	•		•	• 1	24
Orelle CD-160.2	750 🗛	- Based on Philips traditional 16-bit technology but suffering an unusually disjointed and undynamic sound.	16-bit	•	•			• 1	24
A Philips CD690	130 G	- The remote-less version of Philips CD692 but with a colourful performance that's all its own.	PDM BS				•	• 1	24
A Philips CD920	160 A	A new budget player with an appalling technical record but a surprisingly clean if understated sound	SAA7341	•	•		•	• 1	19
Philips CD930	200 G	- Featuring digital circuitry similar to Marantz's players but a sound that's a little too ripe and soft.	bitstream	•	•		•	• 1	12
A 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	•	•		•	• 1	12
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	•	•	•		• 1	24
A 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	•			•	• 1	17
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	•			•	• 1	17
A 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	•	•	•		• 1	19
A Quad 67	790 E	Deceptively sleek in appearance but with a powerful, fluid and captivating sound reminiscent of Meridian's 206.	Crystal BS	•	•			• 1	24
Revox B226S	840 A	Top quality build and finish for the Revox system enthusiast. For high value sound look elsewhere	16-bit	•			•	•	76
A 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	•	•			• 1	24
A Rotel RCD-965BX	300 E	An exceptionally refined bitstreamer: transparent, exquisitely detailed and powerfully emotive. A landmark player	SAA7323	•	•			• 1	00
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	•	•		•	• 1	19
Sansui CD-X317	280 A	Not in the same class as older CD-X311mkll. Same technology but the sound is neither as responsive or engaging	MASH	•	•		•	• 1	07
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	•			•	• 1	12
Sansui CD-Alpha 717DR	1560 G	A beautifully constructed if rather dated flagship player with an equally sedate and unadventurous sound.	MASH/PWM	•	•	• •	•	• 1	24
A Sherwood CD-3020R	120 G	Although this budget wonder has little respect for musical convention, what emerges is still remarkably entertaining	NPC bitstrm	•			•	• 1	19
A Sherwood CD-5010R	160 G	A warm, detailed and enjoyable performance from a solidly built but affordable package.	PDM BS	•			•	• 1	24
A Sherwood CDC-5010R	200 G	+ This highly affordable 5-disc carousel player sounds unexpectedly deep, spacious and involving - a rare find	PDM	•			•	• 1	17
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	•	•	• •	• •	• 1	24
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	•	•			1	19
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	•	•		•	• 1	12
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	•	•		•	• 1	07
TEAC VRDS-10	770 🗛	+ A basic analogue stage compromises the potential of TEAC's superb engineering and digital electronics. Lacks bass energy	DAC7	•	•	•		• 1	19
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	•		•	• •	• 1	24
Lechnics SL-PG520A	180 G	A cracking player. Superb clarity and dynamics, thrilling but musically involving too	MASH	•		•	•	• 1	07
Technics SL-PS620A	200 G	+ A costilier, tarted-up version of the SL-PG520A that loses very little in the way of clarity, sparkle or in compelling dynamics	MASH	•		•	•	• 1	12
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	•		•	•	• 1	19
Technics SL-PS900	350 G	- Just about the quietest transport in existence and a sound that is equally unobtrusive, polite and refined	MASH	•		•	•	• 1	00
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	•			• •	• 1	24



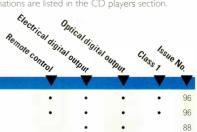
CD transports and DACs

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 I 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

EPrice

Product
Meridian 200
TEAC P-2
Technics SL-PA10

- 895 G+ Broadly compatible and offering a light, fresh and very bubbly sound that is both natural, engaging and unfatiguing 3500 G Beautifully styled and constructed but sound is bleached and generally less inspiring than that of the P-10
- 470 G Has the unusual limitation of only optical output. Reassuringly solid and more immune to vibration than most

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			Myers A	Audio		
	F			MAIL ORDER ve a fast, efficient and friendly r	nail order MAI	ORDER
	Myer	s Audio	a single state and all the second	. When placing an order please g leave the rest to us. Once an order Securicor service will make sure nd safely. Carriage is only £7 pe	ive credit has been it arrives	
				ORT ANYWHERE	1. All good	520 7277 Is fully guaranteed Is brand new
	EST, 1972 6-7 Central Para			520 7277	3. Delivery 4. All price	charges extra s include VAT ice department will make sure enjoy that great sound both
	Walthamstow Lo	ndon E17 4RT PROMIS	Our prices an	re Always competity	e but should a produ	our one year warranty period.
		NAD AUTHORIZED DEALER		from an authorised	dealer. We WU TANNOY AUTHORIZED DEALER	LOUDSPEAKERS
		AMPLIFIERS 302 25w pch£159.99 304 35w pch£219.99 306 50w pch£309.99 PREAMPS	KA3050B £199.99	TCK 611 Dolby S	SPEAKERS £129.99 603 II £159.99 605 II £159.99 607 II £209.99 609 II £279.99	AUTHORIZED DEALER 7601
	A300X AMPLIFIERS A-102 30w pch	1000	KA5050R	AMPLIFIERS TAF211B	611 II	7601SE £149.90 7621 £249.90 7631 £379.90 7641 £479.90 7651 £679.90 780 £199.99
	A-400X 60w pch	906£469.99 2100£279.99 2400£399.99 2700£429.99 208£759.99	KRV7050£399.99 TUNERS KT1050L£119.99 KT2050L£149.99 KT3050L£179.99	TAF542E	CELESTION AUTHORIZED DEALER	DAD5£299.90 DAC5£299.90 781£249.90
	A-502RG Gold	TUNERS 402 £149.99 4100 £199.99 CASSETTE DECKS £189.99 602 £189.99 6100 £279.99	CASSETTE DECKS KX3050	CASSETTE DECKS TCFX211B £149.99 TCK311B £149.99 TCK411B £179.99 TCK511S £279.99 TCK511S	5	B & W AUTHORIZED DEALER
	F-502RDS £229.99 F-502RDSG Gold £239.99 F-93 £599.99 CASSETTE DECKS £759.99 CT-5220 SR £159.99 CT-5220 SR £159.99 CT-5320 SR £189.99	CD PLAYERS 502 £199.99 505 Multiplay £279.99 5000 £289.99	KXY6050£199.99 KXW8050£259.99 CD PLAYERS DP2050£169.99 DP3050£199.99	TCW435B£169.99 TCW4535B£189.99 TCW635S£279.99 TUNERS STS211LB£119.99 STS311L	AUTHORIZED DEALER	
	CT-5420 SR	AUTHORIZED DEALER CD 52 II SE	DP5050. £269.99 DPM6650. £269.99 DP7050. £349.99 GE7030. £229.99 GE4030. £159.99 DAT DX7030. £699.99	STS505ES £229.99 DAT £259.99 TCD-D7. £399.99 TCD-D3. £549.99 SYSTEMS £549.99		
lio	CT-W420R Twin£189.99 CT-W620R £229.99 CT-W620R £279.99 CT-W601R Multiplay £359.99 CD PLAYERS PD-102 £139.99	AMPLIFIERS	DX7,£499.99 SYSTEMS UD301/351£409.99/£459.99 UD501/551£569.99/£619.99 UD701/751£709.99/£759.99	Compact 108CD,		2001 £109.99 2002 £149.99 2004 £179.99 2004 £229.99 DM600i £169.99
Aud	PD-202. £159.99 PD-S502 £219.99 PD-S602 £259.99 PD-S702 £279.99 PD-S702G £289.99 PD-S702G £289.99 PD-S802 £329.99	PM 32 40w pch	M56G/57MG£759.99/£809.99 M76G/77MG£909.00/£9449.99 M97/97M£1099.99/£1149.99	Compact 359CD	MRP £750.00 £699.95	DM610i £229.99 DM620i £379.99 DM630o £619.99 DM640i £799.99 B&W SOLID SERIES Solid Monitor
ers	PD-S901	ST50L£159.99 ST72L RDS£239.99 CASSETTE DECKS SD 52£169.99 SD 415£179.99	DUAL TIME AUTHORIZED DEALER TURNTABLES	MHC 3800CD £699.99 MHC C50CD £499.99 MHC C70CD £599.99 MINI DISC £649.99 MDS 101 £649.99 MDS 102 £499.99	XL1000£109.95 XL2000£149.95 XL3000£169.99 XL4000£209.95	Single Solid £109.99 Solid Team each £69.99 Solid Team £229.99 Solid Twin Bass £189.99 Solid Team Bass £139.99 Solid Team Bass £139.99 Solid Team Bass £139.99
My	PD-DM802 12 Disc	SD 62 £249.99 CD PLAYERS £199.99 CD 52 II £299.99 CD 52 II Award £229.99 CD 72 £429.99	CS430£119.99 CS5032£159.99 CS2215£169.99 CS5054£199.99 CS7501£19.99	MDS Z5-M1 £549.99 CDs CPD311 £159.99 CDs CDP411 £189.99 CDs CDPC335 £219.99 CDs CDP711E £229.99 CDs CDP911E £229.99	AM3 II	Solid Verticale
	LASER DISC £1339 CLD-800 £379.99 CLD-1850 £549.99 CLD-2850 £659.99 CLD-M5 £569.99 CLD-150K £799.99	CD 72 SE£539.99 CD 10£1049.99 CD 11£2249.99 CD 12£2599.99 GRAPHIC EQUALIZER	SENHIZER AUTHORIZED DEALER HEADPHONES HD 35 Headmax	CDs CDPX303ÉS£499.99 NAKAMICHI AUTHORIZED DEALER AMPLIFIERS	JBL AUTHORIZED DEALER	AUTHORIZED DEALER AMPLIFIERS S-30 W1S Speaker
	SYSTEMS J10/10M£519.99/£569.99 J20/20M£619.99/£659.99 J30/30M£719.99/£759.99 J40M/40M£899.99/£949.99	EQ 515£189.95	HD 55. £29.95 HD 435 Vegas. £21.95 HD 440 II. £29.95 HD 320 £35.95 HD 330 £49.95 HD 340 £59.95	1A-1 80w pch	SPEAKERS HTS 1	V-100 WD Speaker
	J50M/50M£1099.99/£1139.99 N-33/33M£359.99/£409.99 N-53/53M£469.99/£519.99 N-63T£519.99 N-73T73M£639/689.99 N-93T7/3M£949.99/£999.99	AMPS AX350	HD 250 II£119.95	CASSETTE DECKS DR-1 Azimuth Adj	TLX130 £239.99 TLX140 £339.99 TLX150 £289.99 TLX160 £379.99 TLX170 £289.99 TLX170 £29.99 TLX170 £29.99 TLX170 £29.99	NAD 302+ MISSION 760ISE = £369.99 PIONEER A300+ MISSION 760ISE+
	HARMEN KARDEN AUTHORIZED DEALER AMPS HK6150 £199.90 HK6250 £279.90	DSPA1000 £899.90 DSPA2070 £1099.99 DSPE200 £369.90 DSPE1000 £669.90 CASSETTE DECKS KX260 KX260 £159.90	Orpheus £95.99	MB-2	Janno 5 AUTHORIZED DEALER	NAD 502 CD Player=£499.00 PIONEER A400X+ MISSION 762I+ MARANTZ CD52SEM2,= £699.00
	HK6350R	KX360 £199.90 KX650 £259.90 KXW262 £199.90 KXW362 £249.90 KXW352 £499.90	AX-Z1010TN	AUTHORIZED DEALER SYSTEMS MX950£759.99 MX750£669.99 MX650£529.99	Silhouette £379.99 Art. £219.99 Atmosphere £359.99 Cornet 60.2 £169.99 Concert II £329.99 D 165 £169.99	SONY TAF442E+ TANNOY 60911+ PIONEER PDS802= £669.00
	TU9400	TUNERS TX350L £129.90 TX470 £159.90 CD PLAYERS CDX460 CDX460 £149.90	AX-A442BK£189.99 AX-A342XBK£159.99	MX550	D 165	NAD 1000 Pree+ 2400 Power Amp+ BOSE ACC 5M2+ MARANTZ 52SEM2 = £1,399.00
	HD7500II	CDX560 £159.90 CDX660 £199.90 CDX860 £239.90	CASSETTE DECKS TD-V662BK	EX DISPLAY CORNER These are genuine products at phenomenal savings so first	CD PLAYERS NAD 502CD	SYSTEMS KENWOOD UD900 £699.00 KENWOOD UD300 £399.00 SONY MHC 500 £279.00 SONY MHC 6600 £749.00
	AMPS/RECEIVERS YAMAHA RX-V470	79.99 149.99 149.99 149.99	TD-W3088K Twin£169.99 CD PLAYERS XL-Z1050TN£469.99 XL-M508BK£229.99 XL-M408BK£229.99 XL-2464BK£189.99	come, first served. All are in makers boxes and fully guaranteed for 12 months. B&W DM600	PIONEER A300X	KENWOOD UD700
	DSP-A2070	149.99 149.99 139.99 FOR	XL-V264BK£149.99 XL-V164BK£129.99 SYSTEMS G9£759.99 S6£759.99 S6£539.99	B&W DM610pair £169.00 JAM Cornetpair £89.00 CELESTION 5pair £199.00 MISSION 780 secondspair £145.00 TANNOY 603pair £189.00	MAIL ORDER Please supply	081-520 7277
	SONY TAAV570B	179.99 129.99 159.99 159.99	S4. £429.99 S3. £379.99 S2. £329.99 MX-77. £619.99 MX-55M. £439.99 W78CD. £669.99	TANNOY 605pair £119.00 TANNOY E11pair £99.00 TANNOY DC2000pair £199.00 JAMO Artpair £149.00 RECEIVERS	I enclose cheque/PO for £ or debit Access/Visa/Amex Card No; Expiry Date Name	
	VSA-D802S	69.99 69.99 79.99	W76CD	NAD 705	Address Postcode Tel	WHF/AW/93

Mvers Audio



Product	EPrice Comments		VV	VV
Arcam Black Box 5	450 G Equipped with Sync Lock for D170.3. It gives off its best with a standard 750hm 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 Loc	ck 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 sc	ound 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 acoust	ustic 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 of	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 go	ood. Bitstream	• •	• 113
Forte Audio Model 50	950 VG A typically big and full-bloodied 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 transp	ports 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 digita	al outputs SAA7321	• •	• 101
Micromega Microdac	300 A+ Described as a modest but entertaining performer, achieving its sweetest balance with Arcam's D170.3 transp	oort. 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 imp	proves 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 tran	nsports 18-bit	• •	• 103
QED Digit	139 G+ Bearing in mind its expressive but very forgiving performance the Digit is almost embarrassingly 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 maturi	ring influence 20-bit	• •	• 101
Sugden SDA-1	749 G+ A pleasant surprise from the fuddy-duddles of audio, judging by its `masses of high resolution detail and tremer	ndous dynamics' TDA1541it	•	113
Sugden Stemfoort PDA-10	1200 G+ Unfortunately this 'upgraded' SDA-1 is less impressive than the original, losing out on dynamics, airiness and si	ubtle 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 unpred	dictable 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 upgr	rade 16-bit	•	101

Transport/DAC combos

DACS

Tranonart /DA	l nor	nhaa	Electrical d'articles d'acteurs 4 lass						
Transport/DA	Ե ԵՍՈ	1002	Vpe	ntroj utput	ut put cke	eypad No.			
Product	EPrice	Comments	V	VV	VV				
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			
A EAD T-1000/DSP-1000	2195 🗸	G 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 Kark 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 origin	al. Bit Stream	• •		• 120			
A Meridian 602/606	3100 V	G Meridian's top-of-the-range two-box player looks and sounds both distinctiue 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 V	G They may lack the resolution of high-end colleagues but still sound warm, bubbly and perpetually entertaining.	20-bit	• •	•	• 120			



DAT players

AT, 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 began 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

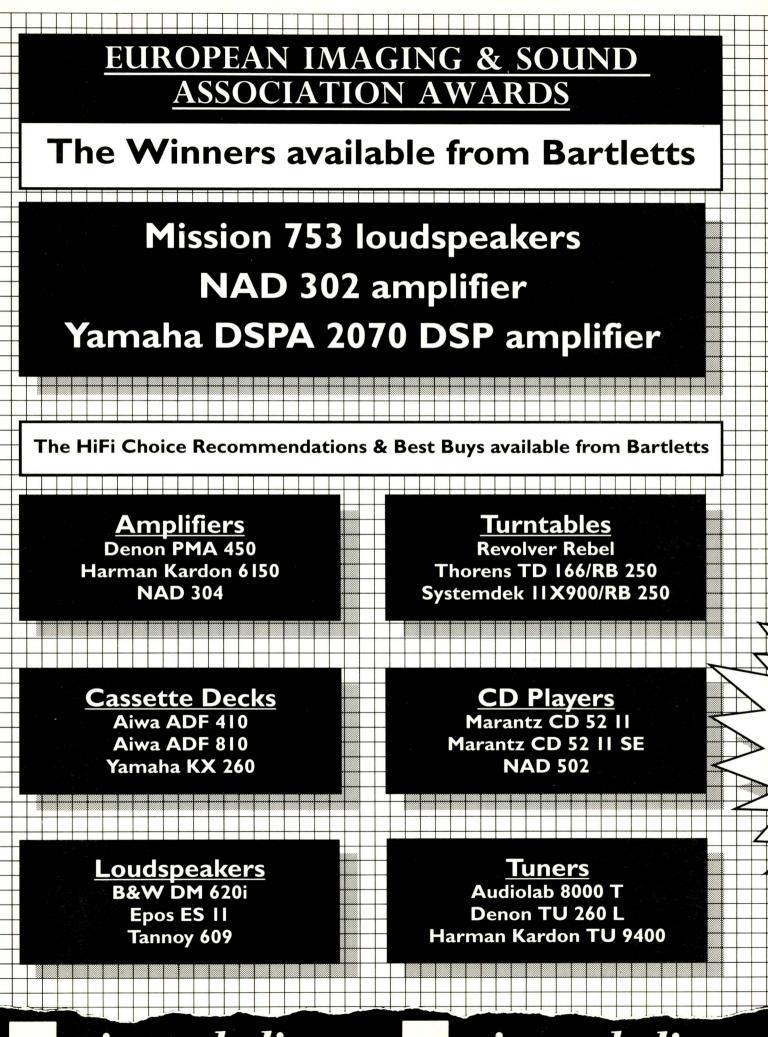
mode column.

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 semipro markets.



DAT nlavers

V			-			
	Sector 1		×.	V	Y	
•	•	•	•			111
•	•		•			105
•		•				94
	•	•	•			99
	•			•	•	111
•	•	•	•			93
•	•	•	•			105
•			•			94
	•			•	•	111
	•					



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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 I	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 2 A 2	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
Fechnics 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 52II in the above systems.

CD Players

Aiwa XC 300 Denon DCD 595 Denon DCD 695 Denon DCD 890 Marantz CD 42 II Marantz CD 52 II SE Add £100.00 Nad 502

Deduct £60.00 Deduct £20.00 Add Nil Add £70.00 Deduct £20.00 Add £20.00

Sony CDP 311 Deduct £30.00 Sony CDP 711 Add £50.00 Sony CDP 911 Add £100.00 Technics SLPG 440 Deduct £20.00 Yamaha CDX 470 Add Nil Add £45.00 Yamaha CDX 570 Add £90.00 Yamaha CDX 670

Turntables Dual CS 503-2 Dual CS 505-4 Thorens TD 280 IV Systemdek IIX 900 inc.RB 250 AT 110e

Deduct £70.00 Add Nil Add £10.00 Add £125.00

Bartletts Super Savers Saver Price Normal Price Marantz CD 42 II CD player 199.90 **Celestion One Loudspeakers** 109.90 Micromega Logic CD player 568.90 Micromega Leader CD player 849.90

Bartletts System of the Month

Marantz CD 42 II CD player Marantz PM 40 SE amplifier **Celestion One Loudspeakers** 8m 79 strand cable

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Headphones

here 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.

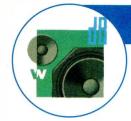
The more down to earth (see affordable) models feature dynamic, or moving coil, drivers in circular open or closed backed designs. The advantage of open backs seems to be a correspondingly open sound, but one can also of course hear external noises. Closed-back designs are useful in situations where it is necessary to block out background noise, but they aren't generally 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.

Headnhones

Vaadnhanac			Open	10Sed	Dyn	CITO	ISSUE NO.
Headphones	-		Open. Type	Closed back	Dynani St	actrostati	ic No
Product :	500 E	Comments One of the best dynamics on the market, hooks directly to speaker outputs and makes much of the competition sound lame	Extra-aural				• 9
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				6
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				6
AKG K280 Parabolic	90 G+		Circumaural				6
AKG K340	140 E	Heavyweight cans in most respects, the K340 with its electrostatic tweeter is a very revealing headphone	Circumaural				• 7
AKG K44	40 A	Good quality personal oriented phone, could have a better sense of space but is musically quite communicative	Supra-aural	•			9
AKG K400		Comfortable over long sessions. Sound is exquisitely detailed, dynamic and uncoloured	Supra-aural				12
AKG K500	119 G		Circumaural				11
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				7
Audio-Technica ATH-308	26 A -		Supra-aural				11
Audio-Technica ATH-609	31 A -		Circumaural	•			9
Audio-Technica ATH-611	51 G	Same basic design as 609 but bigger thinner diaphragm makes this a more relaxed and informative headphone	Circumaural				9
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				11
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				5
Audio-Technica ATH-911	80 VC	Nicely finished dynamic headphones with all the trimmings, plus a very clean and subtle sound	Circumaural				6
Bandridge EH910DD	50 A -	Modestly successful mid/top, but dreadfully cloying, ploddy bass makes this model essentially unlistenable	Circumaural		•	•	12
Beyer DT-211	25 A	Good value compact, couth and enjoyable, esp in midband. Earpads not removable for cleaning	Supra-aural	•			12
Beyer DT411	49 G	A reasonable but not very thrilling headphone that doesn't really offer enough at the price	Supra-aural	•			11
Beyer DT911	179 VC	Probably too revealing for many headphone amps these are very subtle and fine if expensive cans	Circumaural	•			11
Beyer DT990	102 VC	A significant pair of dynamic headphones; they have a smooth and yet revealing neutral sound that is hard to criticise	Circumaural	•			:
Beyer IRS690	203 VC	High quality infra-red headphones with soft comfy earpads and mellow but informative sound quality which is hard to dislike	Circumaural	•			
JVC HA-D690	40 A	Competent but rather undistinctive cans, a bit middle of the road and well suited to aggressive sources	Supra-aural		•	•	1
JVC HA-D910	60 A	Broadly acceptable if unexciting design with low level losses and some colourations	Circumaural		•		12
Jecklin Float Electrostatic	399 E	These electrostatics have an openness of sound rarely found in the breed, with good dynamic range to boot	Circumaural	•			• 5
Jecklin Float Model One	79 G -	 Whilst very unusual in appearance, the Floats give remarkable sound quality and openness at a reasonable price 	Circumaural	•			Ę
Jecklin Float Model Two	99 G -	Helmet shaped and pretty unflattering but open sounding and comfortable in the long term. te lack of adjustment	Circumaural	•		•	6
Kenwood KH-1000	20 A -	First step up from a true mini: a near miniature which is cheap, comfortable and inoffensive	Supra-aural	•			12
Philips SBC3390	60 A	Up front but rather aggressive headphone with lightweight, coloured sound. Not very comfortable.	Supra-aural			•	12
Quart Phone 75X	70 A	Unusually comfortable sealed headphone, though sound isolation poor. Hard, edgy sound quality.	Circumaural		•	•	12
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	•		•	12
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	•		•	11
Sennheiser HD560 Ovation II	140 VC	Characteristic slightly heavy sound, but still the benchmark at this price level. High class sound and comfort	Circumaural	•		•	12
Sony MDR-CD1000	170 G	A fine sounding and comfortable headphone that's likely to work well with most sources	Circumaural		•	•	11
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		•	•	9
Sony MDR-CD350	30 G	Very impressive, possibly the most open sounding cheap closed back can around, lightweight in balance but transparent	Circumaural		•	•	9
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		•	•	9
Sony MDR-CD750	90 G .	Reasonably comfortable and eminently listenable these Sonys have characteristically good bass power and relaxed hf	Circumaural		•	•	1
Sony MDR-CD850	100 A+	· Very comfortable, and reasonable sound - better than most sealed designs - though hardness intrudes	Circumaural		•	•	1:
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	•			•
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	•			•
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	•			•
Stax SR Lambda Pro/SRD-7SB	674 G	An industry reference, frighteningly revealing, bringing across more information than loudspeakers costing twice as much	Circumaural	•			•
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	•			•
Technics RP-F10	100 A	Another very comfortable sealed model, modest sound isolation and uneven sound favouring bass	Circumaural		•	•	12
Vivanco SR808 Classic	55 G	A new mid price reference from a new and interesting source. Good all round, no obvious shortcomings	Supra-aural	•		•	12
Yamaha YHD-1	46 G	Stylish semi-folding design with a slightly forward balance that very nearly scraped a recommendation	Supra-aural	•		•	11

FANCY SOME WIRE FREE CANS? CHECK OUT OUR INFRA-RED HEADPHONE REVIEWS ON PAGE 114.



Loudspeakers

ast 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

audanaalian	n	Size. HAWAD	Bass from	te clos	e in tre	Floorst, e space	anding
oudspeakers	5	70	(cm) m	Hz 10	B, No	Space	anding
Product	£Price	Comments	Y		V		
ATC SCM20	1461 G	 Massively built, invariably informative but the rather forward presentation can be uncomfortable 	44x24x31	28	82		•
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		•
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		•
Acoustic Energy AE3	1650 G	 Solid, authoritative and impressively accurate – if a shade ponderous and slow 	63x26.5x37	23	85	3	•
Acoustic Research Pi 3	219 A	Lively good value box has extra bass driver to give plenty of thump, but lacks refinement and extension	51.5x21x23	50	88	•	
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	•	
Acoustic Research AR M1	199 G	Cutely shaped miniature delivers splendidly unboxy bass and midrange, but is a little marred by a rather bright treble	27x20x26	30	85	•	
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	•	
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	•	
Allison AL105	170 🗛	Pretty enough in appearance, sonically the AL105 doesn't really make the grade at the $\pounds150$ asking price	37x24x21	45	87	•	
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		
Allison AL120	420 A	Pretty well balanced if slightly mid forward, but sound quality is a little disappointing for the price	63x28x27	30	88		• •
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		
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	3	
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		
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		
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	2.	
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		
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		
B&W 2003	190 A -		43x21x25		88		
B&W 610	240 A	Bass extension and impressive loudness credentials, but rather indifferent integration and coherence	49x23.5x30		89		
B&W 620	400 G	Has well balanced, laid back and slightly lazy sound that is pleasantly easy on the ears; could do with its own spikes	74x23.5x30		89		
B&W DM600		 An impressively smooth overall balance, but sound is a touch bland with it 	35x20.5x25		85		
B&W Matrix 801		 Lacks the transparency of the best panels, and the drama of the best dynamics, but is something of an acoustic tour de force 			86		
B&W Matrix 805	845 G	Stylish, with remarkable imaging properties, good balance and low coloration, though less successful at musical communication	42x26x22.5		87		
Bose 305	390 G		28x45x23				
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		89		
Bose 901 MK6	1496 A	The pre-equalised multi-driver 901 is cleverly engineered to deliver exceptional loudness	33x54x32		89		
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		89		
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		86		
Brinkmann Endymion	395 A		48x29 (diam)		85	-	
Cabasse Bisquine			48x26x30.5		91		
Cabasse Skiff		Classy French large bookshelf speaker has great coherence and dynamic grip, but a rather mid-forward overall character	100x30x36		92		
Canon S-30	1500 G		27x22.5x23.5		88		
Canon S-50		 Clever and unusual moulded design has attractive lively coherence, along with 'wide imaging stereo' effect Only a small cone miniature at heart, the fascinating styling and extended sweet spot feature make it utterly original. 			84	·	
Castle Chester			30x24(diam) 94x23x27	40			
Castle Durham		A brilliant throwback, using horn-type approach to provide startling midrange dynamics and coherence.	40x22x24		88		
	250 A	Like the slightly larger York, the very pretty presentation is not reflected in a similarly sweet sound	55x37.5x30.5				
Castle Pembroke	400 A		33.5x18x20		88 88		
Castle Trent II	190 A	Very classy finish for the price, plus a sound that passes muster without setting anything much alight				•	
Castle Winchester	1499 G		114x24x47		87		
Castle York	340 4		43x22x26		86		
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		87	•	
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		90		
Celestion 9	269 A	Nicely presented and fair material value, with impressively flat bass-to-mid balance	49.5x20.5x24		89		
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		85		
Celestion SL600Si	820 G	Has certain remarkable qualities that some will find irresistible, but needs careful system and room matching	27x20x23		82		
Celestion SL6Si	429 4		37.5x20x25		86	ľ	
Celestion 300	1099 G	Splendid bass extension and fine panel-like openness and transparency, but dynamics and timing are suspect, balance very laid back.			86	•	
Creek CLS 10	119 A	Almost identical to the Goodmans Maxim 3, this neat miniature is very competently engineered, but not desperately exciting	26x17x21		85	•	
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		•





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MISSION 751 – Speakers	– Award Winner '93 🔽
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AIWA NSX-360 - Mini System	– Award Winner '93 💽

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Loudspeakers continued

.		DIRECTORY Size. Have	Bas Sens	e clo in t	Floo	
oudspeakers.	ontinued	DIRECTORY Site. HAWA	Bass Sensi	te close to tree tivity (dB) val	Floorstand space	Issue ,
Product	ce Comments		***			
Diamond Acoustics Reference III	G+ Lovely free stander suffers from indifferent bass alignment, b	ut is fast, coherent, solid and very informative indeed.	87x27.5x28	30 90	•	
Dynaudio Contour1.3	99 G Heavyweight luxury finish bookshelf model has good scale an	d weight but is pricey and a bit ponderous	38x20.5x29	28 86	•	
Epos ES11	50 G+ Integral baffle/driver to give a remarkable combination of low	coloration, transparency and speed; bass is a bit shy	37.5x20x25	45 86	•	
Epos ES14	15 G+ Substantial stand mount delivers delightful midrange focus ar	nd delicacy with good bass control. System sensitive	49x22.5x29	25 85	•	
Faraday FS1	25 A+ Concrete box on a budget, works surprisingly well despite che	eap drivers, wood veneers here Direct sale only	47x27x28	45 86	•	
Faraday FS5	Pricey and ugly, but with its own sonic charm, thanks to subs	tantial influence of the concrete enclosure has upon the sound	46x27x26	28 90	•	
Faraday Siren	80 A- Interesting if ugly high mass concrete cabinet is let down by i	mbalance of ageing driver combination	46x27x27	48 87	•	
Genexxa SE100	50 A Tandy-stocked miniature is attractively lively, coherent and co	-	28x15.5x19		•	
Goodmans Maxim	Budget miniature offers well balanced strengths and few wea		26x17x20	30 85	•	
Harbeth HL Compact	A Clean, neutral sound lacks resolution and gives rather unsubt	-	52x27.2x28.1	65 87	•	
Harbeth LS3/5A	⁷⁹ A Still a classic miniature, though not to every taste, and none t		30.5x19x16	60 81	·	
Harbeth HL-P3 Heco Presto Superior 750		coloured and very well balanced but time-smeared sub-miniature om balance but lacks transparency, coherence and dynamic drive	31x19x17 95x24x27	23 82	:	
Heco Reflex 10	A Nicely balanced small bookshelf is a competent rather than e		32x24x27	22 87 30 90		
Heybrook HB1 S3	50 G Latest version of long established favourite delivers good liveli		47x29x24	30 88		
Heybrook Prima	20 A+ Neat and discreet miniature delivers fine coherence, pace and		29x19.5x18	50 86		
Heybrook Quartet	 G Beautifully presented and built large bookshelf model with good 		41x24x23	48 89		
Heybrook Sextet	 G+ Engagingly coherent and a highly analytical, partly due to dist 		96x27x20	25 85		
Heybrook Solo		but handles complex rhythmic material much better than most	36x23x22	28 87		
Heybrook Trio	 G Same drivers as HBS1 in prettier real wood enclosure give a s 		47x24x25	45 89		
Infinity Modulus	 A+ Carefully conceived and beautifully built. Undeniably attractive 		30x18x26	45 84		
Infinity Reference 10	A An engaging and lively sound from a prettily finished and sub-		36x23x23	50 87	•	
Infinity Reference 20	Well presented and balanced with good bass control, but son	nehow lacks convincing cohesion and agility.	46x27x24	27 88		
Infinity Reference 30	0 G Budget price floorstander has good overall balance and bass (extension, but is rather coloured and uneven	86x27x24	25 89	•	•
Infinity Reference 50	0 A- Despite hi-tech drivers, good bass extension and sensitivity, th	nis three-way suffers from a forward, coloured sound	86x26.5x25	25 89	•	•
Jamo 307	0 A- Beautifully styled bookshelf baby places more emphasis on pr	esentation than basic engineering	32x18x27	48 86	•	
JBL Control 1 Plus	Sub-miniature with forward midrange and real bass; highish	price partly justified by near-indestructible Pro build	23x15.5x14	50 89 •	•	
JBL L1	0 G Good power handling, decent transparency and deep but curr	ent hungry bass from a compact and solid enclosure	40x21x25.4	47 87	•	
JBL ti1000	0 G Ultra-engineered, beautifully crafted bookshelf model. Perform	nance compromised by over enthusiastic midbass output from port	44x30x28	45 89	•	
JPW AP2	0 A Offers real wood veneer at a bargain price; performance is cle	aner but broadly comparable to P1 Vinyl overall	43.5x25.5x26	45 86	•	
JPW AP3	5 A+ Pretty good stereo and well balanced overall it had its own cha	aracter which is well suited to vinyl replay	52x25x29.5	57 90 •		
JPW Minim	9 A- Very civilised but dynamically limited, the Minim is well suited		27.5x18x19.5	28 85 •	,	
JPW Mini Monitor	0 A- Ultra cheap Richer Sounds special is lightweight and short of v		27x18x17	50 85 •		
JPW P1	5 A+ Honest and basically articulate if not very sophisticated, resolu	· · · · · · · · · · · · · · · · · · ·	44x25.9x26.1	60 89	•	
JPW P1 Vinyl	A lot of highly competent loudspeaker for the price, with a sat		43.5x25.5x26	32 87	•	
JPW Sonata	5 A+ Well balanced and integrated, offers fine sound if limited bass	, ,,,	32x23x20	55 86 •	,	
JPW Sonata Plus JRT AD1	5 A - This luxury variation on the redoubtable Sonata theme feature:		32x23x21	30 87 28 86 •	. •	
JRT AD1 Micro	 G+ A fair share of cosmetic deficiencies do little to spoil the impression of s G Delightful life and coherence, gives surprising impression of s 	cale; some aggressive tendencies but very open to system tuning	59.5x28x36 28x17x21	28 86 • 50 87 •		
Jamo Concert II	 A respectable 'bookshelf' performer that needs free space siti 		41x24x25	48 85		
Jamo Concert V	 A Compact, solid, nicely finished delivers unusually extended ba 		86x24x28	20 85		
Jamo Concert VII	 A Beautifully built, uses unusual double reflex bass system, unsu 		96x28x31.5	25 87		
Jamo Cornet 50	 A+ Good value bookshelf size speaker has a rough and ready sou 		42x23x22.5	28 87		
Jamo Silhouette	0 A+ Tall, slim and rather elegant in its way, doesn't sound bad for		122x24.7x17	45 88		•
Jordan JH400	4 A+ Piano finish hexagon has single full range driver and controver		33x24x30.5	50 83		
KEF 104/2	5 G+ A reference point for dynamics, preferred without KUBE, suited	-	90x28x41.5	50 92		•
KEF K120	9 A Physically pretty and sonically competent but undistinguished		34x20.5x26	45 87		
KEF Q80	9 A+ Uni-Q floorstander has good stereo and fine midband coheren	ce, but bass lacks extension, drive and resolution	85x24.5x26.5	45 87	•	•
KEF Q90	9 A Generous floorstander has even balance and decent extension	but fails to communicate excitement and involvement effectively	90x25x32	25 88	•	•
Kammerzelt Ref Mini Monitor	5 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	•	
Kenwood LS-770E	0 G Impressively communicative bookshelf model has fine vigour,	scale and dynamics, if not the smoothest sound around	48x27x25	25 89	•	
Kenwood LS-500G	0 G Japanese designed and built luxury compact delivers an invigo	orating and exciting sound; an interesting contrast to some lazier models	45x23x26	48 89	•	
Legend II	0 G Liveliness, coherence and fine information retrieval justifies the		37x21x30	48 88 •	(
Linn Index II/KuStone		tension and control, fine dynamic range. Clean, clear if a shade slow	44x21x23.5	28 86 •		
Linn Kaber	8 G+ Dry, bright balance emphasises superb dynamic range and tra		89x19x29	25 85 •		•
Linn Kan II	A+ Niche product for those prepared to tolerate its strong character		30.5x18.5x16.5		2	
Linn Keilidh	9 G+ Stunning timing and coherence and awesome bass drive, espe		83x20x27.5	22 87	•	•
0		cs and speed. Its idiosyncracies are compensated by sheer energy	165x64x92	40 101 •		•
Magneplanar MG1.4	 G+ Offers a very crisp and articulate sound, particularly revealing Topally 'righ' in the right room it proved a satisfactory musical 		155x8x57	40 88	•	:
Magneplanar SMGa Marantz DS110	 A Tonally 'rich', in the right room it proved a satisfactory musical A Pretty near-miniature trades bass extension for sensitivity delivery 		122x48x4.5 33x19.5x20.5	56 85 55 88 •		•
Marantz DS220	 A+ Pretty near-miniature trades bass extension for sensitivity, deli A+ Nicely shaped and presented large bookshelf model sounds co 		33x19.5x20.5 37x23x26	50 88		
Marantz DS220 Martin Logan CLS II			60x28x7.5	50 88 45 86		
martin Luyan GLƏ II	 3 G+ High resolution design, fussy about system set-up, demanding 5 G+ Beautifully built, finished and shaped, has fine bass extension 	or ancillaries and software alike. It rewards the efforts though and virtual absence of 'boxiness'; needs a big amplifier	33x27x27	45 86 28 83		•
Meridian Argent 1						

Loudspeakers continued

		THE DIRECTORY	Bas Sens	te clo	ein.	Flop		
oudspeakers	Contil	THE DIRECTORY Size Huy	Bass Sensi	ivity (e to h	Floor ree spo vall	Stand ace	Issue
Product	EPrice	Comments	Ý	V	V	V	V	V
Meridian M30		Pricey active speaker, easy on the ears and worth considering especially where space is at a premium	38.5x18x32	40	NA		•	
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			•
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	•		
Mission 764i	480 A	Generous and handsome floorstander looks fine material value for money, but good scale sound has lazy tendencies	89x25x32	22	86		•	•
Aission 765i	680 A+	Big heavyweight floorstander has good sensitivity and bandwidth, but somehow lacks agility, authority and dynamic grip	102x25x33	22	91			•
Mission 751	300 G	Potentially promising high class baby suffered early production inconsistency: full retest scheduled soon	32x17x27	50	86			
Ionitor Audio MA1200 Gold II	1200 G	Pricey but classy floorstanding variation on MA800 theme; beautifully voiced midband, heavy midbass	93.5x17x27	28	85		•	•
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			
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	•		
fordaunt-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		•	
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		•	
fordaunt-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			
lordaunt-Short Classic 20	395 A+	Luxuriously finished, beguiling mid transparency, bass is altogether less convincing	37x22x27	45	86		•	
Norel 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		•	
Ausical 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	•	•	
WA 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		•	
IVA Cube 2	480 G	A rude but exciting miniature, with unusually accomplished bass capabilities for its size	28.5x27x28.5	48	85	•		
IVA 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	•		
laim 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	•		٠
laim SBL	1708 G+	Impressive scale, full bandwidth, coherent, attractively discrete, coloured midband, very well balanced and agile	88x26.5x17-27	25	86	•		٠
leat Petite	525 G+	Far from perfect, but one of the most entertaining and enjoyable speakers around, colorations notwithstanding.	30.5x20x18	33	86	•		
lobis 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		•	
Drigin Live OL2A	469 G	Compact floorstander sounds open, transparent and evenly balanced; needs a big amp but enjoys hard driving	82x19x19	25	85		•	•
Drigin 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	•		
hilips 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		•	
Philips FB825	700 G	Generous sounding and impressively uncongested, loudness and bass extension don't quite match plasticky looks	110x29x41	25	88		•	•
ioneer S-4UK	250 A+	Carefully developed minimalist audiophile design has some vigour but suffers an intrusive upper mid peak	37x21x28	50	87		•	
ro Mon Co LB1	998 G +	Delightful smoothness and transparency, though bass extension and sensitivity are both limited	53.5x18x26	33	86		•	
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		•	
LN Model One	700 A	Model One exaggerates the Signature's rich and heavy midbass and lacks its velvet smoothness	35x25x27	28	85		•	
LN 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		•	
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		•	•
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			•
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			•
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			
Richard Allan CD5	176 A-	Neatly presented small reflex design can sound engagingly communicative, but is flawed sonically and technically	38x19x23	80	88	•		
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		•	
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		•	
logers 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		•	
ogers 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		•	
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	•		
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		•	
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		•	
Roksan Darius	1895 G+	Provides an exceptionally impressive combination of transparency and delicacy with fine information retrieval and speed	47x27x40	20	82		•	
Royd Topaz	173 A+	Cheerful, articulate and essentially communicative miniature can also sound a trifle scrappy and shut in; well worth trying	<mark>30</mark> .5x20.5x19	50	87		•	
Royd Abbot	666 A+	Engaging and dramatic dynamics and fine transient coherence are hampered by a rather coloured mid-forward balance	83x20x34	43	88	•	•	
Ruark Swordsman Plus	299 A	Real wood variation on the Swordsman theme looks and measures rather better than it sounds	38x20x28	27	84			

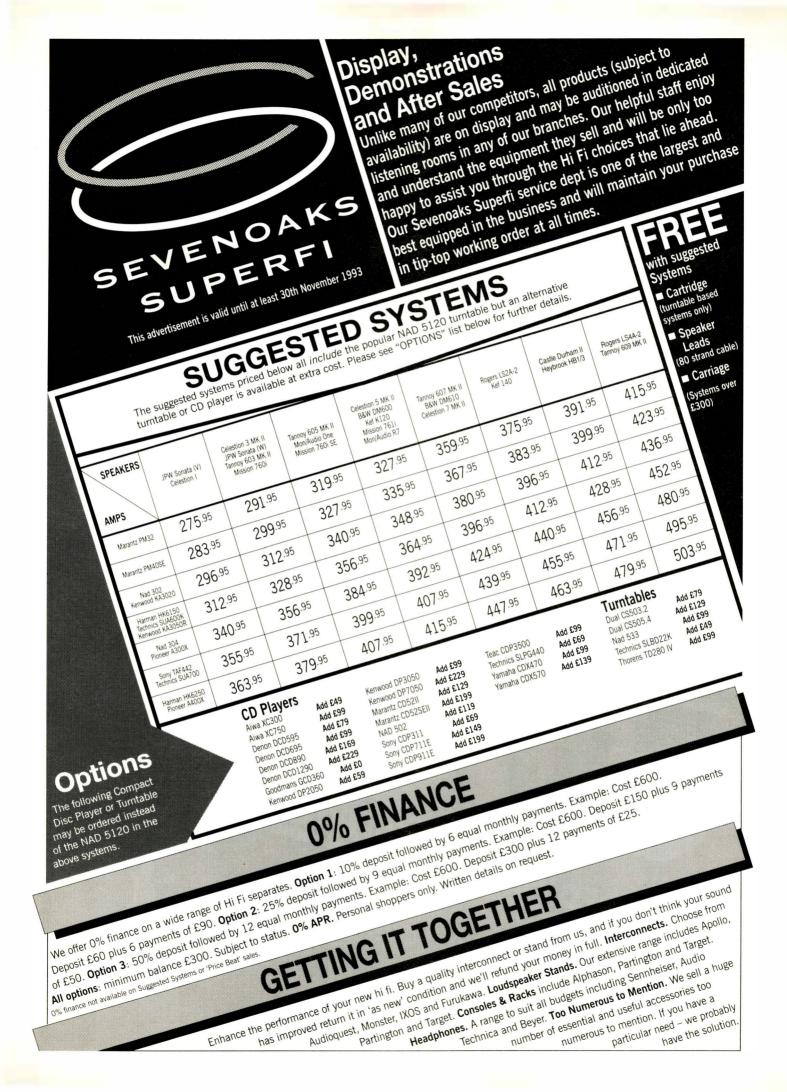
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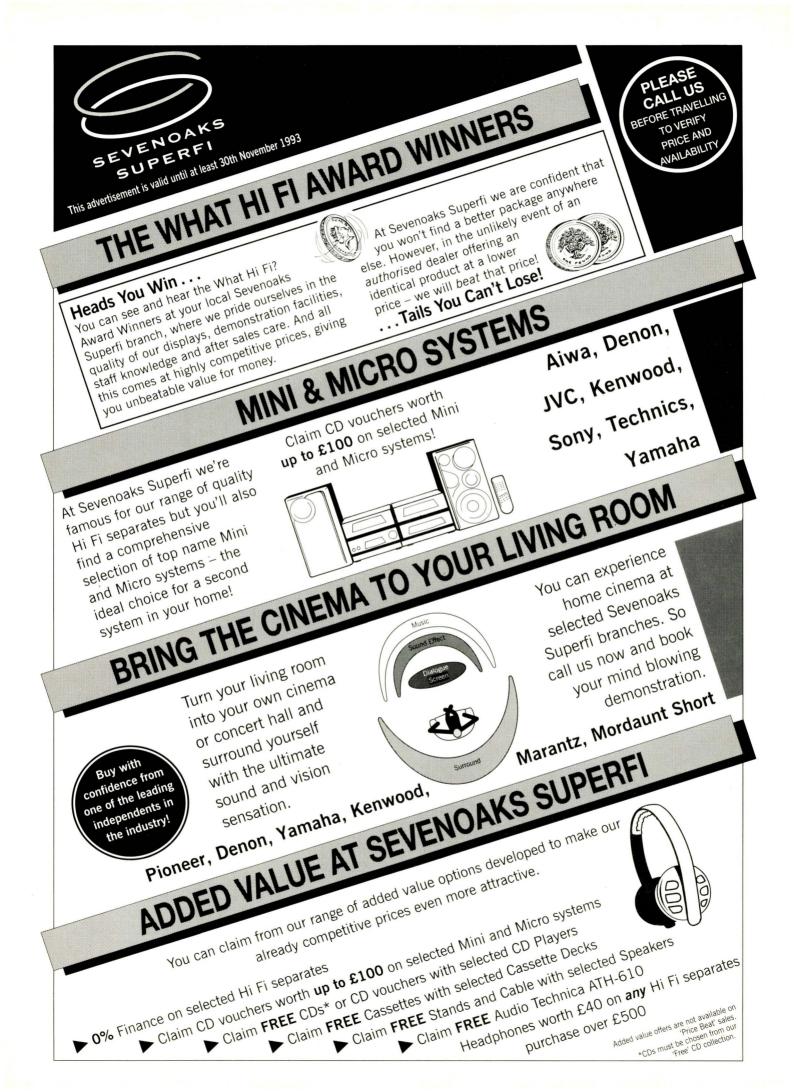
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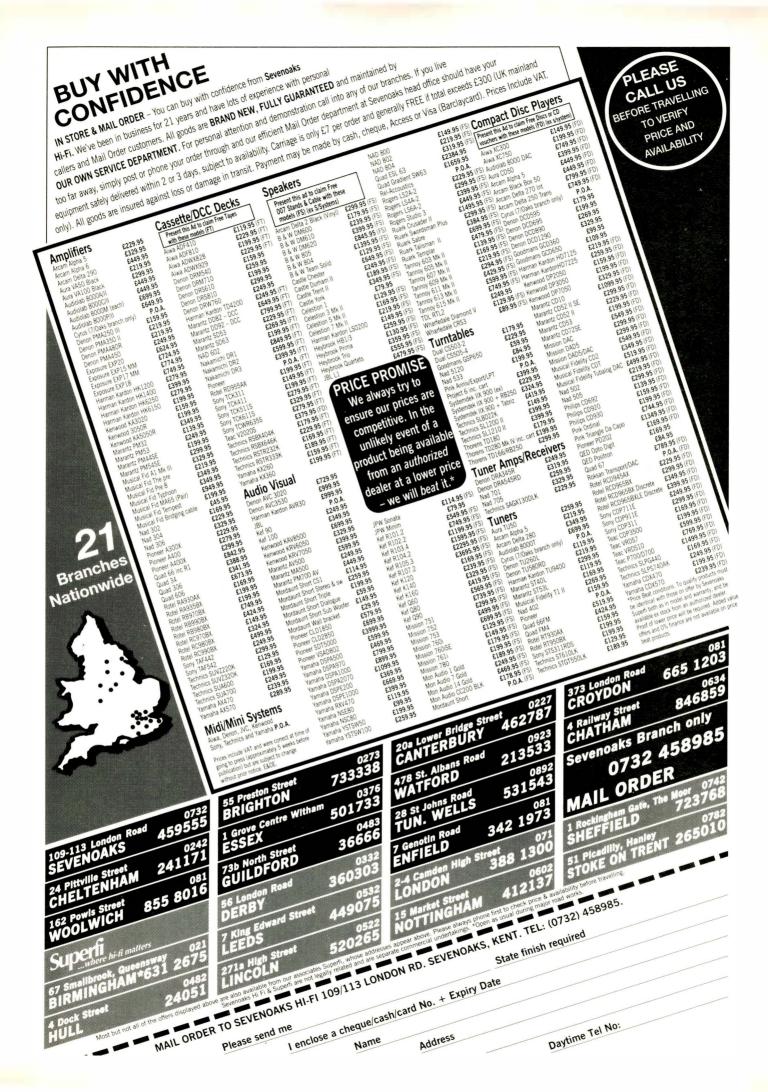
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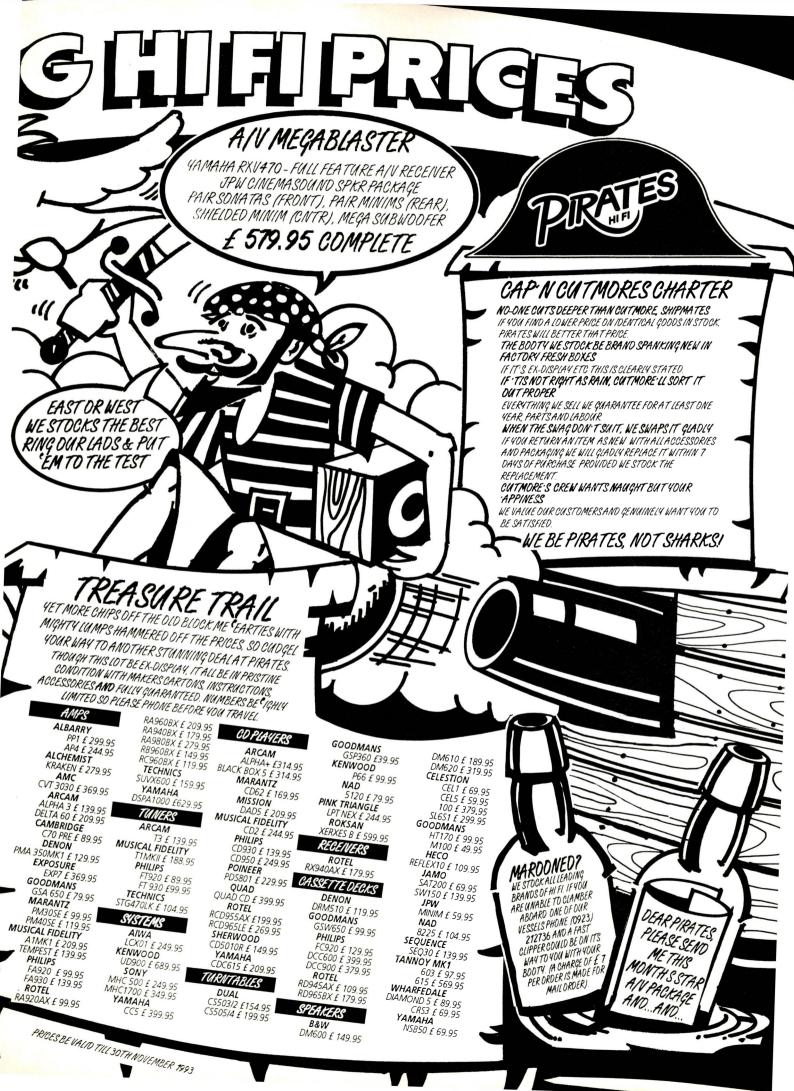
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Loudspeakers continued

1.		THE DIRECTORY	Bas Sen	Sil	ein h	00.	
oudspeaker	rs conti	THE DIRECTORY Sie Huy	Bass from (Wity a	e in free to wal	oorstano. space	Issue
Product	EPrice	Comments	V	V	V		∕ ▼
Ruark Templar	479 🗛	· Compact floorstander with striking baffle has decent bass/mid but dull treble; could tame over-bright system	73x19x27	25	85	•	•
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	•	•
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	•	•
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	•	•
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	•	
SD Acoustics SD4	699 G	Tall slim floorstander has fine balance, good bass extension and lovely open midband transparency	100.5x20x30.5	25	85	•	•
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		
Shahinian Arc	1062 G	Unusual and occasionally wonderful small floorstanding omni; too bright but exceptionally coherent and revealing	69x35x25	24	85	•	
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		
Spendor S20	535 G	Maintains Spendor's tradition for peerless mid-to-treble coherence and perspectives. Bass is rather unconvincing.	38x22x26	25	83		
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		•
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		
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	•	
DL 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		•
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		
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		•
TDL Studio 1M	899 G +	Transmission line helps bring the best from metal cone driver: lovely transparency and fine bass extension	81x23x33	<20	84		•
annoy 607 Mkll	220 A	Large bookshelf, smart hexagonal box has fine bass for the price, but treble sounds rather shut in	50x32x24	25	88		
annoy 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	•	
echnics SB-EX2	180 A	Nicely presented, well built and decent size enclosure sounds solid but somewhat dull	48x23.5x27	20	86		
Fechnics SB-RX50	650 A +	A smooth and well balanced loudspeaker, its minor weakness being a mildly excessive low bass	48x30x26	40	86	•	
Thiel SCS	1069 G 4	· Luxury piano-gloss compact sets class-leading standards for coherence and communication, can sound a shade dark and shut in	40x22x23	45	87		
hiel CS1.2	1219 G	Elegant compact floorstander has fine balance and dynamic range, but transient timing and dynamics are less convincing	94x27x27	30	86		•
otem Model One	995 G	Utterly delightful but exasperatingly expensive luxury miniature sets the benchmark for its size	31x16.5x23	28	86		
andersteen Model One	1395 G 4	• This compact American floorstander's elegant staggered baffle arrangement contributes to a refreshing freedom from boxiness	100x30.7x25.6	23	87		•
isonik 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		
Vharfedale 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		
/harfedale 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		
Vharfedale 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		
Vharfedale 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		
Vharfedale CRS3	110 A +		38x22x18	50	88		
Vharfedale Diamond V	130 A	This miniature is smoother than most, but rather stodgy with it, inspiring little enthusiasm among our listeners	27x18x20	50	86		
'amaha NS 1000M		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		
Zyp A1	_	Cute metal cased micro-miniature is guite coloured but great fun, with surprising dynamics and fine wall-loaded room balance	22.5x14.5x13	30	85		



Stack systems

tack systems is a generic title that we've S 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 abilitiy 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 ${\bf 0}$ indi cates that they are optional. The final column is for those of you with records to play

Stack systems

		ack systems offer a plethora of features, Jearer the system the more complex	speakers. As the latter are often the weakest part of a stack system buying good quality speakers	cates that they are optional. The final column is for those of you with records to play.						
Stack system	1S			Size: HXWXD (cm)	Tuner presets	Idspeake	Irmable No.			
Product	EPrice	Comments			VV	V				
Denon D110	870 G	Nearly hi-fi from pretty but pricey silver stack; richer	r, fuller speakers would help	37x27x33	40 30	•	o 125			
Goodmans System 700	735 A	Separates flexibility and upgraeability in remote midi	i 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 exp	ensive by inclusion of DCC deck	37x26x32	60 30	•	125			
A Pioneer N53M	549 A+	· Cheap, occasionally nasty but undeniably cheerful a	nd entertaining if horrid speakers are discarded	36x26x28	30 24	•	• 125			
Technics SC-CH950	1000 A+	Classy if rather bland allrounder includes useful Dolt	by Pro-Logic AV capabilities	42x27x34	60 39	•	• 125			

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SU A800K NEW, 55 watts per ch. MOS, Class AA. Remote 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

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CDPM 201 Midi size. NEW

CDPM 201 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 **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 Sinale 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 TCW 435B Dolby B+C + Hx-Pro. NEW

TCWR 535B with record-reverse. NEW TCWR 635S With Dolby S. NEW SPEAKERS

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S-30

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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. SSCH 404 NEW Budget Minisvstem SCCH 550 NEW, budget minisystem SCCH 650 NEW. 50 watts mini system SCCH 655 NEW, MULTI-PLAY mini system

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Tuners

he 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

			re useful for aenal alignment. 'Automatic tuning' leans that a tuner can seek out signals for you.								
Tuners		Presets FM	Signal Stre	Manual III ngth meter	hatic tun	Issue	No				
Product	EPrice Comments			VV	V	V	V				
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 woodenness 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				
A 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				
A 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				
A 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				
A Rotel RT-930AX	160 G- A competent rather than exciting performer, with low audible interference though slightly compressed and muddled sound.	20	• •	•		•	108				
A Rotel RT-950BX	200 G+ Fine fast and coherent sound quality for price, but RF performance only adequate and sample build was suspect	20 •	•	• •	٠	•	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

artridges 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.

Turntahles - cartridnes

	mechanic	al integrity and tighter tolerances, and	Cartridge/amplifier interfacing can be very	with the actual ef	tective ma	ass of sp	ecific arn	ns.
Turntables -	cartria	lges		I'm effective mass (g)	Output	MA	Mc	SUE NO.
Product	£Price	Comments				V	V	V
Arcam C77	30 A +	A sensible moving magnet package with good bounce	at a competitive price	6-16	N	•		48
Arcam C77Mg	40 A	Punchy sound quality with plenty of extra energy to live	en things up. The solid body seems well worth the extra ${\tt {\it E}10}$	4-8	N	•		67
Arcam E77Mg	60 A	Our sample had a disappointing stylus, but gave a col	nerent, 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 ti	b. Channel balance could have been better	4-9	N	•		48
Audio Note IO IIV	1395 E	One of the best, giving 'an extraordinarily relaxing mic	range clarity', needs a transformer	8-18	VL		•	100
Audio-Technica ART1	850 VC	This is a delicate and very fluid-sounding MC that trac	ks 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 i	s a definite Best Buy	8-14	N	•		48

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Product List

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Turntables – cartridges continued

		THE DIRECTORY					
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	and a second second	<i>น</i> การ	·(9)	Output	M	MC	
	EPrice	Comments					
Audio-Technica OC-10		Good treble and good detail too, but some congestion and coloration reduces its informativeness.	4-12	L		•	
Audio-Technica OC-5		For the price, it's unusually effortless and detailed, but it tends to become rather releatless and tiring after a while.	5-14	L		:	
Audioquest AQ 404i-L		Slight harshness detracted from the performance of this otherwise clear-sounding and detailed cartridge	8-16	L			
Audioquest AQ 7000 Denon DL103		Stunning stereo imaging and good detail at low levels are spoiled by less-than-perfect tracking and high sensitivity to arms	6-20 9-22	L .			
Denon DL110	100 A + 70 G	Good performance in bass and general 'life' is seriously let down by its spherical stylus which kills subtle details.	9-22 6-16	N			
Denon DL160	90 G	Firmly recommended as a fine all-rounder, this high-output MC model is likely to perform well in nearly all circumstances Although listeners just preferred the 110, its brother here proved a twin in lab tests and is still "thoroughly competent"	6-16	N		100	
Denon DL304		Uncolored, detailed, neutral, superb tracking; top notch altogether, and a top notch bargain too	4-12	IN I			
Dynavector 17D2		Clear, detailed, neutral and generally very informative - excellent	6-18	L			
Dynavector DV10X IV	138 A +	Fine sounding and realistically priced, damping is recommended to ensure successful tracking ability	8-18	N			
Dynavector XX-1	698 G +		7-15	N			
Dynavector XX-1L		Very clear, very detailed, no troubles with tracking; response lift around 20kHz seems to do no harm	7-13	L			
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	1			
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			
Empire Benz-Micro MC-3	800 G+	Offers a warmer and very transparent account of the music. Its tracking provess is slightly limited	5-12	L			
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			
Glanz GMC-20E	129 G +		5-10	L			
Goldring 1012	50 G	Slightly harsh sound but plenty of life and quite good detail. Some very high frequency coloration apparent	6-12	N			
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			
Goldring 1042	90 G	Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively, though	7-12	N			
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			
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			
Goldring Eroica H	100 G-	More confused and coloured than low-output LX, high output less of an issue these days	8-15	N			
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			
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			
Goldring Excel GS		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			
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			
Kiseki Blue Goldspot		Good bass and imaging, but hints of spit and coloration let the side down slightly	8-15	L			
Kiseki Lapis Lazuli		Combining very sensible design concepts at a silly price, combines the detail of the MC3000 and the fluidity of the Clearaudios	4-12	L			
Kiseki Purpleheart Sapphire		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			
linn K5		Not as crisply focused as the costlier Linn magnetics, the K5 offers a smoother presentation	7-16	N			
inn 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			
ondon Maroon		Now manufactured under the London brand name this Decca cartridge is as iconoclastic as ever	9-20	N			
ondon Super Gold	339 A-	Immediate and detailed, but very coloured, very nonlinear and questionable effect on records. Devotees swear by it	9-15	N			
Milltek Aurora		An overall feeling of relaxed ease characterised this clear and atmospheric Kiseki-built cartridge	8-16	N			
Vagaoka MP10		High frequencies sounded "shut-in" with this spherical-stylus model, but mid and mass were energetic, bouncy and punchy	5-13	Ν			
Drtofon 510		For the price, a good blend of virtues weight, clarity and neutrality.	3-11	N			
Ortofon 520		Very sensitive to load capacitance this new Ortofon maintains the company tradition for a lively, effervescent SQ	7-16	N			
Drtofon 530		Very clean and assured sound; transients not quite perfectly pure but plenty of detail.	4-11	N			
Drtofon 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			
Ortofon MC10 Super	80 G	"What a delightfully sweet-sounding cartridge this is" we said	5-15	L			
Ortofon MC15 Super		A good all-rounder, with outstanding performance in detail retrieval, even if it can be very slightly bright and close-up	10-24	Ĺ		•	
Drtofon MC3 Turbo		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		•	
Drtofon MC3000 Mkll	900 E	Low levels of body resonance are a real ear-opener. Nothing to criticise elsewhere; one of the very best	9-16	VL			
Drtofon 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		•	
Drtofon Quartz		Lively, quite detailed, and a touch bright, the Quartz has many qualities of the much dearer Quasar	3-12	L			
Drtofon Quasar		Many of the qualities of the MC3000, although a touch bright. Good detail and delicacy	8-15	L		•	
Drtofon Quattro		Undoubtedly a competent performer. Generally neutral, but can be edgy and bright in loud passages.	6-18	L		•	
Rega Bias		Difficult to mount in some arms due to its shallow build, the bias offers a gentile, refined SQ	4-10	N			
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			
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	Ν			
Roksan Corus Black	130 G	Recognisably related to Corus Blue, but distinctly more civilised and smoother.	7-12	N	•		
Roksan Corus Blue	75 G	Roksan-specified modified Goldring 1012; slight harshness detracts from otherwise good sound.	7-12	Ν	•		
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	Ν	•		
Shure V15 VMR		Initial listening gave promising results, but extended familiarity gave the feeling of a lack of energy and a "shut-in" sound	5-12	N	•		
van den Hul Grasshopper IIIGLA		Undoubtedly one of the finest cartridges available, it has tremendous bandwidth, energy and finesse	6-10	L		•	
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		•	
van den Hul MC One Super		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		•	
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	Ν		•	
van den Hul MC10	775 G+	A neutral balanced performer giving transparent midrange, fine depth and focus with firm extended bass. Goshi	5-10	L		•	
van den Hul MM1	075	If woody midrange coloration could be tamed, the excellent imaging and admirable security would make it excellent	7-15				



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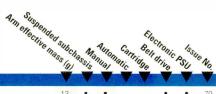
Turntables and tonearms

pecialist turntables are what high fidelity sound is all about CD are a sound is all about, CD may offer silent backrounds 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 suchassis' - decks which have some form of internal isolation, generally in the

form of springsbut 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.



Turntables - integrated

Product	EPrice		Comments	Ť	Ý	Ý	Ý	Ť	Ť	V	V
Alphason 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 unmuddled 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	•	•			٠		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	٠	•			•		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/Artemiz/Artaxerxe	es 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 VI/UK/RB250	280	A -	Refined and articulate sound with well focused imagery, suitable for use with good MM and budget MC cartridges	<mark>11</mark> .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		٠	•			•	•	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

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		Suspende	^{ed subchassis}	Belt drive	^{IC PSU}
Product	EPrice	Comments		VV	
A Michell Gyrodec	697 G	Sweet and natural sounding player, well suited to Rega RB300. Aesthetics, and the acres of clear acrylic are very distinctive	•	•	• 55
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	•	•	67
Origin Live Oasis A	495 G -	- Rather coarse sound lacking resolving power - but lively sound may appeal. Industrial appearance	•	•	79
Pink Triangle Anniversary	1495 E	Possibly the most detailed, clear and neutral deck around. Likeness to master tape is uncanny	•	•	• 91
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	•	•	• 91
A 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		•	79
Revolver	200 A	Nicely balanced, but unimpressive timing and lightweight bass made this deck rather average for the price		• •	48
Systemdek IIX/900	230 G	A high performance budget turntable which is particularly strong at fine detail resolution and imagery	•	•	103
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	•	•	• 103
Voyd 0.5	3368 E	Halfway between standard and Reference Voyds with the latter's platter and bearing. Superb finish, colourful and dynamic sound	• t	•	• 72

		Cifecti, deight	Parall
Tonearms		Effective mass (g)	Parallel tracking Ssue No.
Product	EPrice Comments		
Airtangent 1B	3000 E A complex but superbly built arm for high quality systems, giving excellent stereo and resolution	7.5 •	• 60
Alphason HR100S	490 VG S-shaped arm sounds smooth, but nevertheless reproduces transients with fine attack	10 •	• C86
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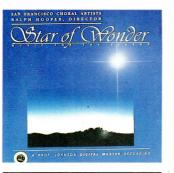
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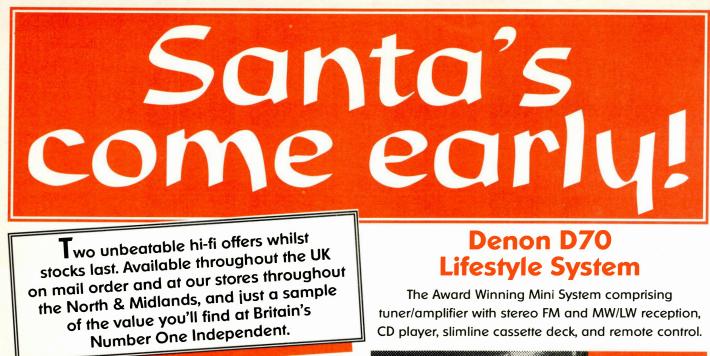
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That's show business for you

don't normally use this column to report on shows, but *Live '93* was a momentous event for the UK. By the middle of Sunday afternoon the crush in the aisles led to the doors of Olympia being temporarily closed. After the echoing emptiness of the (rather less than) *Great Home Entertainment Spectacular* in the early eighties, *Live '93* was one hell of a shock.

Credit must go to News International, which organised the event itself with some flair, and the promotion which brought in an estimated 140,000 visitors. By the end of



Paul Messenger stalks Olympia with *Rage* and looks at electronics shows past, present and future.

even the first day, excited exhibitors were already rebooking for *Live '94*. *Live '93* was an expen-

sive gamble for a UK hi-fi industry still well stuck in recession, because the track record of big hall electronics shows in Britain has been abysmal for more than 20 years.

I can remember visiting an Olympia *TV & Radio Show* round about 1960 (in order to pick my first transistor radio). There's not much of the fine detail left accessible in the data bank, but I do recall that the place was a seething mass of people.

A decade or so later the *TV & Radio Show* had faded from the scene, but Olympia was the setting for a

succession of Audio Fairs. I hitched up to London for the opening day one year — only to find the doors still shut because the heavily unionised stand builders had walked out. It was the beginning of the end for major London exhibitions, which dwindled thereafter and had disappeared altogether by the mid seventies.

Hotel-based shows had always offered an attractive alternative to the hi-fi exhibitor, with lower set-up overheads, better room acoustics and room-to-room isolation. Harrogate and the Hammersmith Cunard set the model for the next two decades up to Penta, Bristol et al today. They work well enough as hi-fi shows, but also marginalize hi-fi in its own introverted ghetto, preaching mainly to the same enthusiast core which read the specialist press. This is fine for the small 'cottage industry' operator turning over less than £250,000, but becomes an increasingly irksome straight-jacket for Britain's dozen or more medium size (\pounds 1-10m per annum) hi-fi specialists.

Live '93 was the opportunity to widen the base, and to demonstrate to the public at large that even though hi-fi has been around since the fifties, it still has just as much

relevance to consumers in the nineties.

Fears that the show might turn into a celebration of the computer games console were unfounded. There was a degree of segregation, but whether through luck, naivetéor inspiration, the whole place came over as a delightful pot pourri of contrasts, with totally unrelated technologies nestling cheek by jowl.

In this respect at least, going around *Live '93* was a load more fun than trudging through the endless halls of a Berlin *Funkausstellung*. If Sony does book an area the size of a football pitch for *Live '94* (scheduled for the larger Earls Court site), I hope it doesn't completely block the way around the show.

Headbanging in the log-cabin

The down side of *Live* '93 was a serious and all pervading cacophony of noise which impeded the subtler aspects of sound reproduction. Some setting and policing of maximum levels could benefit all next year.

The tweakier end of the hi-fi business might be best served by a concurrent specialist hi-fi show in a nearby hotel next year. But the Hi-Fi Village concept seemed to work very well, and worthwhile, meaningful demonstrations were available, given appropriate source material.

The excellent *Rage Against the Machine* disc sounded awesome at point blank range in Naim's Six-Pack active-*DBL* multi-Mana'd booth — a genuinely headbanging experience, as evidenced by the number of headbangers who drifted in during the course of *Bullet in the Head*.

I felt a bit guilty playing the same disc at the Linn logcabin, as things were so much more relaxed and laid back there. The contrast was fascinating — not much twitching

of the neck muscles to be sure, but plenty of foottapping and information, albeit with a totally different presentation; not so much chalk 'n' cheese as cheese 'n' wine.

I eventually slipped the *Rage* disc into the Laserdisc player on our *Home Entertainment* stand, switched the McIntosh

THX-compatible preamp to stereo and turned up the wick. Two days of galaxy gazing had left me deeply impressed by the McIntosh home cinema kit's movie capabilities, but here was the tasteless chalk when it came to handling good old-fashioned rock and roll.

It's going to take till well past *Live '94* to sort out the problems of mixing and matching high-end AV with serious hi-fi. Meantime, noisy racket notwithstanding, *Live '93* was also a lot of fun — and not totally meaningless for making useful equipment comparisons either.

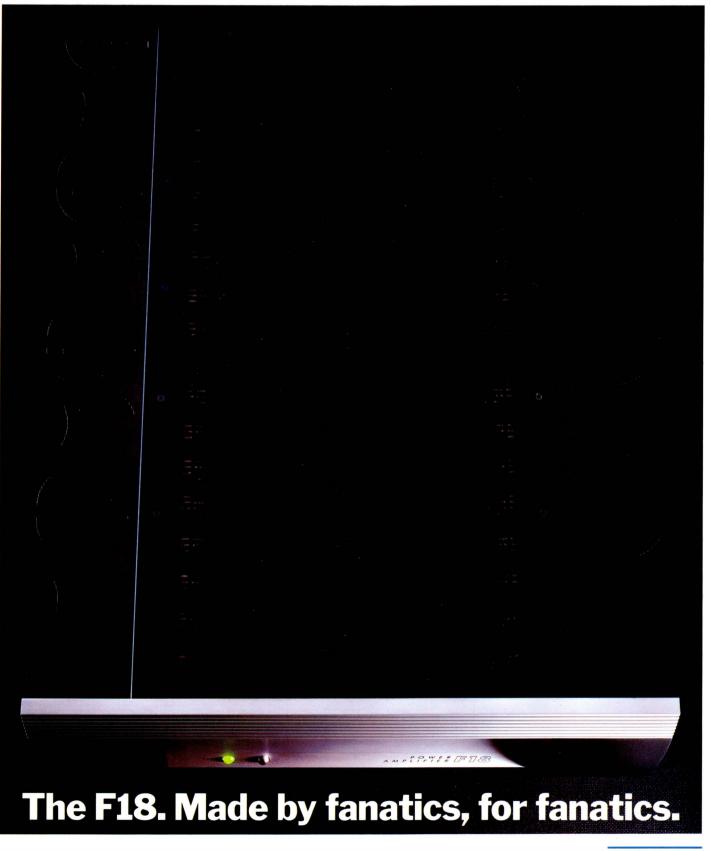


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Paul Messenger has been writing about hi-fi longer than he cares to remember, and is a former editor of *Choice* three times over.



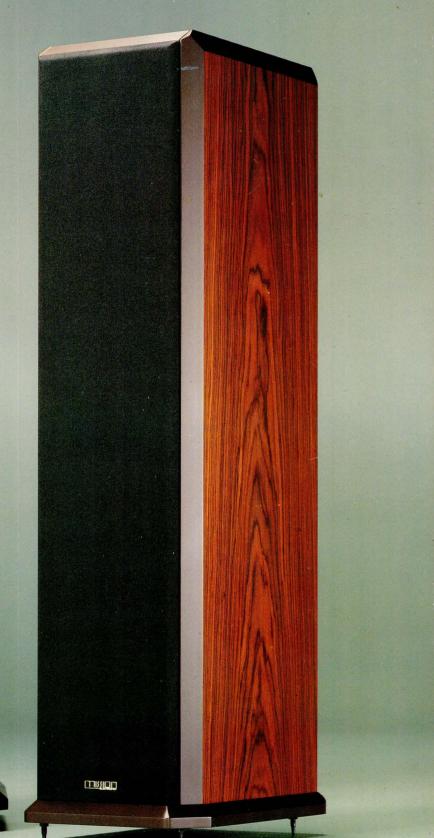
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