

# HI-FI CHOICE

THE WORLD'S NUMBER ONE GUIDE TO BUYING HI-FI

JANUARY 1993 £2.95 US\$5.50

## MiniDisc FIRST EVER REVIEW!



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**£2,000 Mission system**

**25 SPEAKERS**

**Best Buys revealed**

**Britain's biggest review based**

**HI-FI BUYERS' GUIDE**



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

# HI-FI CHOICE

ISSUE NUMBER 114 JANUARY 1993

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*Hi-Fi Choice* welcomes all information on new and upgraded products and services, for possible coverage within the news and reviews pages. However, the publisher respectfully points out that the magazine is not obliged to either review or return unsolicited products. The editor is always pleased to receive ideas for articles, preferably sent first in outline form, with details of the author's background, and - where available - samples of previously published work. He cannot, however, accept responsibility for unsolicited copy and would like to point out that it may take time for a reply to be sent

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While every care has been taken in the preparation of this journal, the publishers cannot be held responsible for the accuracy of the information herein, or any consequence arising from it. Readers should note that all judgements have been made in the context of equipment available to *Hi-Fi Choice* at the time of review, and that 'value for money' comments are based on UK prices at the time of review, which are subject to fluctuation and are only applicable to the UK market

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# Menu

**S**o, finally, both DCC and MiniDisc have arrived in the shops.

Obviously it's very difficult to come to any decision on the relative merits of the two formats at this early stage, after all I've only had a MiniDisc player to muck around with for a single afternoon whereas DCC has been through our full lab and blind test procedures.

Still, for better or worse, what follows is my own, personal, first impression. On MiniDisc's side I have to admit that the format has more inherent appeal, it's smaller, seems a little easier to use and the idea of filling a single jacket pocket with a dozen or so software titles definitely appeals. The shock proof memory is also remarkably useful.

However, on the down side the first player isn't what I've come to expect of Sony. Basically, it's too big, the batteries don't last for long enough, and the fact that it can get confused as to which disc it is playing are all causes for concern. This latter facet of its operation, as well as the seemingly illogical layout of the keys leaves me with the distinct feeling that Sony has rushed this player out so as to have something in the shops to sell against DCC.

Sony has got a world wide reputation for miniaturisation and some of its Walkmen and indeed Discmen are quite superb designs. OK so this is the first generation of MiniDisc machines, but I'd have thought that it would be more ergonomically satisfying and above all smaller. In a year's time I'm sure Sony will have far smaller units on the market, but the problem then arises that only the most dedicated technophile will buy this first personal, because it is the first machine. Given time Sony can close the gap, and probably improve the sound quality to boot. At the time I wasn't convinced that Philips' decision to launch with a full size deck was the right one, but the sound quality of the *DCC900* is very good indeed and certainly, in my opinion, superior to Sony's debut offering.

The other problem that has to be addressed here is how much the software will cost. Given that you would have to be a complete moron to buy either DCC or MiniDisc pre-recorded software at £14 a pop, the price of the blanks is what really counts. At £9 for a blank 60 minute MD Sony has pitched its prices far too high, giving Philips a considerable edge with its £6, 90 minute blanks. Although it is far to early to tell which format will ultimately succeed, it does certainly seem that as things stand, Philips is ahead on points.

*Andy Benham*



Cover photograph by  
Chris Richardson

# HI-FI CHOICE

ISSUE 114 JANUARY 1993



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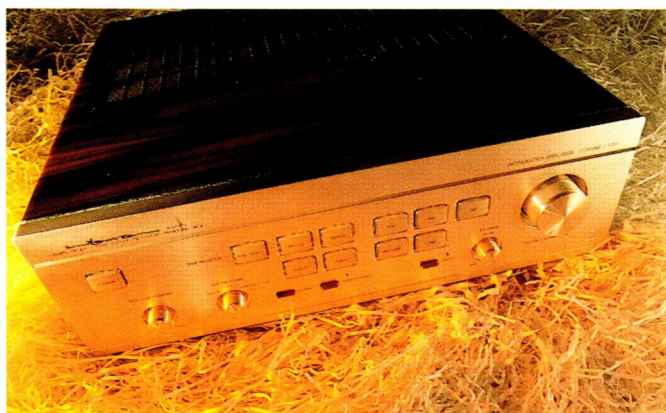
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Wanna be a man with a Mission? Check out the easy to enter competition on page 40.

# Review your options



## THE SUCCESSFUL TANNOY SIXES RANGE

In every aspect of sonic performance, unique cabinet design and finely detailed construction, the Tannoy SIXES have won consistent praise from the international hi fi press

Tannoy dealers have SIXES for you to audition now. If you'd like a second opinion however, we'd be delighted to send you a copy of the Press Reviews book which we assembled some months ago and to which we've added many more equally complimentary reviews which have appeared recently.

You'll read, for instance of the compact 603, **'A speaker this size simply should not sound that good'**. Stereo Review, (USA, February '92)

Of the 605, the U.K.'s 'What Hi Fi?' wrote in March '92 **'Unrivalled ability to reproduce details of musical expression'** and **'eyestopping good looks'**

Audio Video in February '92 also said **'The 605 Tannoys positively shine with almost any kind of music,**

**delivering with an enthusiasm and fullness that can make even the most jaded reviewer sit up and listen'**.

Hi Fi News (in October '91) wrote that the 607 provides **'detailed sound', 'vivid imagery'** and are **'value for money speakers which perform well across a wide range of musical programming'**. Hi Fi Video of France (in October '91) said much the same - in French of course. Australia's Audio Video Lifestyle, in January '92, placed the 609 **'streets ahead of the competition'** with **'quite stunning'** performance

Australian journal Hi Fi Review, in their January '92 issue, praised the 613 - **'Midrange was excellent'** their reviewer adding **'nothing had prepared me for the depth of bass the speakers are capable of producing'**.

These, plus many more recent reviews are yours for the asking. Please ask - we'd like you to.

Please send me the SIXES 'Press Reviews' book and other recent SIXES reviews. I'd also like a brochure and price list.

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## Walkman for the Nintendo generation

On December 15th three Sony MiniDisc models and 250 MiniDisc titles will be available for what Sony has dubbed the Nintendo generation. Sony launched the first MiniDisc players to the press on November 17th showing for the first time in the UK the *MZ-1* personal player/recorder which is due to retail for £500, the *MZ-2P* playback only portable (£400) and the *MDX-U1* RDS in-car player/radio. All three feature a ten second shock resistant memory.

250 software titles from a range of labels will be available from 150 outlets at the time of the launch, compared with 465 retail outlets for the players. Blank 60 minute discs will retail for £8.99 with 74 minute discs due for release next Spring.

At present rechargeable battery life is up to an hour for recording and 75 minutes for playback. Socketry includes stereo headphone and microphone jacks, with both optical



Sony's new MiniDisc portable — no sign of Super Mario as yet.

digital and analogue in/outputs. The digital output is post ATRAC data compression and can be used with standard outboard DACs. Like DAT the SCMS copy protection system

will be incorporated on all MD recorders.

For the full story and our first impressions of the format turn to page 18 for a three page feature.

## Rock Solid Bass Boost

B&W subsidiary Rock Solid Sounds Inc has brought out a £200 subwoofer, the *Solid TeamBass*, to team up with its *Solid Monitors* and soon to be launched *Solid Team* speakers. The design can be placed against a wall, mounted on it or hung from the ceiling. B&W even suggests it could make a rather nice coffee table, though your beverages could get shaken as well as stirred.

The unit delivers bass down to 38Hz via 160mm twin woofers side by side in separate cabinets facing downwards. These are vented by twin reflex ports, which are the only things visible when the unit is on the floor. The new *Solid* can handle up to 150W rms and has a sensitivity of 91dB. To enhance the bass imagery from the satellites a second crossover is used between them and the subwoofer, while self-resetting protection is fitted to guard against overdriving. All very accomplished for a coffee table.

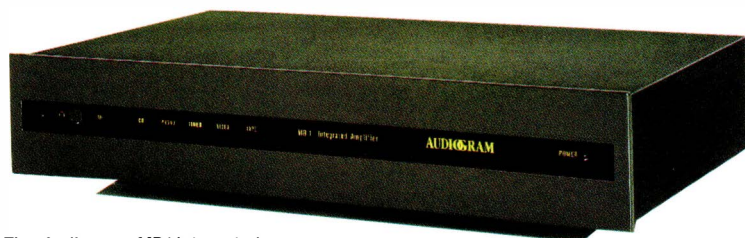
## Aiwa's all British CD players keep price low

New on the market from Aiwa are the *XC-750* and *950* CD players both incorporating Philips SAA-7350 Bitstream DACs. The *750/950* players cost £180 and £200 respectively and Aiwa promises to keep any price increases resulting from the sorry state of the economy to a minimum as it claims a high local component content. The players are manufactured at the Gwent factory.

On offer with these upgrades to last year's *XC-700/900* is a new alloy fascia and a remote control handset which is designed to be used as part of the *Aiwa 950 Remote* system based around the *XA-950* amplifier.

Other features include eight times oversampling, 20 bit linear digital filters, quick peak search, record calibration, 20 track memory, multiple random play, optical digital output, and CD edit. In addition to these, which are standard to both, the *950* incorporates an auto CD edit facility and a digital fader.

Welsh wonders: The new Aiwa *XC-750* and *XC-950* CD players.



The Audigram *MB1* integrated. Is it a Lamborghini among amplifiers?

## Integrated amp from the land of fat opera singers

Italy, home of Pavarotti, spaghetti, Gazza and now the Audigram *MB1* integrated amplifier. This is a new design from the drawing board of Archidee of Pisa, Naim Audio's Italian distributor and makers of audio furniture.

High on the intentions list for the *MB1* are phrases such as user friendliness and reliability. This has resulted in a fully remote controlled unit, and the handset is described as

'virtually unbreakable', due to its aluminium casing.

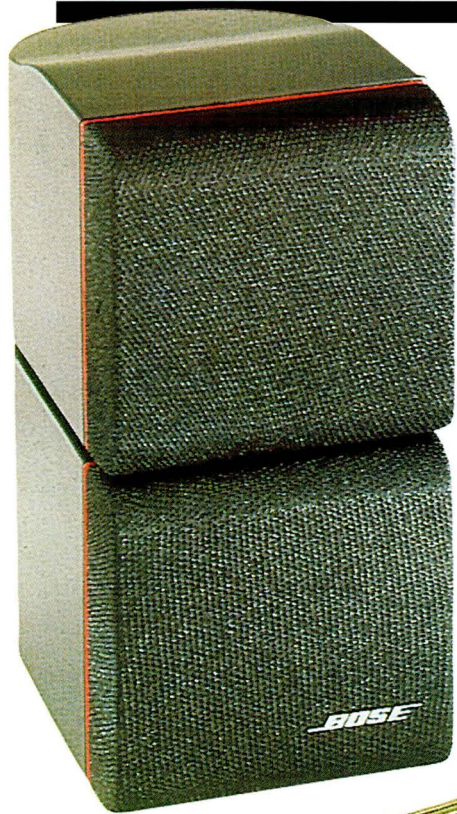
The *MB1* incorporates a double-sided circuit board, with selected components, a specially designed toroidal power transformer, ultra-low noise integrated circuits, HEX FET output devices, film resistors and switched-unswitched 4mm loudspeaker sockets. Available through MPI Electronic UK Ltd, the *MB1* weighs in at £500.

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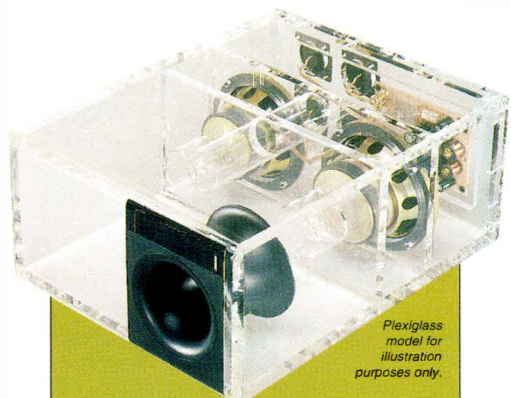


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## A classic turntable for under £200

Thorens has brought out a new turntable to replace its *TD280/UK/II*. At £200 the price has got to be right for the new *TD280/IV* which Thorens hopes will prove a good work horse of a turntable without compromising sound quality.

It comes complete with the new *TP35* arm, semi-automatic operation being achieved by means of a no contact acceleration sensor with a magnetic lift to trigger the end of side stop.

The platter, which weighs 1.2kg, is made from a

New platters for old. Thorens spins the £200 *TD280/IV* turntable.



dynamically balanced alloy casting that has been drilled to cut down on resonances and comes with felt

mat already fitted. The inner platter is made from damped alloy.

A split phase power supply drives the 24-pole twin phase motor, and four op amps generate a 50Hz feed, so that the turntable is not at the mercy of an erratic mains power supply. The transformer is fitted in the mains lead to reduce hum.

This all sounds very promising, and it will be interesting to see if the *TD280/IV* can live up to its predecessor, which proved to be "a first rate turntable at the price" gaining Best

Buy status when tested in *Choice* issue 103.

## ABACAB

*Bruce Rae Audio* has introduced a professional style product to the market in the form of the *ACAB active cable system*. Designed to be used between preamps, especially passive ones, and distant power amps *ACAB* is made up of a transmitter that sits next to the preamp, up to 100m of balanced interconnect cable and receivers at the power amp end. The *ACAB active cable system* consists of a two channel transmitter, two receivers and a power supply. It costs £395 plus £3/m for balanced cable.

Its purpose is to provide a consistent connection that's not open to the vagaries imposed by varying impedances, capacitances etc. The system can be used for high quality signal transmission in round the house systems and removes the need for expensive interconnect cable.

For further information contact *Bruce Rae Audio* on (0827) 715 156.

## What no tag?

Gremlins crept into the works last month and somehow managed to miss the Recommended swingtag off the *NVA DAC-ON* review.

Apologies to *NVA* and by way of recompense we'd like to point out to *QED Digit* owners that *NVA* can upgrade *QED's* budget marvel to full, Recommended, *DAC-ON* status and will give a discount equivalent to the original asking price of the *Digit*.

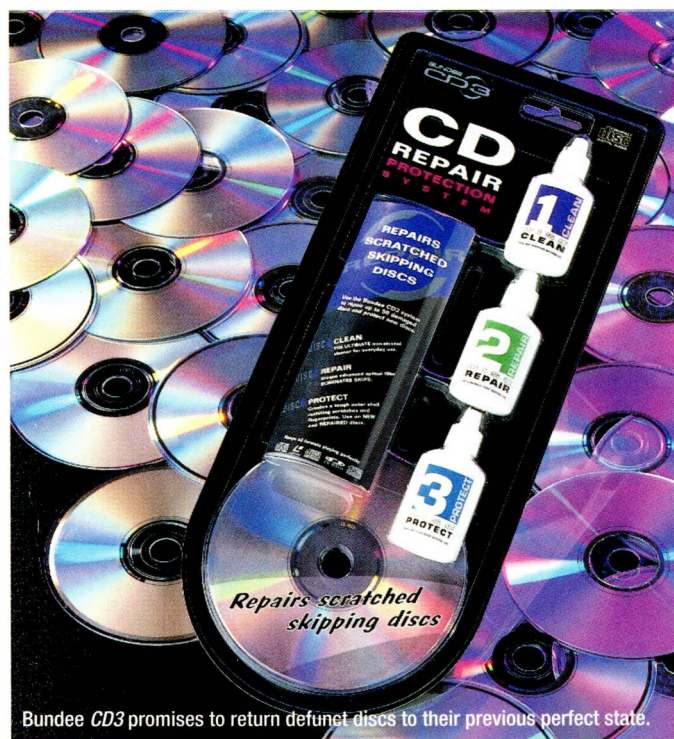
More details of this upgrade offer can be obtained from *NVA* on 0763 272 707.

## Bundee to stop jumping

A new product to repair damaged CDs has just come on the market. *Bundee CD3* claims to restore scratched and skipping CDs to playback quality in three easy steps and will also protect undamaged CDs.

Formulated as one of the lesser results of the Star Wars defence initiative, the first step back to perfection is the removal of surface imperfections, the second step is to fill scratches with an optical filler before coating the disc in a protective film.

*Bundee CD3* can be used on all optical disc formats, it costs £14.95 and is available through specialist hi-fi dealers, car audio retailers and by calling (0895) 436 078 for mail order.

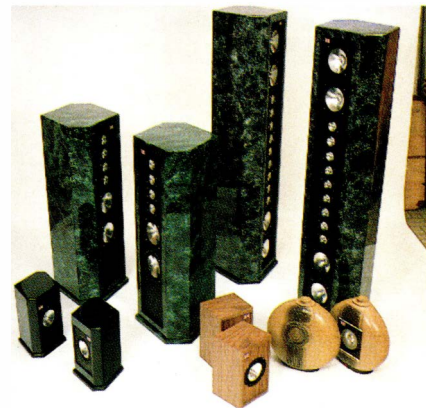


*Bundee CD3* promises to return defunct discs to their previous perfect state.

## New foils for Jordan

*E J Jordan Designs*, specialist in wideband foil cone loudspeaker drive units, has added four new drive units to its range.

The £48 *JX51* is a foil cone mid-high frequency unit with a piston diameter of 51mm and a 100Hz-30kHz bandwidth. The £68 *JX125* forms the complimentary bass unit with a piston diameter of 125mm extending the bass performance down to



The *E J Jordan* company designs not only the loudspeakers, but the wideband foil cone drive units.

25Hz. These replace the *J51* and *J125* drivers.

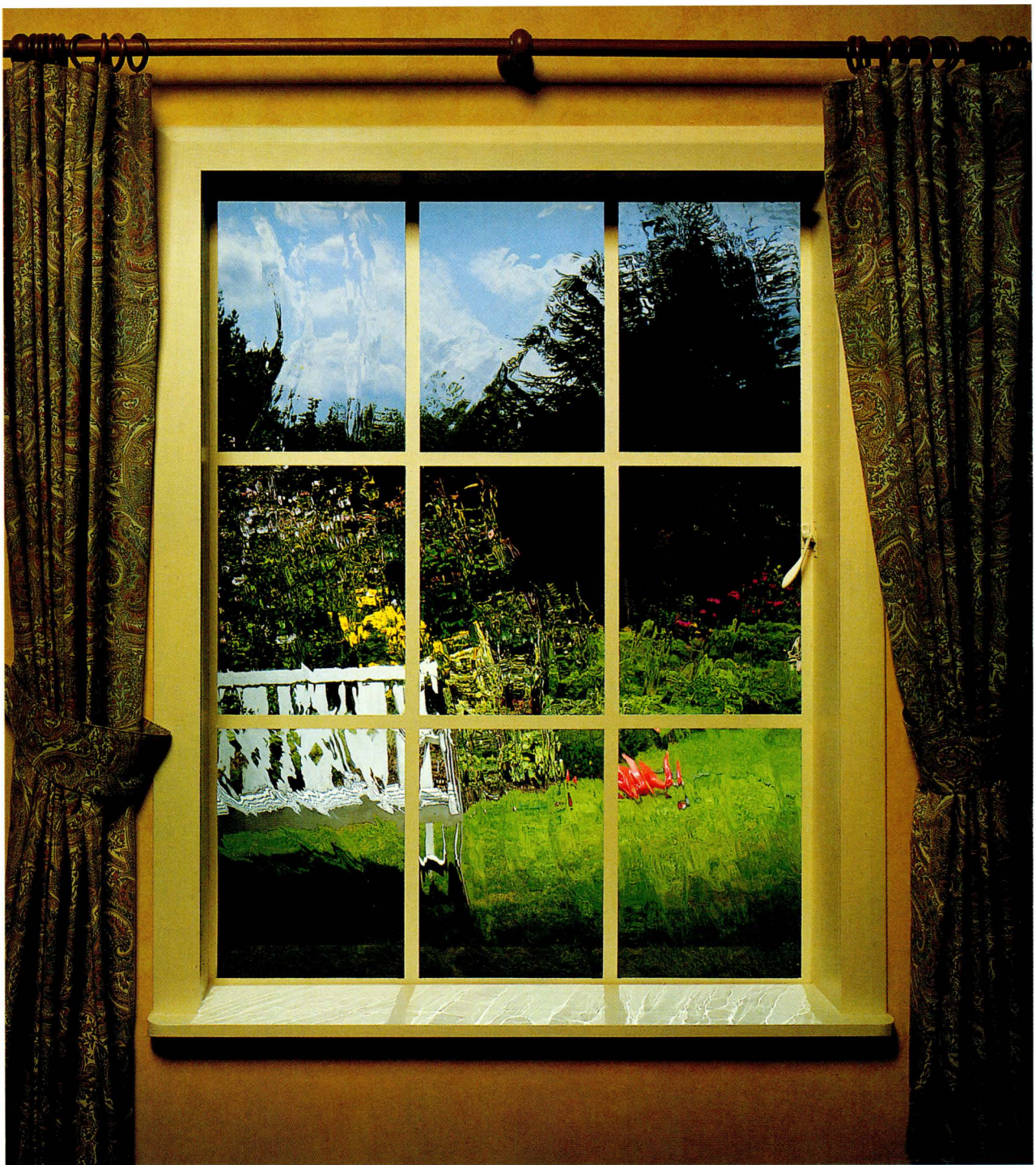
Along with the above *Jordan* has unveiled the altogether new £68 *JX92*, which is designed for use in compact systems as a full range driver. It has a 92mm foil cone and a bandwidth of 45Hz-17kHz.

## Pulling faces

*Philips* has linked up with the nation's most celebrated lampooners, *Spitting Image*, to create a brand new package to add to its *CD-I* software range. *Caricature* is the first creation to come from *Philips'* new studio in Dorking.

*CD-I* is a new concept in home entertainment combining audio, text and graphics under interactive control. Created with the assistance of the *Spitting Image* team, *Caricature* includes a photo library of 100 pictures of the rich and famous from politics, showbiz and sport as well as information on the history of cartooning and tips on how to develop latent cartoon talents. It's also possible to add your own snap shots for distortion via *Photo CD*.

A good laugh and excellent therapy for those who seek revenge on certain political figures. The package retails at £30 and is a fun addition to your *CD-I* software collection.



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# HI-FI CHOICE

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# HI-FI CHOICE

**FEBRUARY ISSUE ON SALE  
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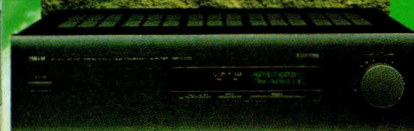
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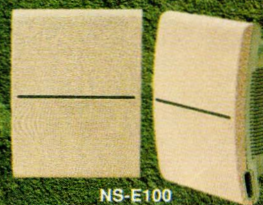
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# Statements

by Jason Kennedy and Alan Sircom

## LUXMAN L-570

**D**espite attempts by numerous distributors, the Luxman name has never enjoyed the sort of success that other mid to high-end Japanese brands such as Nakamichi have managed to cultivate. Although Luxman products have always appeared well made, and some of the amplifiers received Recommendations back in *Choice's* A5 days, its more recent tube hybrid designs didn't prove so successful. The brand is now distributed by the Path Group, with exotic equipment, such as the *L-570* integrated amplifier tested here, handled by the high-end Path Premier wing. The Luxman *L-570* is an integrated amplifier with a few differences, being a 50W class A affair that weighs an unhealthy 30kg and costs a distracting £3,490. It's also rather large by integrated standards, measuring 176x438x467mm (hwxwd). It's as big as many serious power amps but not so big that its feet won't sit on a standard equipment table; I say feet, as its veneered carcass (the top cover is made of wood) is somewhat deeper.

The *L-570* is a liberally equipped beast with a fine selection of inputs and some very nice buttons and knobs. Input socketry is in the main RCA phono and caters for four line inputs, three tape decks and both MM and MC cartridges. It also has a fourth loop for an external equaliser so in effect the *L-570* has eight line inputs, which should keep most people happy. There is a further balanced line input for those CDs or DACs that can take advantage of this option. The speaker outputs are typically Japanese and oriented to bare wire connection; they accept a banana plug but not spade connectors and bi-wiring would be difficult without removing one set of plugs.

It's a very pleasant amp to use. The controls on the champagne finish fascia are all nicely designed with tiny optical fibre type indicators and great feel. Beside the usual options it includes a 'tone compensator' or tone control as they are commonly known, a 'direct' option to bypass the compensator and an off position on the record selector which, if Mark Levinson is to be believed, is a positive contribution to sound quality.

Which brings us round to that rather critical aspect of audio component performance. The *L-570* may put out enough heat to obviate the need for central heat-



One of the smoothest mega integrations on the block, £3.5k's worth of Luxman *L-570*.

ing, it may even have more copper in it than a coachload of policemen, but does it command its pricetag where it counts?

### Class distinction

The *L-570's* sonic character is distinctly solid state style class A. In a nutshell, it creates a large, open soundfield with good midrange clarity and soft bass. It is essentially a nice sounding amp, with a subtle sweetening effect across the band and it rarely makes an unattractive noise even with the most aggressive of material.

Arriving at a satisfactory sound from silver discs wasn't completely straightforward and the Roksan DAC/PS combo that had been working so well with some Audio Note tube amps proved too subtle for the Luxman. It took the relatively hard edged sound of the Marantz *CD12* to inject some definition into the sound. Though the *L-570* has a clear, open balance, it does have a subtle masking effect which softens leading edges and mutes tonal and dynamic colour. It has a higher degree of transparency than average though, proving quite capable of showing up the difference between the balanced and unbalanced outputs of the DAC, and it also maintains coherence at high levels very well, at least with the right CD player. LPs played through the MM input didn't fare so well when compared with a very good tube phono stage.

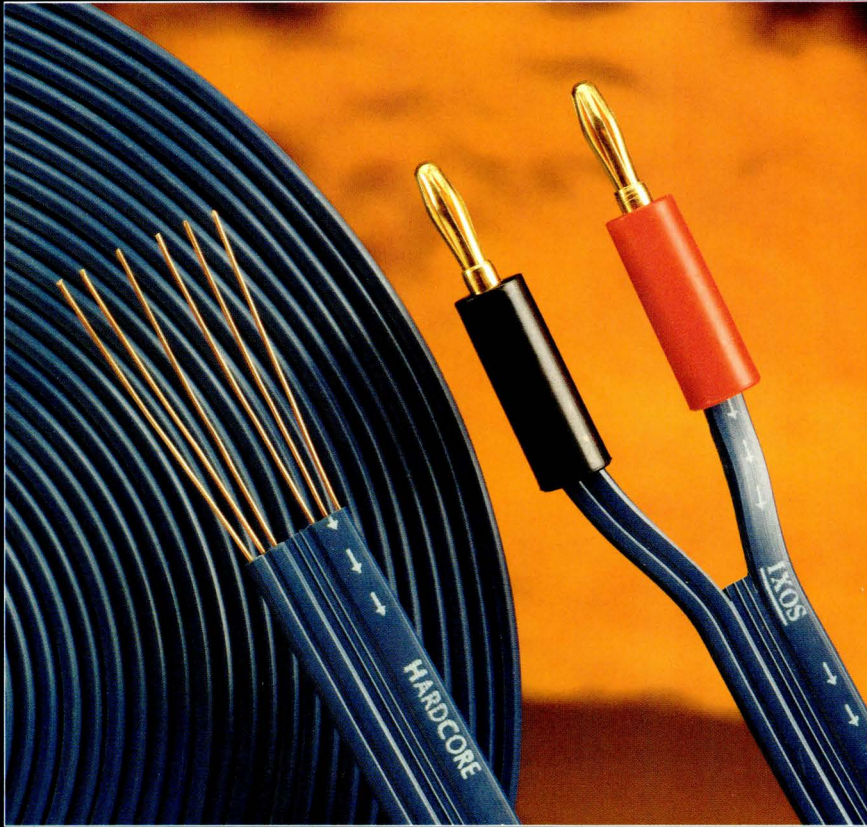
Separation is good, almost very good.

It produces scale in all three dimensions and is quite specific about instrument placement, though absolute focus is a tad lacking because of the aforementioned masking. It was also a lot more definite about mono recordings, which sounded much smaller and, well, more mono than usual.

There were certain areas in which the *L-570* did not really fulfill expectations, the most important being dynamics, or the sense of life, colour and substance in music. The other limitation was a lack of low frequency grip and definition, which is admittedly less common, though some (ie Krell) have achieved it at a price.

The Luxman *L-570* is a very nicely built, well equipped amplifier that offers a glimpse of what can be achieved with class A operation. It will always sound smooth and even but ultimately takes you halfway to audio nirvana and leaves you there wanting more. If it weren't so expensive this could be forgiven but similar results can be achieved with amps like the Copland at under half the price, and you can't recommend a product purely on the appeal of its copper content. However, it occupies a gap in the market and for the well heeled enthusiast who wants the minimum of fuss and a sweet class A sound it is worth considering. The audiophile meanwhile would do better to consider some of the better pre/power alternatives in this price range.

# HARDCORE™ PHONOGRAPHY

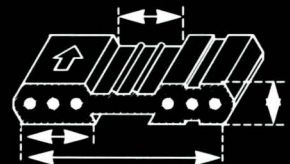


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## TESSERAC AMPLIFIERS

**A** tesseract is a mathematical model of a four dimensional cube. It is also the name of a little known British high-end amplifier company, suggesting that the Tesseract Audio amplifiers add that extra dimension to the sound of your system.

Inside each Tesseract *TAMP-60* monoblok amplifier is everything you would expect to find in a Krell or Mark Levinson, and more. It is the Naomi Campbell of amplifiers; a velvet black British upstart, capable of showing America's finest a clean and sophisticated pair of heels.

The range currently consists of the £1,650 *TAHA* active moving coil head amplifier, powered by a dedicated *TAPS* power supply. This is then connected to the £4,875 *TAP-A* preamplifier, that is itself powered by another dedicated *TAPS* unit and then to the aforementioned 60watt *TAMP-60* monoblok amplifiers, at £6,750.

Unlike most moving coil head amplifiers, the *TAHA* is a specialist high current, direct coupled amplifier. This has been designed to overcome almost all cartridge loading problems. The *TAHA* is also DC coupled for maximum bandwidth, right up to 100kHz.

The *TAP-A* preamplifier is every bit as high tech. All the inputs, bar the phono stage, are at unity gain making the preamplifier virtually a passive design. To allow connection to low impedance power amplifiers or long runs of cables, the *TAP-A* sports a wide bandwidth class A buffer amplifier on both the two output phono sockets and the tape circuit. A great deal of attention has been paid to the phono stage, which is an active/passive design, using a differential cascode formation. DC coupling is used throughout and as such the phono stage is virtually impossible to overload in normal use.

Even the volume control shows this attention to detail. Tesseract was unhappy with all the potentiometers currently available and decided to build its own 24 step attenuator, using 96 metal film resistors in a ladder array, fitted to a high quality gold plated switch.

The *TAMP-60* monobloks deliver 60 watts into eight ohms, the first nine of these watts are said to be in class A. It should also double its output into four ohms, and even into lower loads for short periods. It is a high current design, expected to give up to 20A peaks. Even the driver stage itself is described as a three watt class A amplifier.

It takes a little time for the amplifiers to

warm through, but even from stone cold it is clear that they are something special. Give them a few hours of current and they have that magic listen-till-dawn quality.

They have a very transatlantic sound, in the most positive sense, combining the impressive bottomless pit of power and bass from America with the speed and dynamics of the smaller British designs. There appears to be no loudspeaker that can shake the monoblok amplifiers (1ohm loads aside) and they are capable of showing just how much bass it is possible to extract from a small loudspeaker.

### Close to the edit

At first, the Tesseract sound is somewhat disturbing, as it appears quite bright and hard. Further listening shows that this brightness is pure top to bottom information, without any euphonic warmth, masking or coloration. This level of detail and information is rare stuff indeed, akin to examining the brush strokes of a painting under a microscope, making it easy to spot the edit points in a recording. This level of analysis usually undermines the coherence of the music, but not in the case of the Tesseracs; they have all the fast-paced musicality of the likes of Naim amplifiers and hang together like a good valve amp.

The Tesseracs have a somewhat forward presentation which, combined with the massive amounts of detail, gives them a studio like quality, especially with full-range loudspeakers, where the bass is powerful and full-blooded, yet well controlled. This insightful, essentially neutral character will endear them to owners

of Naim and Krell amps alike, yet they may prove too hard edged for those looking for the rose tinted sound.

The near holographic nature of their stereo performance is similarly outstanding. In my listening room, it turned a pair of small ProAc Response *One S* box loudspeakers into a pair of dirty great panel loudspeakers. At the same time and without planning permission, the Tesseracs appeared to extend the boundaries of the listening room.

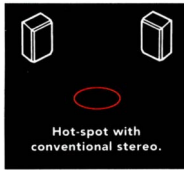
While there is no euphonic magic performed by the preamplifier inputs, it creates some of the most vivid and listenable sounds that I have encountered from both black and silver discs. It appears to get past the perils of digitalis and just plays the music on the CD. On vinyl, it strips away many of the distortions usually attributed to the physics of record replay, to once again justify faith in the superiority of the analogue medium.

My only major criticism is of a slight lack of absolute volume, but this may be more a function of the ProAc loudspeakers than the Tesseract amplifiers themselves. They certainly drove a pair of Audio Note *AN-E* loudspeakers to deafening levels without even the slightest distortion.

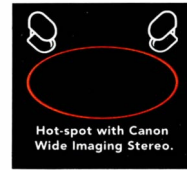
After living with the Tesseract amplifiers for all too short a time, virtually any other amplifier sounds contrived, cluttered and coloured. Unfortunately, there is no way I can afford the Tesseract system as I have run out of members of my family to sell for scientific experiments, so what my discs really sound like will have to remain a fond memory.



Electraglide in black.  
The Tesseract approach to  
amplification aesthetics.



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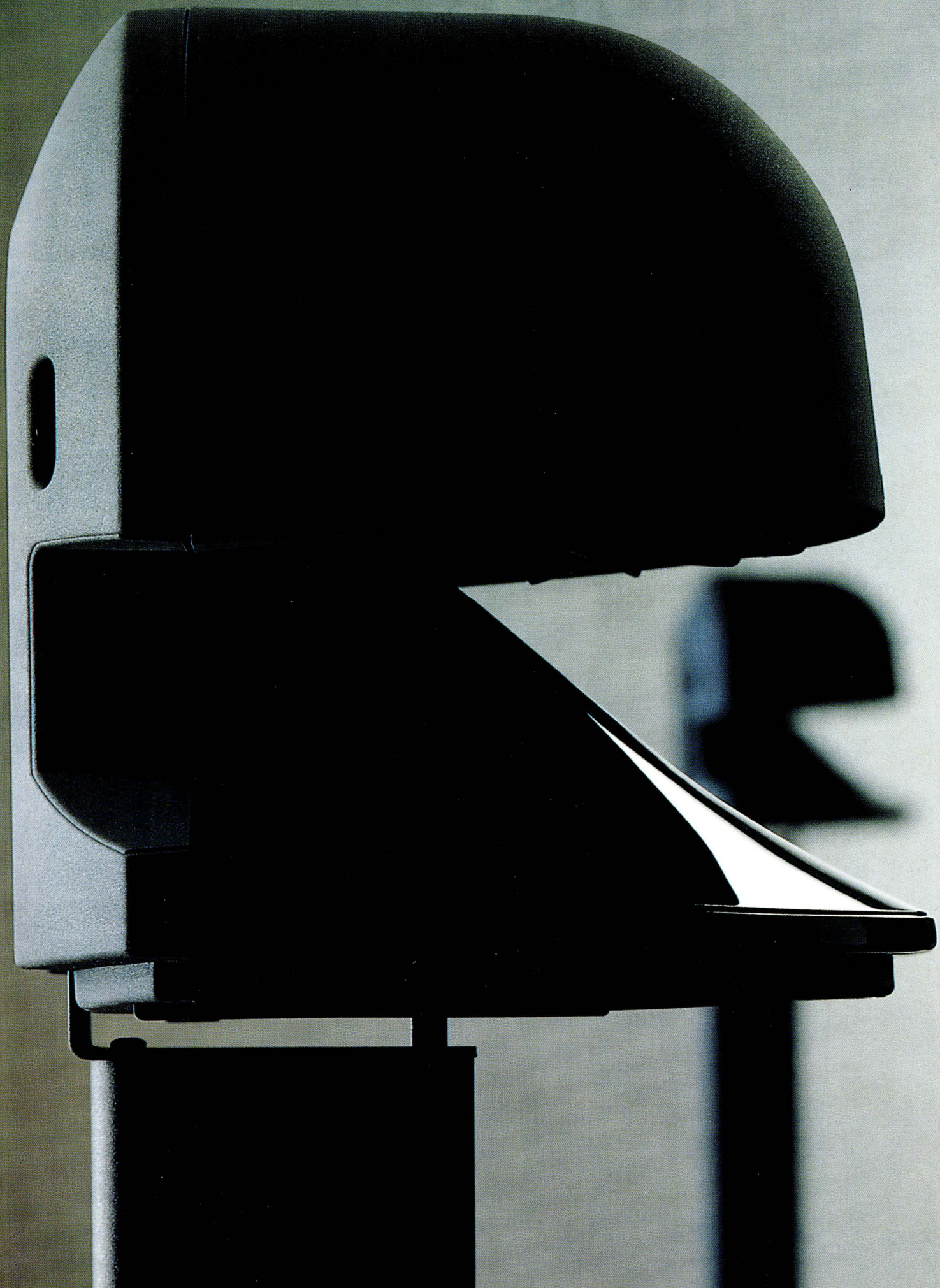
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# MiniDisc, format

The first generation of MD portables has landed. Not only do we have full details of how and



**B**y the time you read this, three Sony MiniDisc models and 250 MiniDisc titles should be in the shops and ready for consumption by the well heeled portable users of the world. Sony launched the first MiniDisc players to the UK press on November 17th, 1992 showing for the first time the £500 MZ-1 personal player/recorder, the £400 MZ-2P playback only portable and the £850 MDX-U1 RDS in-car player/radio. All three are expected to feature a ten second shock resistant memory, which replaces the three second buffer of pre-production models.

We managed to borrow one of the first samples of the MZ-1 MiniDisc recording

Walkman for an all too brief listening session in the *Choice* listening room. Alan Sircom, Andy Benham and I spent a day with the MZ-1 listening to the limited software that Sony provided and experimenting with recordings made via the player's analogue inputs.

Aside from the MZ-1 the playback only MZ-2P MD Walkman is much like a top flight Discman except that its three mode LCD dot matrix display shows titles and track names and of course it has a shock resistant memory. Features include bass boost, a neater than average rotary cue/review switch and plus and minus ten track skip function.

The MDX-U1 RDS in-car head unit

plays a single MiniDisc and operates as a control center/DAC for Sony Unilink CD autochangers. It incorporates a 4Mbit shock resistant memory, CD style track accessing logic and the display options available for the personal players alongside those for the RDS radio and CD changer.

## The MZ-1 unveiled

The MZ-1 seems a pretty chunky machine (38x114x139mm) by the standards of today's cassette personals. It feels more like a top of the range CD personal but weighs significantly more at 719g including the 16g disc. Playing discs is pretty straightforward, just like a CD in fact except its

# of the future?

whether it works but we've also had a chance to listen to it.



logic is similar to early generation players. To access a specific track you have to key in the track number and then press enter/repeat, but keying in track numbers above nine is a simple matter of pressing the keys in quick succession rather than reverting to a 10+ type button. It has track skip and cue/review keys, a play mode button for encouraging it to play just the one track, play the disc in random order or allow you to programme up to 21 selections.

What this and presumably all MiniDisc players have that sets them apart from other personals is a multi talented LCD display capable of revealing artist and album name as well as individual tracks,

assuming that the software has the information in the first place. There seems to be a degree of uncertainty about whether record companies will universally use this text facility, let alone whether they will produce MDs, but that's another story. The fact of the matter is that with the discs supplied, the MZ-1 showed the information mentioned above along with elapsed time, track number and output level on a basic meter. One surprising glitch turned up in the form of a disc being ascribed the track names from the previous disc. The player's logic system read the TOC (table of contents) information relating to track time and location but was still using the track names from the last disc it had

played. This only happened once however, and it's probably safe to assume that Sony will iron the problem out in future production batches.

Perhaps a little gimmicky but potentially handy is a date and time option that is driven by a separate battery. This is a necessity as the onboard rechargeable is only going to last you 75 minutes at best.

The MZ-1 has a variety of sockets onboard including minijacks for a microphone and headphones and a new dual function socket that serves both digital optical and analogue minijacks for line in and out purposes. This involves using a new type of optical plug which can be purchased separately complete with op-

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tical cable and TOSLINK plug on t'other end. Sony was unable (so we were told) to supply one in time for this preview and subsequently we had to make our recordings via the *MZ-1's* ADC. This wasn't the best start it could get on the recording front.

Making recordings is reasonably intuitive and Alan managed to figure out how to dub CDs without referring to the manual, though it took a bit of page flicking to assess that the AGC button effects automatic gain control for analogue recordings. It has an unusual style of sliding record button which starts up the recording process after a while. To get any precision into the act it's necessary to press the pause button first. Stopping record-

ing automatically sets it into TOC edit mode whereby it inscribes track length etc into the table of contents.

Titling your recordings is also fairly straightforward. You need to remember what order to press the various buttons in, but once again the intrepid Sircom managed to get something down without resorting to the largely Japanese manual. Each of the 1-9 track buttons can be used to access one of three letters and the 0 button gives you a space so writing out a 16 character title might prove to be a lengthy process.

We didn't have enough time to try the user dividing/combining option. This allows you to split up a long piece of music into different tracks or name indi-

vidual songs on an analogue recording. In the latter case, it cannot tell where one track ends and another starts, so if you want to enter individual track titles you need to put in your own divisions. You can also rearrange the order of adjacent tracks if it appeals to you and erase any divisions that you don't want.

## Conclusion

Ultimately, I think that Sony's MiniDisc system is in dire need of some more thought before it can be considered viable. For applications such as in-car and personal use, its virtues are self-evident. However, its comparatively jog-free abilities aside, the format lags behind in terms of sound quality by today's standards.

# MiniDisc - sonic first impressions

## Jason's impressions

We listened to the *MZ-1* in a system composed of a Musical Fidelity *A120* amplifier and Audio Note *AN-J* loudspeakers, and compared it to both domestic (Meridian *206B*) and portable (Philips *AZ6819*) CD players. Unfortunately we couldn't get hold of a decent personal cassette player in time for the session. We made analogue recordings and compared like for like CDs and MDs with the limited selection of MD software that Sony lent us for the test.

My initial impressions with unfamiliar material in an unfamiliar system/room situation were that MD was not particularly inspiring but possibly not a lot worse than CD, a bit bland and undynamic with limited bandwidth. However, as listening progressed and comparisons with the CD portable were made it became clear that the new medium was not all that one might have hoped. Its most significant shortcomings seem to be limited bandwidth at both ends of the spectrum and distinctly unnatural treble detail. The latter characterised by a tizzy, splashiness that made cymbals and horn sections sound synthetic in a nasty way. Basically, any HF natural acoustic sound was distorted. Non acoustic highs also suffered, but in a more subtle manner that was revealed by the long term discomfort factor.

The effect of the low frequency curtailment was to rob music of body or substance; bass lines lacked weight, voices lost three dimensionality and the sense of drive in up tempo pieces was severely curtailed. That said however, the lack of low bass meant that the midbass had a cleaner environment in which to produce the rhythms that make your toes tap.

On the positive front, the *MZ-1* makes quite an open sound with the right material which can't be said of many cassette personals. It also has typical digital stability when it comes to imaging. The image lacks the depth of CD, but is laterally quite effective with reasonable height, though discs with loads of ambient detail lost a lot of space. Listening to both portables (MD and CD) via the Sony in-ear phones supplied disguised most of the new format's limitations. When the transducer has a limited bandwidth such matters are insignificant, likewise when the transducer is devoid of dynamic capabilities it won't show up any differences. Even the HF splash was played down by the less than spectacular phones.

So in the context for which this player was designed, it is pretty much on a par with a £300 personal CD player. Of course, it also has a ten second buffer so you can abuse it significantly more than any CD personal. This facility worked very well; unless you really tried it was very difficult to upset the machine at all. Being inveterate couch potatoes we didn't have a chance to try it but it

may even be possible to jog with the *MZ-1*, which can't be said of any CD personal. However, using the earphones supplied I'd be surprised if a good personal cassette player didn't sound much the same, and it doesn't need an anti-jog buffer.

## Alan's noises

As Sony seems to be pinning its future on MiniDisc, one would expect great things from the format. Based on reaction to the first players in the country, Sony has little right to be complacent and one can't help thinking that MiniDisc is going to be the latest great Sony failure, joining Elcassette and, in the domestic arena at least, Betamax.

If it does, the advertising campaign will likely play on MiniDisc's cute appeal. The MiniDisc software itself is about the size of a Nintendo *Game Boy* cartridge and looks foolproof. However, although the MiniDiscs themselves are small, the packaging for the prerecorded discs is slightly larger than that of a compact cassette, defeating the object somewhat. Being shaped like a computer diskette gives the MiniDisc high-tech credibility, while its standpoint as the first domestically available digital, non tape based music recording format gives it a unique selling point.

But it is the sound quality of the first samples that will be of prime importance, when set toe-to-toe against DCC. Unfortunately, the launch models proved to be rather disappointing. MiniDisc puts the 'compression' into 'data compression'. Music that normally is respected for its open sound, such as the Bonnie Raitt track *Luck of the Draw*, on the sampler disc, simply sounded like a poorer, flatter cover version. This flatness appears to affect the player throughout; flatness of image and soundstage, together with flatness of musical performance.

Moving from track to track on the sampler, it was clear that few had the life or the dynamic range of the same recording on other formats. Each track, presumably chosen to highlight a particularly positive aspect of MiniDisc's performance, instead pointed to failings in diverse areas. Aside from the Bonnie Raitt track, Bruce Springsteen's *Human Touch* showed the MiniDisc's comparative inability to remain rhythmically coherent, culling the pace and drive that Springsteen is best known for. Even the ceiling-banging effects during the introduction to Michael Jackson's *Black or White* lacked dynamics and force, while Gary Moore's *Cold Day in Hell* stood a cat in hell's chance of stirring the blood, and Simple Minds' *Alive and Kicking* was neither.

Analogue recordings made from the Meridian CD

player fared little better. The Virgin Classics recording of Biber's *Mystery Sonatas*, recorded on period instruments with a very obvious and spacious acoustic, failed to convey a large proportion of the ambient information present, in the manner of a £99 cassette recorder. In addition, the peaky, scratchy nature of the instruments took on an artificial screechiness; close to the original, but creating a completely different instrument tone.

For easy listening, especially on the move, this aspect of the MiniDisc's performance could be a boon. Listening to George Michael or Gloria Estefan while bowling along the M4 or taking the dog for a walk does not involve the sort of critical listening employed at a concert or at home with the hi-fi. Here, the convenience of the small, jog-free MiniDisc wins over many existing formats.

As such, subtle classical music is probably not to be the staple diet of MiniDisc software, especially considering the Sony Music Entertainment rock artistes on the sampler. But regardless of music, from hardcore jazz to The Pixies, with a liberal sprinkling of Frank Zappa, it fell well short of the standards set by a good analogue cassette, such as Sony's own *Walkman Pro* portable cassette recorder.

The *MZ-1* MiniDisc player was not supplied with a digital link, so all recordings had to be made in the analogue domain, via the *MZ-1's* built-in A/D converter. If the material being recorded had plenty of peak level programme, such as The Pixies' *Doolittle* CD, or *Possession* by God, whole instruments simply disappeared. On the God track *Pretty*, for example, I lost at least one sax player and two-thirds of a drummer. Any music that had the combination of a high level recording and plenty of ambient information, such as Zappa's *The Best Band You Never Heard In Your Life* was doomed to failure. The recording that we made of this was lacking in any spatial information, or drummers — it seems to pick on drummers when recording in analogue mode. Recordings made in the digital domain should perform better.

As our tests were completed, *The Sunday Times* published the results of its listening test, with a panel of eight listeners including the former national heritage secretary David Mellor and people from all branches of the music business. The panel listened to samples of music on five formats; MiniDisc, Digital Compact Cassette, Compact Disc, vinyl LP and compact cassette. While DCC scored very highly on the listening tests, MiniDisc's sound quality was suggested to be on a par with the compact cassette it is intended to replace.

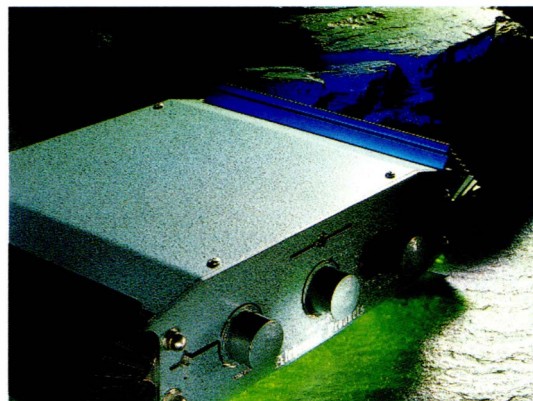


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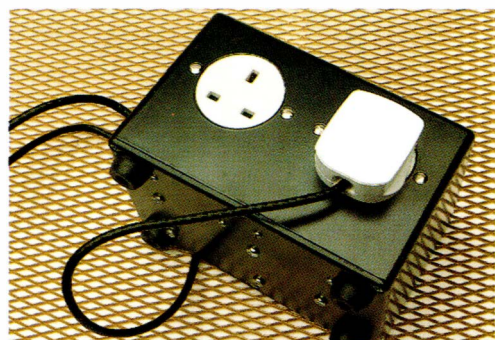
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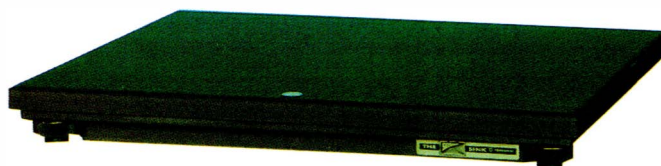
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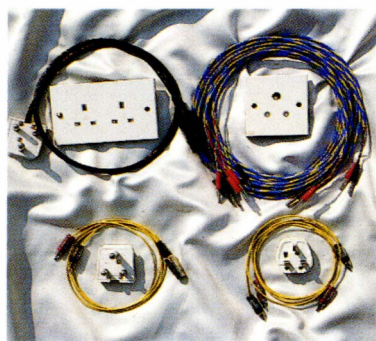
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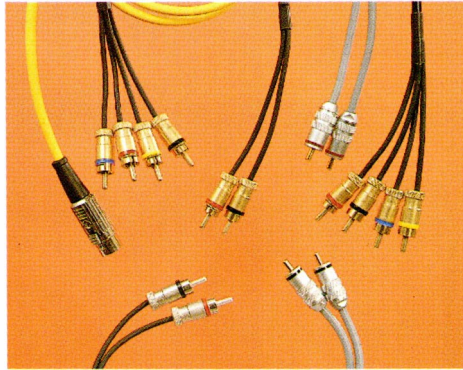
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## LESS NOTES



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# Tokyo Audio Fair

Dan Houston reports from Sunshine City, Tokyo, where this year's Audio Fair found the Japanese majors in some confusion about whether to back DCC or MD.



In many ways the Tokyo Audio Fair sets the course for hi-fi throughout the world during the coming year. And this year is a special one. The compact cassette, we are constantly being told, is about to be replaced by something digital. The hype over MiniDisc or Digital Compact Cassette (MD and DCC) has been well recorded by *Choice* since both systems were mooted more than a year ago. Players and software should reach the shops before Christmas and then only time will tell which, if any, is best.

Sony is clearly hoping to repeat the success it had with the *Walkman*; and is marketing the portable, jog-free, neat-package appeal of MD, with its fabulous editing facilities, in a similar manner. MD is non-linear and non-contact like a CD and the magneto-optical discs promise a one million times re-recordability. TDK has just launched its first 60 minute MD at 1,400 Yen (around £6). The problem with MD is that it is compatible with nothing.

Conversely Philips, Panasonic and Marantz DCC machines have a composite digital and analogue head which plays both DCCs and existing compact cassettes. They are marketed as home recording devices with only standalone players being produced at present. If you want to make tapes for your car or personal you'll have to wait.

The drawback with DCC is that it is a linear, tape based format which hasn't addressed all of the problems with cassettes; spooling to the end of a tape still takes time and there will still be problems with dirty heads and pinch rollers. An important aspect here is that the DCC drawer mechanism is flat like a CD player. If, on occasion, you like to

play that filthy old pre-recorded analogue ferric, which leaves the heads a rusty brown colour, you'll have to use a decent cassette-style cleaner. There is no access to clean the heads with cotton buds and alcohol — nor will you be able to see how dirty they are.

Any hope that the Audio Fair would demonstrate some leadership from the industry as to which system most companies prefer, proved unfounded. Would there be Japanese support of MD, in solidarity with Sony? On the other hand, could Matsushita, which owns the Panasonic and Technics brands, and which helped Philips in the final stages of DCC's development, be persuading them that the tape medium is best?

Neither assumption prevailed. Instead Kenwood, Pioneer, Aiwa and Denon were all showing MD and DCC products side by side. Most companies had one or other prototype player but the field seemed clearly and evenly divided. The players they have differ little from what Sony or Philips are making; JVC's DCC deck, for example, was a rebadged Philips *DCC900*, strangely finished in a light brown sand texture paint. It appears that many Japanese companies are sitting very firmly on the fence to see which way the market goes before they invest in researching and developing either format.

At present Sony, Sanyo and Sharp are all supporting MiniDisc and are actively making products. Conversely, Philips, Matsushita and Marantz are behind DCC, with Marantz' nearby Kanagawa base being the only factory making the machines.

But it isn't just DCC and MD which are making a bid for the title of future home digital



Sony's MiniDisc: Japanese audiophiles are still sitting firmly on the new format fence.

recording format. Many companies had fifth generation DAT machines on show, in the belief that the physically smaller Digital Audio Tape now offers a serious alternative for the hi-fi buff. Pioneer, as part of a series of Wide Range components, launched its £560 *D-07* DAT deck which offers 96kHz sampling, making it capable of reproducing sounds of over 40kHz, something theoretically comparable with the very best analogue systems. With portable recording players designed to sit in the home system or in the car, together with a competitive blank tape price, the only negative aspect of DAT is that it has little backing from the recording industry (which uses it most).

Nor should CD-Recordable be overlooked. Kenwood was showing its *LZ14* prototype CD-R player next to MD and DCC machines, allowing the public to hear the respective formats for themselves. At present the higher power eight milliwatt CD-R laser diodes cost more than £100 each,

but Kenwood envisages the price dropping as demand gathers pace, and says eventually CD-R players should cost around 20 per cent more than a normal CD player. "We believe audiophiles will buy CD-R," said Mr Makoto Oka, Kenwood's president. Recordable CDs which use a reflective layer that can be 'phase changed' to accept new information are a realistic future aspect of CD-R, bringing it into line with DCC, MD or DAT. However, CD-R is prohibitively expensive at present with most players, such as Pioneer's *RPD 1000*, costing around £4,000.

Almost in a scathing response to the digital activity elsewhere, Teac launched a range of three head cassette decks priced from £160 to £420 for a Dolby S model. "Dolby S offers CD sound quality," suggests Teac. Elsewhere the gorgeously finished £2,000 *Esoteric X-1s* Teac CD player, with its redesigned rigid disc clamping system, shows that



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## TOKYO SHOW REPORT

engineers are still working to improve CD technology

An aspect of this could be seen with the five inch disc as a video format. Both JVC and Panasonic were demonstrating the technology so far with sound and moving colour pictures. Considering the Green Book Full Motion Video standard was only set a year ago, progress has been rapid. JVC's film of a girl walking along a sea shore showed a surprising lack of 'digital noise' but details were very blurred. Picture encoding in real time is one of the main hurdles left to cross in this exciting new area. Nevertheless the system was on sale for around £6,000.

In Japan, CD player sales have reached a plateau as consumers embrace Laserdisc players which play both audio and Laserdiscs. Audio-visual systems are being promoted by most companies, with LD players, surround sound processors and packages of AV loudspeakers to turn the home into a cinema.

Yamaha's stand featured an AV demonstration with staff on a small stage explaining the role of its digital sound processors and Dolby Pro Logic. The company is a well-known pioneer in the field and has added to its range of surround sound amplifiers with the *AVX-2200DSP*, a £900 model featuring new DSP circuitry. The more expensive Yamaha products, discernible by their wooden end cheeks, were all being shown in silver this year. The eye catching £1,400 *GT-CD2* top loading CD turntable complements the pervading colour schemes with the entire top half of the case veneered in wood.

In general, silver products were more prevalent but this also reflected a leaning towards more expensive hi-fi. Most firms showed ranges which hardly reflect their UK presence.

The Marantz rooms were a shrine to the state of the art and contained long shelves showing just the new *PM 90* amplifier, *CD 15* CD player and *DD92* DCC deck. Key components were displayed on a central dias which made much of the designs' use of copper for shielding electro magnetic and radio frequency interference. The products include such goodies as a new internal op-amp designed to complement DAC 7.

Even in the middle of a recession, Ken Ishiwata, Marantz' Senior Product Manager, told me that home market sales were projected at between four and five thousand units a month, both for the £2,500 CD player and amplifier.

There were many large loudspeakers from the West on show, including Tannoy *Westminsters*, and Martin Logan and Infinity models. But, contrary to popular opinion, the Japanese do make loudspeakers and these

*LS500G*, made in Germany.

There were also several neat satellite and subwoofer packages on display. Two of these are from Onkyo's *Torino* range, consisting of three inch square satellite cubes with a larger bass unit. Both systems are veneered in wood and designed, at £240 and £450, to provide discrete sound for ordinary stereo or to complement larger loudspeakers as the rear channel effects in an AV set up.

Onkyo was showing these



Two newbies from Kenwood: the *LZ-14* prototype CD-R player and the *LA-1* integrated amplifier.

were on show to compete with the American and British best. Stax has finished its six feet high horn loaded electrostatics, dubbed the *Elhos 1* and selling for around £5,600 each. Yamaha's colossal *GF-1s* loudspeakers were on display in a glass cabinet the size of a shop window. Around the finished model were its gold plated and gold coloured entrails — an effort no doubt, to explain the £28,000 pricetag

At more down to earth levels, JVC showed a range of wood veneered loudspeakers, starting with the diminutively elegant £100 bookshelf *SX300s*. Mitsubishi's Diatone loudspeakers included a range priced from £220 to £6,000.

In common with the AV theme of the show there were several subwoofers on offer — an eye-catching example being Kenwood's huge snail-like £2,000

with a complete lineup of silver separates such as a £220 CD player and a £280 surround sound processor in a lifestyle range it has called *Liverpool*, with a range of wood veneer furniture to house it. The brochure shows the *Liverpool* home with TV atop such furniture and a microphone trailing to Onkyo's Laserkaraoke machine.

With companies like Sony and Pioneer being involved in technology outside home entertainment it wasn't surprising to see a great deal of In Car Entertainment at the show. Pioneer had set up three front seat 'driving' booths (with all but a steering wheel and gear stick) to demonstrate its *Carozzeria* systems. These consist of entire In Car AV rigs which take TV signals as well as bootloads of CDs. One can already see bored drivers gridlocked in the Tokyo

rush hour tuning in to their favourite chat shows with a six inch screen mounted on the dashboard; it's not illegal in Japan. But if this doesn't keep them awake they can always install a Pioneer in-car karaoke machine.

The Pioneer lineup includes a GPS (Ground Position Satellite) navigation system to show you where you are on a screen map. Several data CDs such as Tokyo and All Japan are now available which not only give position but allow you to access information on nearby hotels and facilities. Pioneer's £920 system, the *GPS V7*, now allows you to orient the screen map according to your travelling direction by compass.

The satellite aerials for these systems are little bigger than a soapdish and Sony was showing its hiking or yachting equivalent, the £900 *Pyxis*, which uses four AA batteries, is little larger than a *Walkman* and can be slung on a handy cord around the neck.

With the major Japanese companies aiming towards smaller, neater and more obtuse electronics, one might suppose the purist hi-fi theme was lost here. Far from it. With over 70 different stands there was representation from around the world, including many valve amplifiers ranging from the homegrown Audio Professor and Sun Audio brands to the imported Quicksilver, VAC and McIntosh models. The number of turntables on display was surprising, from heavy set models by the Japanese majors to Roksans and Revolvers. Like some sonic jeweller, Denon had a cabinet displaying cartridges with the new £320 *DL-S1* taking pride of place.

As such, the show reflected the diversity taking place in consumer electronics. There was purism next to gadgetry; analogue dovetailing digital.

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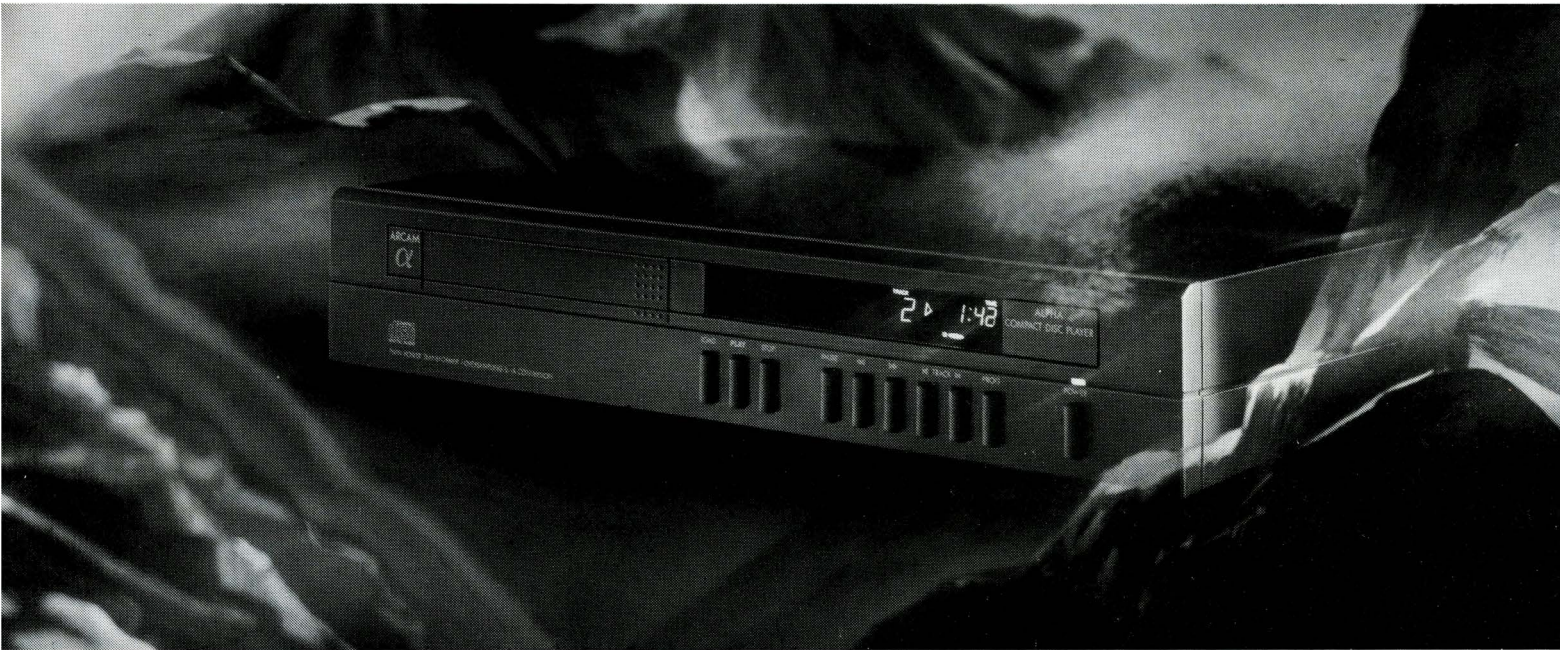


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## Searching for the vinyl solution

For several years now I have purchased your journal on a frequent basis, finding the articles interesting, informative and presented in such a manner that the technical emphasis does not become jargon (or too simplistic). This successful balance ensures the interest of the non-technically minded reader (ie, myself). But it's your reviews and recommendations that I have come to trust and employ, I am delighted to say, to my benefit. And it's to you that I turn again, for what hopefully will be simple advice.

In a nutshell my problem is this; my system at present comprises of a Marantz CD-75

(still going strong after five years), amplified through the delightful Pioneer A-400 and Tannoy M20 speakers. A combination I find (at present) most satisfactory.

The problem arises, however, when I use vinyl as a source. The turntable I have is a Dual CS 503-1, and when played through the said system the sound is positively flat and lifeless.

I don't really want to purchase a new turntable as my vinyl buying days have all but ceased, yet with a large quantity of the said medium at my disposal I have no desire to 'give up the ghost' completely. Paul Bennett, Ipswich, Suffolk.

**Isoda  
Interconnect  
Cable  
Winner**

*I can appreciate that it seems illogical to spend money on what is no longer promoted as a mass market medium, but on the other hand you have a good record collection which is capable of giving you a great deal of pleasure in the hands of a good turntable. I would suggest that you make the effort to listen to a few of the better budget turntables, ie Systemdek, Rega, Thorens, and consider what they could do for your collection. I think that you will be surprised at the vibrancy and musical communication that they are capable of. Who knows you may find that you enjoy the medium so much that you end up buying second-hand vinyl instead of high priced CDs, thus covering the cost in the long run.*

## Getting inside

The front end of my system comprises a Rega Planar 3 turntable, fitted with Rega's RB300 arm and a van den Hul re-tipped Denon DL-103 cartridge. This is connected to a Lentek preamplifier and a Copland CTA-401 power amplifier. I'd like to make real improvements to the turntable in order to obtain even more detail.

I'm looking for a turntable in the £500-650 price range, on which I would like to install an SME 3012R pickup arm. Somebody has suggested the Thorens TD 521. I like to get 'inside' the music. Jordi Milia Romero, Barcelona, Spain

*There are few turntables that can support an arm like the 3012. Aside from the 521, I can't think of any other surviving models that can cope, short of those made to special order. Perhaps you are setting your sights a little too high, especially as the RB300 that you use at the present is a truly superb performer.*

*I would suggest looking at the Michell Gyrodec (£595), Pink Triangle Little Pink Thing GTI (£535), the Roksan Xerxes 33 (£595) or the Linn Basik Sondek (£599), fitted with a Linn Akito (£137) arm. If you want upgradability, the Linn and Roksan are superb, while the others are more complete packages.*

Want to get to the inside out of the music? The Roksan Xerxes 33 is a good contender.



## Finding yourself stuck in the muddle

My system is as follows, Rega Planar 3/Roksan Corus Blue turntable, Technics SL-PG200 CD player, Rotel RA820BX2 amp and Tannoy DC3000 speakers.

I am concerned that the amp may be letting the system down, it sounds good in the mid and treble but lacks definition in the bass which is rather muddled and resonant.

Would a more powerful amp such as the Audiolab 8000A

offer improvement in this respect?  
G Pearce, Cwmbarn, Gwent.

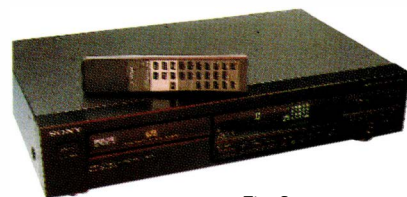
*In a word, yes. Though the DC3000 is an efficient loudspeaker it has a current hungry impedance characteristic and you'll have great difficulty in cajoling it into defining low frequencies with an amp like the 820. The Audiolab is a good option, one of the best in its price bracket if it suits your*

*taste, but don't discount the Cyrus II (£350), Rotel RC/RB-960BX pre/power combo (£150/£180) and the Pioneer A-400 (£250). All of these amps will be able to control the DC3000's bottom end but they offer different sonic characteristics for you to choose from.*

*You could also fill the speaker's base with a mixture of lead shot and sand, this is a cheap but effective tweak as far as bass definition is concerned.*

## City of tiny buttons

Having wanted a hi-fi system for a while, and not knowing very much about the choice of systems available, I'm looking for some advice. I don't want a turntable or radio and I don't like the thousands of tiny buttons found on mini systems.



The Sony CDP-397: one CD player to consider in the quest for a sparsely-buttoned budget system.

I'm looking to buy a twin cassette deck, a CD or possibly a DCC, with amplifier and loudspeakers and I'm not fussy about the brands. I'm willing to spend around £600, give or take £50. L Cowen, Cleveland.

*First of all a couple of points that cry out for clarification. Digital Compact Cassette, and MiniDisc for that matter, are designed to be a replacement for the tiring analogue compact cassette format, not Compact Disc. With CD's dominance in the current market, it would perhaps be folly to opt for DCC as your prime format this early in its development.*

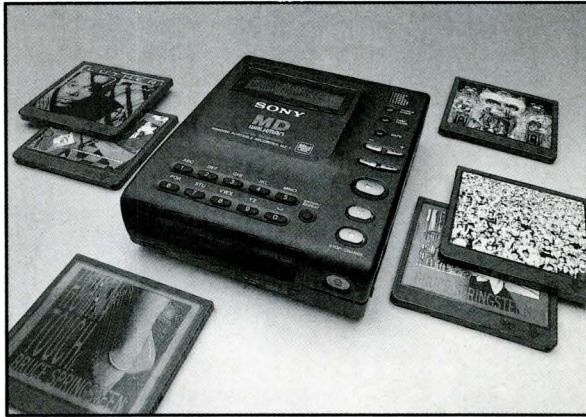
*Secondly, are you absolutely sure about needing a twin cassette unit? Aside from the £200 Denon DRW-650, few dual players approach the quality of a good, but lesser priced single deck. Unless such a facility is vital, I would plump for the cheaper Aiwa AD-F410 (£100) instead.*

*With your remaining £500, look at Compact Disc players such as Aiwa's XC-700 (£180), Sony's CDP-397 (£140) or the Technics SL-PG200A (£160).*

*Combine any of these players with a Harman-Kardon HK 6150 (£160) or Rotel RA-930BX (£160) amplifier and a pair of Allison AL100 (£120), JPW P1 Vinyl (£135) or Tannoy 605 (£150) loudspeakers. This should certainly form the basis of a fine system.*

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## Clear, detailed and smooth

My current hi-fi system comprises: Linn Sondek LP12 Valhalla/Mission 774 arm/Linn K9 cartridge, Nakamichi 1.5 Cassette Deck, Arcam Alpha CD player, Naim 42/110 amplification, Mission 770 loudspeakers.

This is located in a fairly small room (18ft by 18ft) and my musical tastes are varied, but mainly rock/pop and classical. Most of my musical collection is on LP, but I am increasingly having to buy CDs these days.

I am generally pleased with the way the system sounds, but sometimes find the upper midrange slightly harsh, particularly with CDs played at highish volumes.

I have around £600-£700 to spend (perhaps more for a really significant improvement) and am thinking of replacing the speakers I want wall mount speakers with a clear, detailed and smooth sound with good bass extension and power.

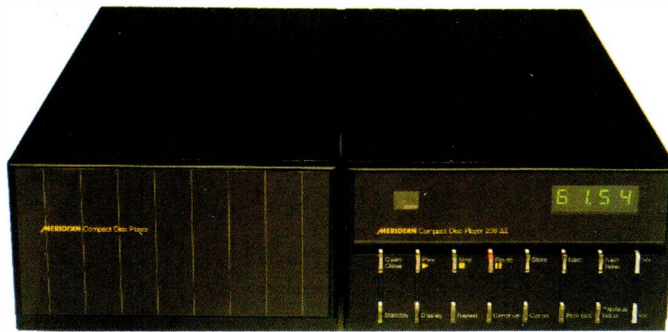
Having looked at various hi-fi magazines the following seem to be possibilities: Audio Note AN-J,

Castle Chester, Epos ES14, Rega ELA, Rogers Studio 1a, Ruark Talisman, SD Acoustics SD4, Spendor S20 and TDL Studio 1. S J Clifton, Potters Bar, Herts.

*Of the loudspeakers mentioned, I would tend towards the Epos ES14 and Ruark Talisman designs to suit your current system. My favourite would be the floorstanding Talisman, as the stand mounted ES14s were designed around the Naim NAP 250 power amplifier; the humble NAP 110 may well run out of*

*steam quickly, which could make the system sound bright at high listening levels.*

*Ultimately however, if the CD player is sounding bright, then this is what needs to be attended to. As good as the Alpha CD patently is, you are comparing a LP source that would cost over £1,000 today against a £450 CD player. To get similar performance to your turntable, look at £1,000 plus designs such as Meridian's 206, Naim's CDI, Linn's Karik or two-box players from companies like DPA Digital or Roksan.*



Meridian's upgraded 206 could be the ultimate, if budget-stretching, answer.

## Straight to the point of the problem

**Present system:** Marantz CD50SE, Denon DRM-710, Marantz PM50, KEF Quattro (C15/200SW), Audioquest Topaz, QED 79 strand.

**Musical taste** (in order of preference): Jazz, reggae, rock, classical, soul.

**Budget:** £1,000

**Room:** 10x14ft

**Aim:** To upgrade system and attain best possible sound for budget.

**Faults of present system:**

Unbalanced sound, not enough bass extension/control, limited

midrange clarity.

**Options considered:** CD players; Meridian 206B, Ariston Maxim CD3, Marantz CD72. Amplifiers; Audiolab 8000A, Rotel RC/RB980BX. Speakers; Epos ES11, KEF 101/2, Monitor Audio Monitor 14. Advice appreciated. B Howe, London W11.

**Advice:** Find a helpful dealer and encourage him to demonstrate some of your options.

**Your options:** Meridian 206 has just been upgraded to

**Delta/Sigma status and now uses Crystal chip, note that Ariston is no longer in business and servicing will be a problem.**

**Recommended options:** Replace speaker cable with Mission stranded, try larger speakers such as Audio Note AN-J (£800), Mission 753, Castle Chester.

**Substitute Moth Series 30 for the Rotel combo you list. Consider the Audio Innovations Series 700 integrated tube amp for midrange clarity and LF welly.**



The Moth Series 30 modular amplification system: a straightforward solution to a short-winded audiophile's dream?

## A midi system's Waterloo

**Being disappointed with the sound quality of the turntable on my midi system I want to start afresh with a system to accommodate my collection of well worn Abba LPs. I have a budget of £500 with which I want to purchase a turntable, amp and speakers, can you help?** Michael Silcox, Gwent, Wales.

**We sure can. Even though you are undoubtedly claiming to be an Abba fan for the street cred, any chance to enlighten a music lover to the potential of good record players cannot be ignored.**

**The good record player that suggests itself in this instance is the Rega Planar 2 (£185), a classic deck that's capable of fine results if sited on a wall bracket (Rega makes one for about £40) for isolation purposes. Get your dealer to fit a Rega Bias (£34) cartridge to the deck and audition it with a Marantz PM-30 amplifier and Allison AL-100 (£120) or JPW P1 Vinyl (£135) loudspeakers. Buy some good cable and speaker stands with the change.**

## Sho' nuff

My system comprises a Marantz CD52, Pioneer A-400 and Tannoy 609 speakers. I am thinking of buying a Rega Planar 2 turntable and by the time that you read this, I probably will have done so.

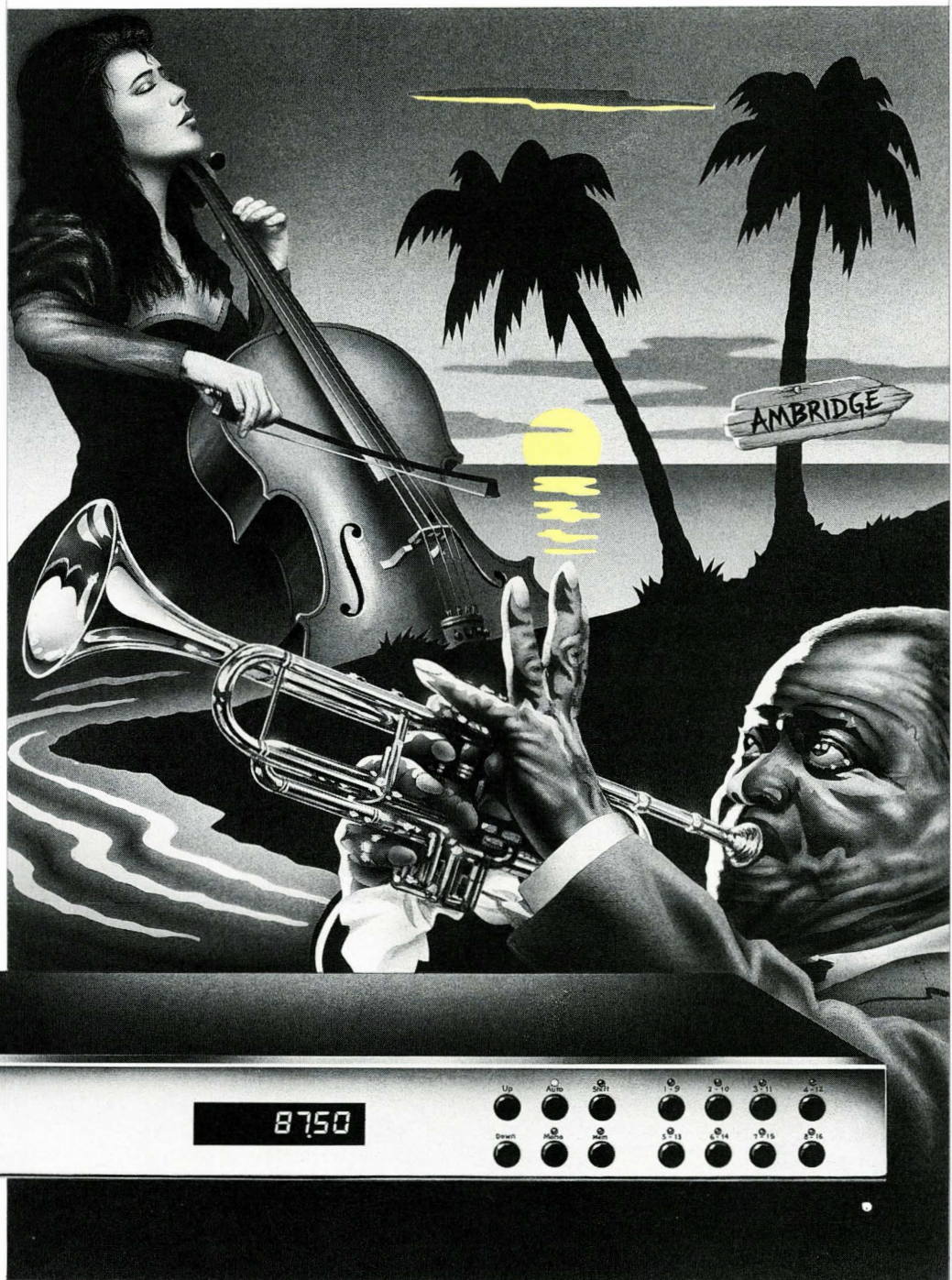
I was impressed with the review of the Aiwa AD-F810 cassette deck. This being a three headed machine, I was sure that I would get the best out of my albums. But upon inspection of my A-400's instructions, was surprised to read that online monitoring when recording from phono stage to cassette is not possible. Can this be right? Is this true for all amplifiers?

Mark Samuels, Wolverhampton.

*Sadly, the A-400 does not have the ability to monitor tape when using the phono stage. During its development, the engineers discovered that the sound quality of the phono stage was improved by not being a part of the tape monitor circuit. As far as I know, this is unique to the A-400.*

*The simple way around this problem is to use the headphone socket of the AD-F810 cassette deck to act as a tape monitor circuit. Although this seems like a roundabout method, it's effective.*

# Shut your eyes and see what's on the radio...



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## Converting to Compact Disc and R Lord

I was interested to read the test reports on CD players in the November issue of your excellent magazine as I have recently purchased a Pioneer PD-S801. As a long term vinyl user (40 years) and endeavouring to use a good quality sound system, I have recently become converted to CD. My reason for finally caving in was a demonstration of the Pioneer player. I am extremely pleased with the open sound and, crucially, a lack of the 'digital' quality so often heard in CD players over the past ten years. I have never been a user of esoteric equipment, preferring to settle for kit that gives me the sound I am happy with.

I have a modified Quad 405, 34 preamp, Quad FM4 tuner, Roger's LS3/5A speakers and REL Acoustic Bass Controller. The latter provides stunning bass and severely tests the



The Pioneer PD-S801: converting the long term vinyl faithful to the silver disc sound.

'weighty bass' of the Pioneer CD player, which comes through with flying colours. I would also take issue with your panel members who described the Mozart CD as screechy and fierce. This is not my experience, the CD in question sounds superb.

I have been a regular reader for some years now and have detected a somewhat hostile reaction to the use of sub

woofers in high quality sound systems. While this was undoubtedly true until recently, I would urge your readers to listen to the excellent units manufactured by Richard Lord and his team in Wales. They are truly magnificent, stunning, wonderful and they really let you hear all the lower frequencies captured on a modern recording, be it CD or vinyl. Alan J Hird, Dundee.

## Hard pressed to buy British

In yet another forlorn attempt to win your monthly record token, I wonder if I might raise an aspect of the digital versus analogue debate (remember that?) that I have yet to see mentioned in print.

Whenever I look at a record, which is about every 45 minutes, it almost always says 'Made in England' on it. When I look at a CD, which I admit isn't very often, it either says 'Made in Holland' or, more frequently, 'Made in Germany'. Does anyone press CDs in this country, if not why not?

This is quite a serious issue. With the country in a deep recession, but still suffering from the sort of chronic balance of payments deficit one would associate with an over heated boom, it surely cannot help if an economic sector the size of the music industry goes over completely to imported products.

I have always tried to support British goods and have always found them superior. I have a British car, an all British hi-fi — I wish the Linn Ekos wasn't made in Japan — etc. . . . And at the moment I buy British records. But this is getting ever harder to do, except, amazingly, in Germany, and it looks as though soon I might either have to buy foreign CDs or stop buying music.

I buy records simply because, to my ears, they sound much better than Compact Discs, but it is beginning to look as though analogue is not just better, it is patriotic. David Woolliscroft, Manchester.

*It's true that a lot of the CDs, and LPs for that matter, sold in the UK are made in Europe. There are pressing plants in this country, however, most notably that run by Nimbus which makes a lot of 'audiophile' recordings.*

## Speculative spending — Rest In Peace

In September 1991 I took out a two year *Choice* subscription. At the time you were offering lots of free goodies to tempt the punter — I was tempted — and have not regretted it.

Apart from the free interconnects and speaker cables, there were various discount offers, one of which was a CD booklet containing vouchers enabling me to purchase 25 CDs at an impressive £8.49 each. Because of this luxury I have rediscovered my youth (record buying wise), and for the first time since the advent of the silver disc I have been able to speculate, something I couldn't do before because of the staggering price of the product.

Gone were the days of browsing through the record shelves, buying albums by bands

I hadn't heard of and thinking little of the damage to my pocket, it was just the sheer pleasure of discovering new groups.

These days I seldom buy music by unknowns unless they have been recommended by friends or reviewers, I'd not want to throw away £13-15 on something that could be awful. I realise I could probably listen to the disc in the shop but I need to listen to an album at leisure and more than once to make up my mind, that is, if you can find a shop willing to play it in the first place.

Surely if the price of CDs was lowered then people would buy more and even take the occasional risk, giving the unknown artist a fair crack of the whip, which in turn could lead to an even wider choice.

A C Jeanes, Bristol, Avon.

## Keep it in the family . . . room

*I feel sure that some of your readers, like myself, find difficulty in resolving the conflicting demands of hi-fi listening and domesticity. Hi-fi addicts are — in spite of indications to the contrary — human beings, many of whom must combine their hobby with the requirements of a family in one lounge/listening room. Thus the ideal arrangement of hi-fi equipment, especially loudspeakers, has to be compromised.*

*In my own case the room is 17 by 11 feet with the speakers banished to corner shelves at the ends of the 17-foot wall, four feet six inches above the floor. This is hardly ideal, and certainly not in accordance with the maker's recommendations. In spite of this my Spendor SP2/2s sound OK, but on the rare occasions on which they can be brought down onto stands they do sound infinitely better.*

*Are the circumstances I have described experienced by other readers, and if so, what are their solutions? Are there other loudspeakers which might have sounded better in the room corners than the SP2/2s at about the same price?* Alan Russell, Ashted, Surrey.

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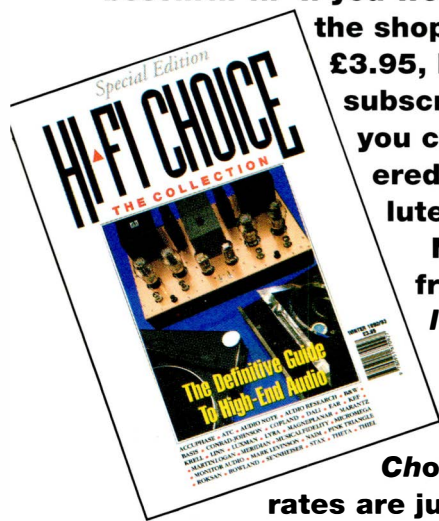
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2. Onkyo's lifestyle system for the Japanese market is named after a British city. Which one?
3. What can you do while driving a car in Tokyo, that is illegal in Britain?
4. How long is the anti-jog buffer in the Sony MZ-1 MiniDisc player?
5. What acronym does Sony use for its data compression system?
6. How much does the Luxman L-570 amplifier weigh?

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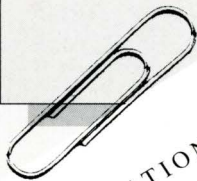
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# 21st Century Fox

I shall be fascinated to see what fellow hacks write about a recent visit to the Bose loudspeaker company's HQ at Framingham, near Boston.

Bose is hugely successful. In value terms, the company is a world leader. But not in the UK. Hence the trip. As a long time Bose watcher I was less surprised and frustrated by the lack of information than first timers. But it was still an irritating experience, like interviewing the CIA or talking to the Pentagon. I wonder how any company can expect favourable press coverage when it bans the use of cameras but provides no photographs with which to illustrate articles, and sends visiting journalists back to the UK without even giving them the paperwork which was promised. A full week after we had got home, there was still nothing.

Its reaction to criticism was also rather different. The company seemed more interested in defending its indefensible policy of selling the *Lifestyle* convenience hi-fi system without Long Wave radio reception than hearing the reasons why LW is so important in the UK and France. The suggestion that someone who has paid the high price of a Bose *Lifestyle* system should then put a cheap portable radio alongside it to hear the BBC on LW is plainly absurd.

So is the last ditch explanation given us, "As soon as we are successful we will make the change".

## **This month Barry Fox gets the blues with Bose in Boston and discovers some rather adverse adverts courtesy of Philips.**

Equally puzzling was Bose's reaction to the point made that the trade, press and public are confused over which Bose product can be used with what type of amplifier. Some need a line level input while others plug direct into a power amplifier like conventional speakers. On the flight back to the UK the confusion remained, and still without any clear data sheets to clear up the matter.

It seems a classic missed opportunity that the Bose active speaker system with bass enhancer, which takes a line level input, cannot be switched to connect with the output of an amplifier and thus work (like QED's now discontinued *Midimate*) to crank up the level of a TV set with limited power output.

An active system with input switchable between line and loudspeaker level drive would let people with a stereo TV set get much higher quality sound and meatier bass with all functions still under the control of the TV set's infra-red remote. Distortion is reduced because the TV's amplifier can be run at low level. All this would mate nicely with Dr Amar Bose's own stated philosophy that the most important step for audio/video is to improve "what comes out of the TV set". Speaking as someone who has tried using a QED *Midimate* between the weedy power speaker outputs of a Nicam stereo TV set and a pair of B&W speakers, I know the result. People wonder how the TV is producing such good sound, without a hookup to the hi-fi system.

## **How to get ahead in advertising**

In late 1990 Philips ran adverts for Bitstream CD players in the national and specialist press. The whole point of the adverts was that they looked and sounded high-tech. Unfortunately the content was absolute gibberish, which just made Philips look silly.

Philips had entrusted the work to giant ad agency Ogilvy and Mather who told me they had checked the content "hundreds of times" with Philips before publishing. Philips had a different story. By the time an engineer had seen the adverts and immediately spotted the mistake, it was too late and too expensive to alter them.

Everyone got very upset when I wrote about this, but that did not prevent the same garbage appearing again in Spring 1991, in Philips' advert in the programme for the Federation of British Audio's Awards Dinner. Now we have a fresh round of garble. One of Philips' adverts for DCC is a double page spread, headed "*Mysterious ways by U2*", which shows two pages full of digital ones and zeros.

"What you see here represents only the first 4.7 seconds of the piece", reads the advert. Inevitably someone with a little time on their hands counted the number of digital bits on the two pages and called me with the news that the numbers did not add up. I checked, (it is not that difficult if you just count columns up and down) and he is right. The numbers are not just a little bit out, they are completely and utterly wrong.

Philips' spec sheet gives the audio bit rate for DCC as 384 kilobits/second. A computer kilo is 1,024, so that puts the number of bits per second at just little under 400,000. Therefore, the number of bits needed for 4.7 seconds of U2 is 1.85 million.

And how many bits are there in the advert? Just 42,000. So the numbers are wrong by a factor of 44. Hardly a small slip. I phoned Philips' advertising agency, Ogilvy and Mather, reckoning they might remember me from last time. Apparently not. I asked how they had calculated the numbers. It was a *deja vu* of don't-know buck-passing between 'account executives' who never did get back to me with an answer. So I asked Philips' Head Office in Eindhoven. It was there that the advert had been hatched. Once again, as in 1990, it seems, someone had spotted the mistake, but too late to do anything about it.

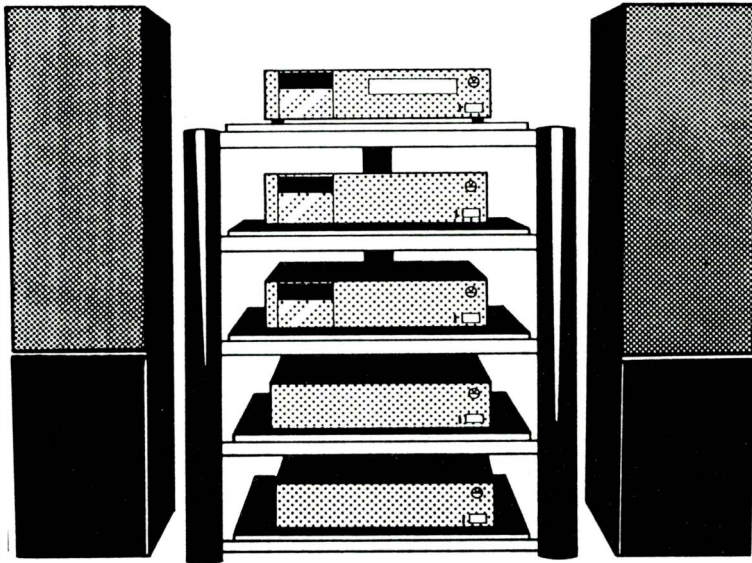
"Yes we did check" says Eindhoven. "But we felt that the original message had the right style, creativity and impact — in the end it just sounded right as originally scripted. We do not believe that the exact number of 1s and 0s would be relevant to the average, healthy, happy minded individual".

It would have been just as easy to have been accurate as wildly inaccurate. But instead of saying "what you see here represents the first tenth of a second of U2's *Mysterious Ways*", which would have been correct, Philips preferred to devalue a supposedly technical statement by saying "4.7 seconds", which is hopelessly wrong. I wonder whether Philips will adopt the same liberal attitude to technical accuracy if a reviewer or journalist is wrong by a factor of 44 when quoting the price or performance of a DCC deck.

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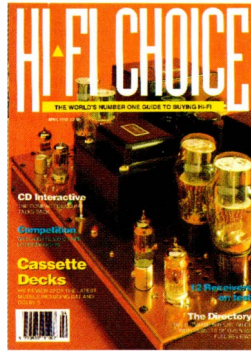
All the issues you wish you'd never missed. Here's how to order back numbers and binders for your copies of *Hi-Fi Choice*.



February 1992 - Issue 103  
DIGITAL TO ANALOGUE CONVERTORS and turntables and cartridges



March 1992 - Issue 104  
AMPLIFIERS and satellites and subwoofers plus CD tweaks and a free That's a tape



April 1992 - Issue 105  
CASSETTE DECKS and receivers plus Compact Disc Interactive (CD-I)



May 1992 - Issue 106  
LOUDSPEAKERS and CD personals plus explanation of recordable CD (CD-R)



June 1992 - Issue 107  
CD PLAYERS and phono stages plus DCC review and free tweaking supplement



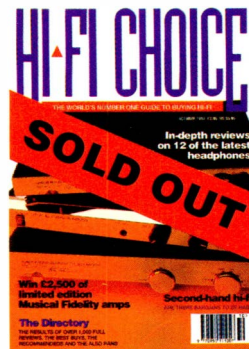
July 1992 - Issue 108  
SEPARATES SYSTEMS and tuners plus wide screen TV and free cables supplement



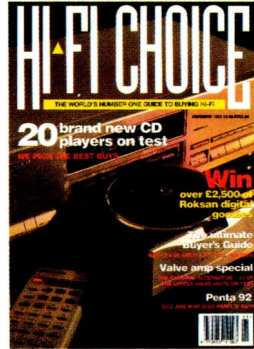
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AMPLIFIERS and part 2 of our tuner survey plus CD-I and free loudspeaker cables guide



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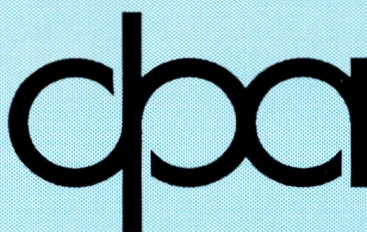
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However, rave reviews are not just the exclusive domain of DPA's PDM2. Hi-Fi World, on the PDM1 S3 said "Any enthusiast who wants the best from CD at a reasonable price

should consider (the PDM1)." What Hi-Fi, Nov '91 said ..."the Bigger Bit is set to destroy all its competition." Our amplifiers are equally well respected with Hi-Fi Choice saying of the 50S pre-power ..."unmatched detail resolution, control and transparency."

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# Choosing and Using . . . loudspeakers

**T**he first step on the road to choosing your loudspeakers is to specify requirements. It is possible to do this on a basic level checking the price, size and intended location. But there are real benefits for those prepared to take a little more trouble. With a little care, the assistance of the data in this issue, and the cooperation of a skilled retailer, the end result can be much more worthwhile.

Those buying speakers will have a good idea of the money they have available, which is the bottom line of any purchasing decision. But there is — and always has been — controversy over the proportion of a budget that should be devoted to loudspeakers, vis a vis that spent on the other components.

When setting the loudspeaker budget, it is vital to allow sufficient funds for a decent stand or support, and good quality connecting wire.

While a magazine can assist in presenting the alternatives that are available, it is only through

## **Thinking of buying speakers but don't know where to start? Let Paul Messenger be your guide.**

skilled demonstration that an individual can be confronted with the different but equally valid options to make an educated choice for himself. At the time of writing I am temporarily living with a £1,000 system which suits me very well, but which certainly represents one extreme. It consists of a £600 turntable with £200 amplifier and £80 loudspeakers on £100 stands. At the other extreme, another audiophile could enjoyably combine a £500 remote control multisource midi system with £500 worth of high performance, low coloration loudspeakers and stands. But unless one has the opportunity to hear the difference between these two very distinct approaches, how can one possibly have any basis for making a choice?

The site chosen for loudspeakers is often as influential as the choice of loudspeakers themselves. Over the years I have used open stand locations, both with conventional box speakers and panel types, and also stand-mounted wallbacked designs. Each has its own strengths and weaknesses and imposes its own characteristics on the sound, so again personal preference enters into the equation.

Having chosen the siting, one may then choose the loudspeakers and stands to suit. Alternatively, choose the speakers you like in the shop and then move them around at home until they sound to your taste.

The end result comes from a complex interaction between the loudspeaker, its support, its site, the acoustics of the room, and the general characteristics of the driving system. This interaction is rarely entirely predictable. For those intending to spend a fair

amount of money, it is not unreasonable to expect the luxury of a home demonstration, and/or the option to return and change a pair which do not suit after a day or two.

For any given budget there is an obvious choice between large or small loudspeakers. One instinctive reaction is to favour the big one, particularly if it has lots of drive units, but others will plump for a miniature or compact on aesthetic grounds. In fact the differences and trade-offs are more far reaching.

## **Bass extension**

Fundamentally, the larger the box the more extended the bass is for the same specific loudness. Ultimately a good big'un is going to beat a good littl'un on loudness and bass extension. But it is also going to cost a great deal more. The large enclosed volume remains the route to extended bass, and this in turn adds 'weight' and 'scale' to the sound. But it can also reveal the low frequency inadequacies of the sources, be they the equipment or the recordings themselves.

Big speakers suffer from several innate disadvantages. Large box enclosures are expensive to build and ship, and represent an undesirably large surface area of unwanted radiation, which can colour the sound and blur stereo precision. Extra drive units do increase power handling, but bring problems of crossover complexity and unit integration.

Little speakers can prove more fragile if used for the occasional party, and are certainly not at their best when trying to recreate the power and drama of rock or a full concert hall acoustic.

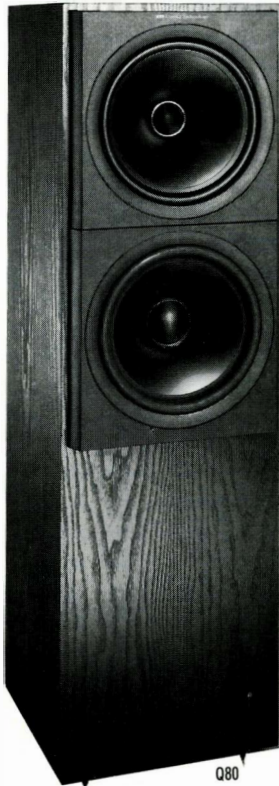
Given the number of different models competing for attention, manufacturers make much of the uniqueness of their particular brew. As a result the industry has become riddled with buzz words to describe any single type of engineering solution, and this leads to the sort of stereotyping which entirely misses the point of loudspeaker engineering.

Examples are legion, from the bextrene bass/midrange cones of the early Seventies through to the latest metal dome tweeters which are currently springing up everywhere. The result is that people talk of a 'metal dome sound' as something desirable (or not) per se, whereas in fact there will be a whole range of different metal dome sounds, in all probability some distinctly more 'equal' than others.

The underlying axiom is that great speakers are not created by adopting a quick technological 'fix'. Indeed, history has often shown that the 'radical innovation' is a mere flash in the pan, with benefits in one area more than offset by penalties elsewhere. Technology has improved the performance of loudspeakers over the years, and some innovations have proved decidedly worthwhile. But the whole is much greater than the apparent sum of the parts, and the buyer would do well to bear this in mind.

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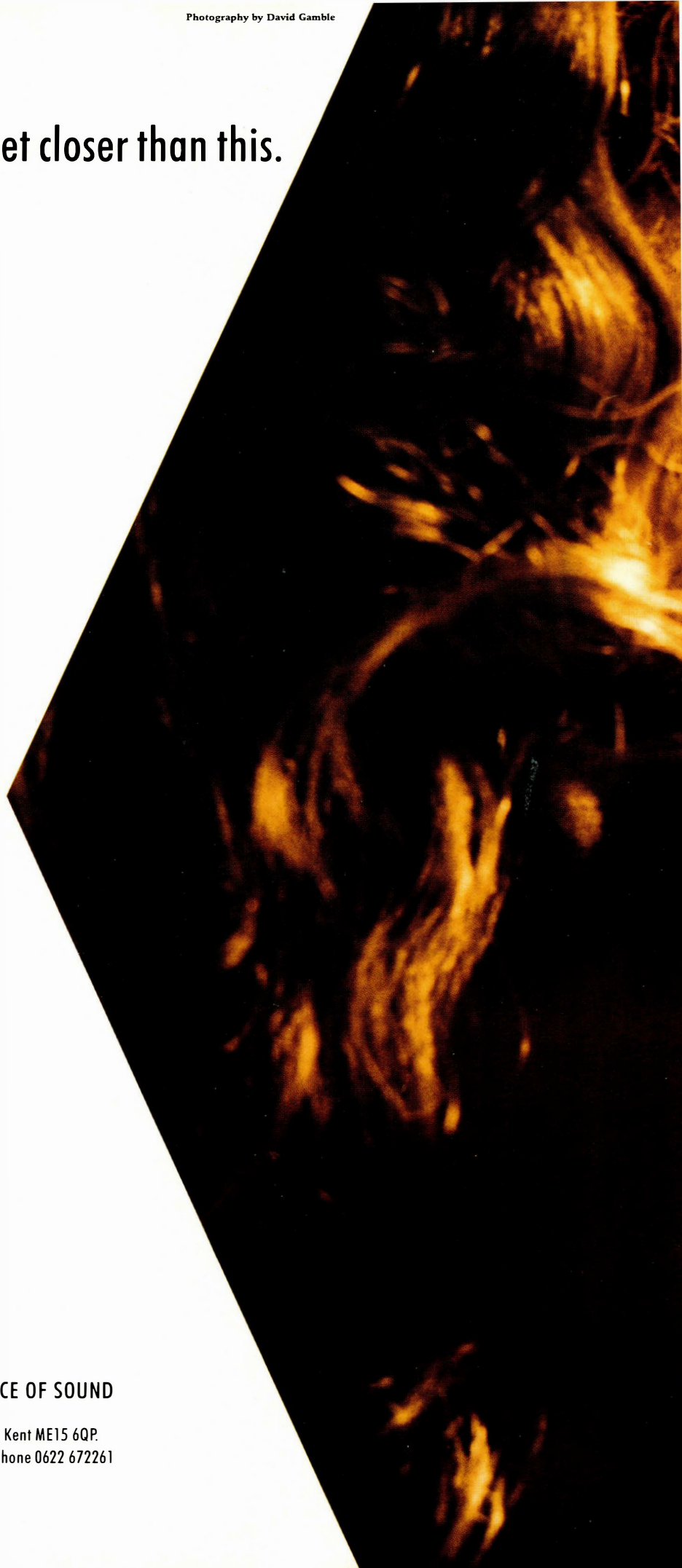


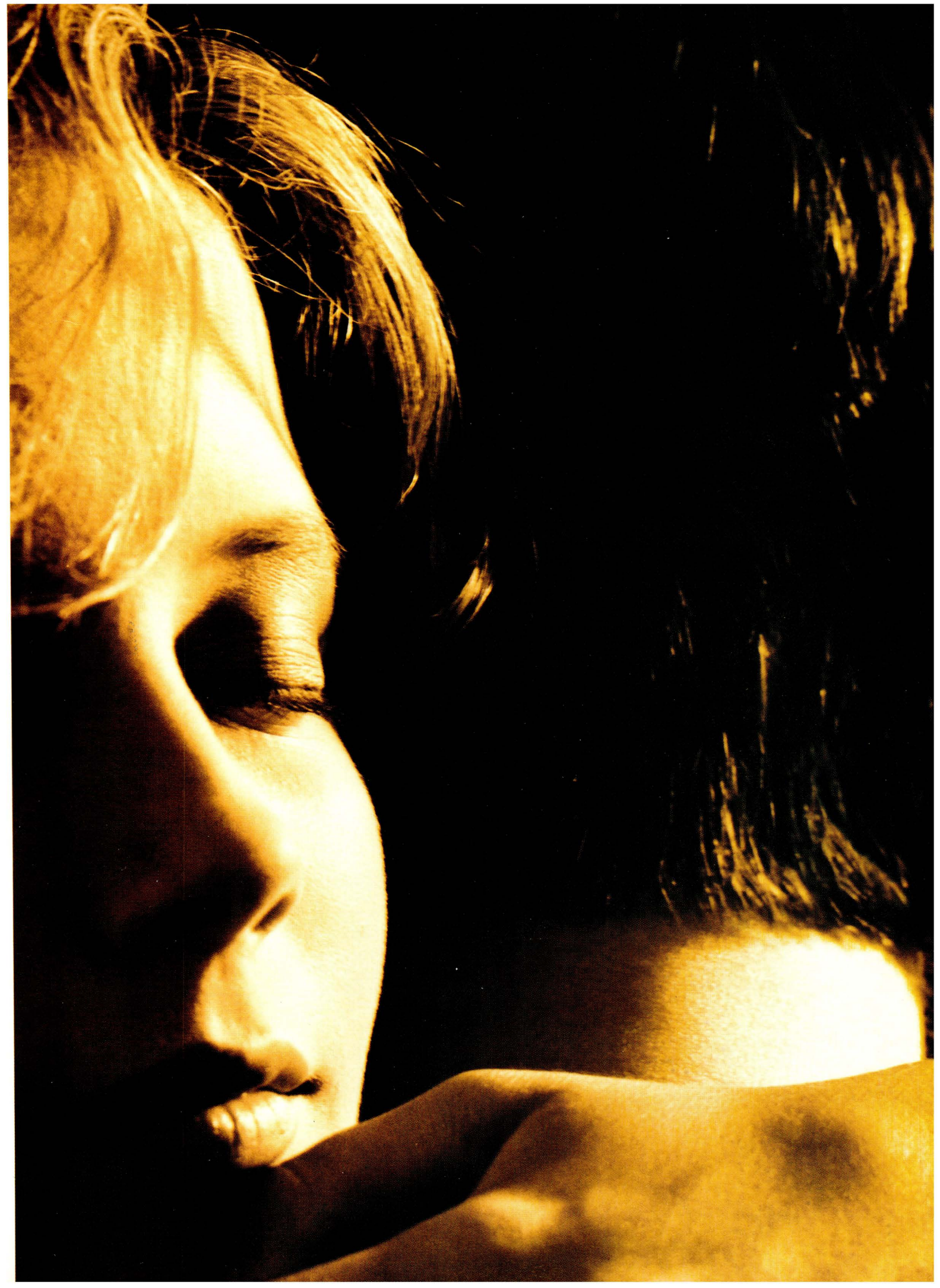
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# AR M.5

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The relatively new and radical 'Holographic Imaging' *M Series* from AR made its first *Choice* appearance during our last loudspeaker group test (issue 110). Which saw the cute little £200 *M1* storm through to a Best Buy accolade, despite costing significantly more than many similar size models on the market.

As its name unambiguously affirms, the *M1* was originally the smallest and least expensive in a quite extensive range of prestige, made-in-the-USA models. However, £200 is £50-£100 more expensive than the big sellers at the budget end of the UK market, so the temptation to produce a less expensive and even tinier model in the hopes of hitting the real big time was clearly much too great to resist. The net result is a funny little thing that was doomed to be christened *M.5*.

The main reason for the *M Series* price premium — and quite probably the key to the *M1*'s good performance — lies in an unusual asymmetric cabinet shape. Both front and back slope backwards, but the baffle is split in such a way that the main driver points slightly over the normal listening area, while the tweeter, mounted underneath and quite dramatically offset from the centre line, points directly at the seated listeners. Another significant point is that the slant angles all vary, which not only looks extremely interesting, but also reduces the focusing effect on internal standing waves and reflections.

A handsome majority of the models in this particular test group feature some sort of port loading to help reinforce the bass. Even AR — the original pioneer of 'acoustic suspension' sealed box loading — has broken with its roots on this occasion and given in to the temptation to add an extra

tuned resonance to increase the (mid) bass and power handling of this tiny sub-miniature.

The shape certainly adds a touch of distinction, as does the plastic mounting trim and lens/horn/protection shield arrangement that's integral with a small tweeter, which looks a much less high-tech affair than the metal dome fitted to *M1*. The main driver has a decent size magnet and small (90mm) plastic cone, the pressed steel basket being held by four woodscrews into the lightly damped 13mm MDF box. A simple, limited rating crossover built on the terminal block tag connects to the drivers.

## Test report

The *M.5* may look just like a scaled down *M1*, but the measured performance is markedly different in a number of important respects. In fact the sensitivity of this smaller model is up by nearly 3dB, but the impedance has been more or less halved, so twice the current will be demanded.

The balance shows significant differences too. In many respects the *M.5* is much closer to the market norm, but in my opinion the very 'differentness' of the *M1* is one of its strengths. Doubtless thanks to its little rear port, the *.5* cuts off quite sharply below 50Hz, and is relatively happy whether sited hard up against the wall, or pulled out a foot or two, though neither offers as flat a bass-to-mid balance as the *M1*. Furthermore, the *.5*'s tweeter is clearly quite different, and has been pegged back several dB relatively speaking — perhaps so as not to draw too much attention to itself?

## Sound quality

Again in complete contrast to the *M1*, the *M.5* was awarded the 'Order of the Raspberry'

by a disgruntled, unforgiving and, in truth, thoroughly bored group of panellists, that found its vain attempts at music making verged on the risible. It wasn't the only tiny to be given pretty short shrift, but its shrift was certainly the shortest, and one or two of its immediate competitors proved, as usual, surprisingly shrifftful.

Quite what design or engineering factor in miniature speakers distinguishes the stars from the also-rans remains a mystery to me, and I daresay most of the designers too (the honest ones anyway). The sonic distinction, however, usually comes down to a matter of perceived scale. The best simply don't sound nearly as small as their appearance would suggest, while this AR, sadly, tended to sound even smaller.

The vocal band is actually handled very well, but a relative lack of treble leaves the sound rather shut in, and there is no real impression of weight and solidity — never mind extension or analysis — down at the bottom end.

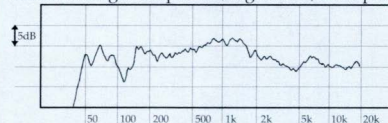
## Conclusion

Either the addition of a port or the change in the tweeter has somehow conspired to change the overall chemistry that makes the *M1* such a star. This leaves the *M.5* downsizing/down-pricing exercise a rather sad also-ran, albeit a very cute one cosmetically.

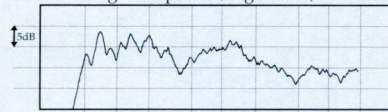
## TEST RESULTS

Size (h x w x d)	22x16x23(max)cm
Weight	2.5kg
Recommended amplifier power	20-60W
Recommended placement	close to wall
In room averaged response limits 50Hz-10kHz	±6dB
Large room/space LF roll-off (-6dB ref midband)	50Hz
Large room/wall LF roll-off (-6dB ref midband)	50Hz
Large room output at 20Hz (ref midband)	well below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	88dB
Impedance characteristic (ease of drive)	current hungry
Typical price per pair (inc VAT)	£129

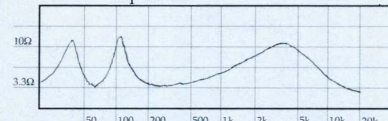
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



# Canon S-30

Canon Audio Ltd, Unit 6, Genesis Business Park, Albert Drive, Woking, Surrey, GU21 5RW. Tel: (0483) 740 005



don't think the British hi-fi industry has quite come to terms with Canon Audio. Here's this giant Japanese multinational, whose logo spends a couple of hours every fortnight emblazoned on our TV screens across the back of Our Nige's car; which advertises photocopiers on TV; yet which seems to be able to behave like a small independent British hi-fi specialist, albeit one with a distinctly unusual product and very large marketing and tooling budgets.

The S-30 is the second Canon model to come *Choice's* way, and a close examination makes it abundantly clear that though the company may currently be operating like a small specialist manufacturer, its intentions are very serious indeed, and its ambitions should not be underrated either.

From a distance one might easily confuse the S-30 and the original S-50 (issue 102). Get up close and the differences become more obvious. Biggest of all is a pricetag which has shrunk from the '50's pricey £350 to the '30's near-beer budget £150. The speaker has shrunk a little too, and is now rather more elegantly contoured and shaped, while retaining the characteristic mushroom shaped dome-and-reflector systems; the difference in the price comes from a completely different construction technique. Much of the '50 was based on a low capital/high unit cost metal casting, whereas the '30 comes with high investment/low run-on cost plastic mouldings throughout. They've been painstakingly developed and are beautifully detailed too, the only fly in the ointment being a pair of nasty spring-clip terminals, which were apparently unavoidable if the crucial £150 price point was to be met.

pretty good stereo image across a much wider area of the room than normal.

The end result looks very good value indeed, partly because the S-30 has a slick modernity that makes cuboid boxes look a little old-fashioned, but also because the whole thing feels so solid. A major reason is the (relatively) massive, magnetically shielded main driver magnet, which bolts to a cast backbone that in turn screws to the stand. Two venturi-shaped ports tune the web-reinforced plastic dome/mirror enclosure to around 65Hz.

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## Test report

Interestingly and impressively, the S-30 measures significantly better than the S-50. It shares similar limited LF extension, noticeable treble roll-off and mirror-generated unevenness, but the latter is improved and sensitivity is up to a generous 88dB, while the impedance remains easily driven.

The overall balance definitely benefits from siting fairly close to a wall, though an inevitable consequence of the wide distribution is that the midband suffers some unevenness in consequence. The treble roll-off remains obvious, but at least doesn't begin until a relatively high 3.5kHz.

## Sound quality

Auditioned on its own stands, the S-50 succeeded in fooling some of the people some of the time, into believing it a decent size speaker — the hallmark of a rather superior miniature which this Canon clearly is, despite limitations and cosmetic flaws.

The treble misbehaviour adds some nasality and shut-in effects, while the bass tends to clog if given a lot to do (thanks in part to the stand), but the rest of the band is satisfyingly quick, lively and unusually coherent. The WIS feature does actually work quite well within the prescribed area, though at some sacrifice in focus and emphasis of rear wall effects.

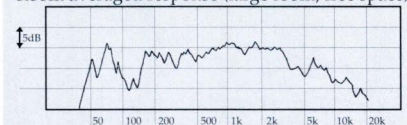
## Conclusion

Disregard the WIS factor and the bizarre appearance, and you're still left with a superior, if slightly wierd sounding, miniature speaker that maximises the advantages and just about gets away with the disadvantages of the single full-range driver approach. This highly sophisticated and innovative design shows an attention to engineering detail remarkable at the price. It won't suit every taste, and some panellists reacted against its differentness, but the consensus was clearly positive, so Recommendation is mandatory and only the residual peculiarities stand in the way of a Best Buy.

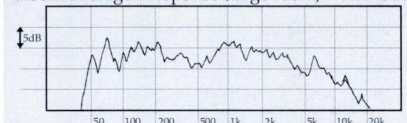
## TEST RESULTS

Size (hwxwd)	27x22.5x23.5cm
Weight	4kg
Recommended amplifier power	15-60W
Recommended placement	close to wall
In room averaged response limits 50Hz-10kHz	±5dB
Large room/space LF roll-off (-6dB ref midband)	50Hz
Large room/wall LF roll-off (-6dB ref midband)	50Hz
Large room output at 20Hz (ref midband)	below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	88dB
Impedance characteristic (ease of drive)	good
Typical price per pair (inc VAT) (matching stand £50)	£150

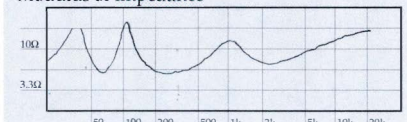
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance

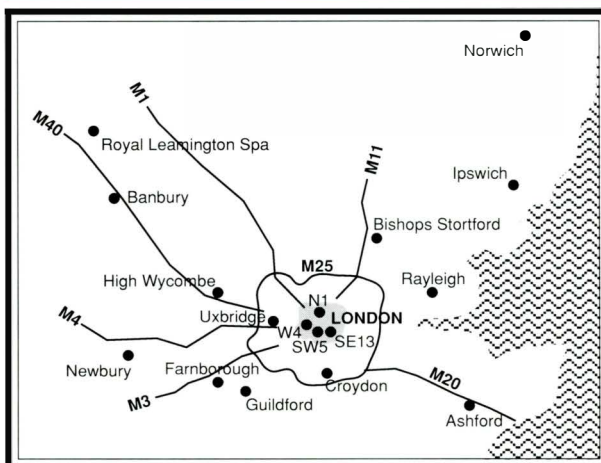


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# Celestion 1

Celestion International Ltd, Foxhall Road, Ipswich, Suffolk IP3 8JP.  
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**W**hen the definitive history of loudspeakers is written, the £99 bookshelf miniature will rate at least one complete chapter to itself, such has been its dominance of the British commercial marketplace over the past decade.

The magic 'under-£100' pricetag has proved something of a two-edged sword, however. What may have seemed a fair price for a good product five or ten years back now looks much less attractive from the manufacturing point of view, stretching productivity and cost-effective engineering close to breaking point, and still leaving little if any profit at the end of the day.

For several years past, manufacturers have done their damndest to up the ante and ease this crucial starter price up to £120 or thereabouts. But it only takes one defector to put the right package together and we're back down to that infernal £99 price point again. Mission did just this with the 760i two years ago, and have managed to keep its 760i successor at the top of the sales charts despite upping the price to £120. Now Celestion is playing its trump card, the 1 seeking to repeat the success enjoyed by the 3 a year or three back, while leaving room for a carefully positioned 2 as part of the ultimate game plan.

Our introduction to ninety nine a pair '93 style was rather inauspicious, though it's unfair to blame Celestion for something which is almost certainly down to the cackhandedness of the carriers. Of the initial pair, one remained entirely mute while the other emitted the unmistakable death rattle of a magnet rolling around in a wooden box. There may be lessons to be learnt about the mechanical difficulties of fixing a heavy magnet to a light plastic frame and then expecting the system to survive the

rigours of dispatch, but there's no reason normal performance will be affected.

You're lucky enough to get any engineering at all for £99, and certainly there's no chance of any frills, which means, like it or not (and I don't), spring clip speaker terminals, into which I managed to force 4mm plugs with a bit of persuasion. The main driver has an 85mm paper cone and quite generous magnet, while the tweeter appears to use a shiny 25mm plastic dome; both were pretty tightly mounted.

The small black vinyl woodprint 12mm chipboard box smelt pretty vile (a la Rogers, as it happens, and something to do with a glue used in a Danish cabinetworks, but I'm told it goes away in time), but looks neat enough in a rather nondescript way, helped by a front baffle made up entirely of plastic mouldings, a shape which is fashionably narrower than it is deep, and a neat enough grille (that is still better discarded).

## Test report

The ported enclosure, tuned to 65Hz, does enough to give a worthwhile in-room output down to 50Hz. By miniature standards sensitivity is a generous 87dB, a figure which is not compromised by a relatively mild impedance whose most obvious characteristic is a well damped bass resonance.

The balance is pretty good, with sensible bass alignment that will probably work best about 1ft from the wall, but which is fairly tolerant of any other alternatives. The response peaks up a little at around 1.5kHz, then falls quite gently some 7dB between 1.5kHz and 7kHz before levelling out thereafter. This gives an overall shape that should be quite coherent, if conservatively arranged in order not to highlight any programme deficiencies.



## Sound quality

There's no point in pretending the 1 sounds any more wonderful than its radio station namesake, but it certainly survived the blind listening ordeal significantly better than many of its competitors. It's actually quite coloured in the midband, rather small in scale and a bit shut in at the top end too. Dynamics are unimpressive, and depth and ambience subtleties tend to be lost in the low level confusion, especially with complex material.

But important though these limitations are, they don't manage to hide the fact that this speaker is fundamentally a good communicator, if not of soundstage subtleties then of the spirit, rhythm and timing that is the most crucial part of the music making process. It may be crude, but it's also fun, and actually responds well to winding up the volume, providing nothing too serious in bass lines comes along.

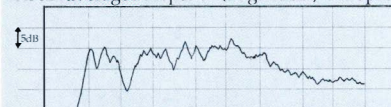
## Conclusion

Cosmetically flawed but innately lively, exuberant and communicative, what more can you expect for £99? It's certainly worth digging deeper and buying something more expensive if you can afford to, but there's no denying the 1 rates a Best Buy at a rather silly price. What surprises me a little is that it's such a totally different animal from the 3.

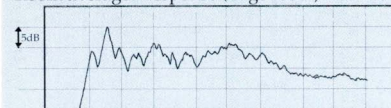
## TEST RESULTS

Size (hwxwd)	27.5x16x21cm
Weight	3kg
Recommended amplifier power	20-70W
Recommended placement	close to wall
In room averaged response limits 50Hz-10kHz (-6dB ref midband)	±4dB
Large room/space LF roll-off (-6dB ref midband)	50Hz
Large room/wall LF roll-off (-6dB ref midband)	50Hz
Large room output at 20Hz (ref midband)	below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	87dB
Impedance characteristic (ease of drive)	good
Typical price per pair (inc VAT)	£100

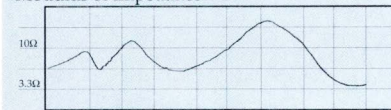
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



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# Celestion 15

Celestion International Ltd, Foxhall Road, Ipswich, Suffolk IP3 8JP.  
Tel: (0473) 723 131



**S**urely some mishtake, I thought when this damn great carton rolled up, and I'm expecting something costing £350 a pair. It's not even a particularly tough and chunky carton, just big — a bit like the speakers nestling inside. If you're looking first and foremost for perceived value, Celestion's new *15* towers over the £492 Linn *Keilidh*, £600 Mission *753* and £698 Dawn *Chorus*, and only meets its match with the £699 *SD4*. That in itself is impressive enough, but beware of sheep in wolves' clothing. Big it may be, but the 12kg total weight is little more than half the 20kg or more of those smaller floorstanding rivals, and weight (or even density) is usually a more relevant guide to engineering quality than size.

Nevertheless, this is an exceptionally clever package indeed, even if the acres of black vinyl woodprint do look a bit tacky. It's all about cost-effectiveness, providing the bare minimum necessary to do the job, in the knowledge that the package is going to cost no more than a large bookshelf size

speaker complete with decent stand. A good example is seen in the floorspikes, which are an important ingredient in the overall package, but often give problems in less expensive models, as lock-nuts are tightened and cabinet sockets strip their mountings. Celestion just leaves out the lock-nuts, and supplies threaded thumb-and-finger wheels instead, which solve the overtightening problem at a stroke, even though getting and keeping them tight is a bit tough on the digits.

The enclosure is fashionably narrower than it is deep, and unusually tall too, which has the acoustic virtue of getting the drive units well off the ground but the mechanical vice of a high centre of gravity and limited footprint. The box is subdivided into two sections. The top part is a bookshelf-size enclosure which is port-coupled into a larger lower cavity, itself feeding low frequencies to the outside world via another reflex port.

The box is only 16mm chipboard, and the lower 'boom box' section is completely untreated, but the main top enclosure has a vertical figure-8 brace and an acoustic foam lining. The chunky if coarse threaded woodscrews secured the drivers nice and tightly, the main unit having a decent magnet, plastic frame and 125mm paper cone, while the tweeter uses a 25mm dome with phase corrector/protection slats. The appearance is plain but neat with or without a relatively benign grille arrangement.

## Test report

The combination of good sensitivity (89dB) a fairly easy amplifier load and better bass extension than most (-13dB at 20Hz) is a very promising start, but given the very competitive price, something's bound to give, and in this case it's smoothness, or rather the lack of it.

The midrange and treble balance pretty well overall, albeit with a rather conservative but relatively gentle downtilt above 2kHz. There's a fair measure of local unevenness here, but the overall variation is reasonably well controlled. The bass is less happy, however, showing the sort of lack of integration symptoms that afflict separate subwoofer speaker systems, even though the net level is about right.

## Sound quality

The *15* received rather mixed reactions in two separate blind presentations. These average out to a quite favourable overall ranking, but perhaps the more accurate interpretation is that this is not a particularly good speaker by absolute standards, but is quite impressive in the context of its immediate peers.

This was borne out during the subsequent sighted listening. The *15* has most impressive bass weight and extension for the price, but the sound here is a bit de-

tached and furry in texture, with little timbral information or genuine drive and authority. The midband is open and reasonably well timed with good leading edge definition, along with some cuppy and nasal colorations and some lack of dynamic realism and grip. The top is a little reticent and shut in, perhaps to help keep the scrappy and spitty effects from becoming too noticeable.

The net result is a speaker that's flawed but still good fun. It's not the smooth and self-effacing sound for sophisticates, being decidedly rough around the edges, but remains good humouredly cheerful and communicative most of the time. However, it doesn't take too kindly to being made to work hard for its living: it's sensitive enough to go quite loud with even a modest amplifier, but start driving it hard with something muscular and the sonic cracks start to show, composure slips and the boogie threatens to stop woogying.

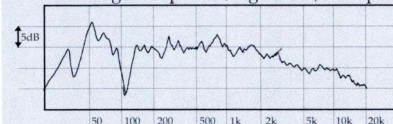
## Conclusion

The *15* is not a great loudspeaker, but it is very cleverly engineered to give a larger than life package at a surprisingly modest price. That it sounds as good as it does might seem little short of miraculous, but is in fact due to a clever balancing act on the part of the design team, one that certainly deserves recognition by Recommendation.

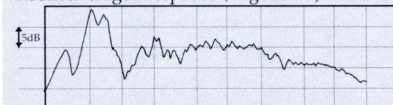
## TEST RESULTS

Size (hwxwd)	103x20.5x25.5cm
Weight	12kg
Recommended amplifier power	15-70W
Recommended placement	clear of walls
In room averaged response limits 50Hz-10kHz	±8dB
Large room/space LF roll-off (-6dB ref midband)	28Hz
Large room/wall LF roll-off (-6dB ref midband)	28Hz
Large room output at 20Hz (ref midband)	-13dB
Estimated midrange sensitivity (ref 2.83V, 1m)	89dB
Impedance characteristic (ease of drive)	good
Typical price per pair (inc VAT)	£350

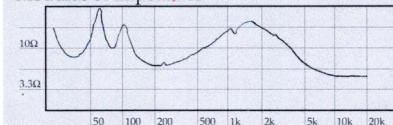
Room averaged response (large room, free space)

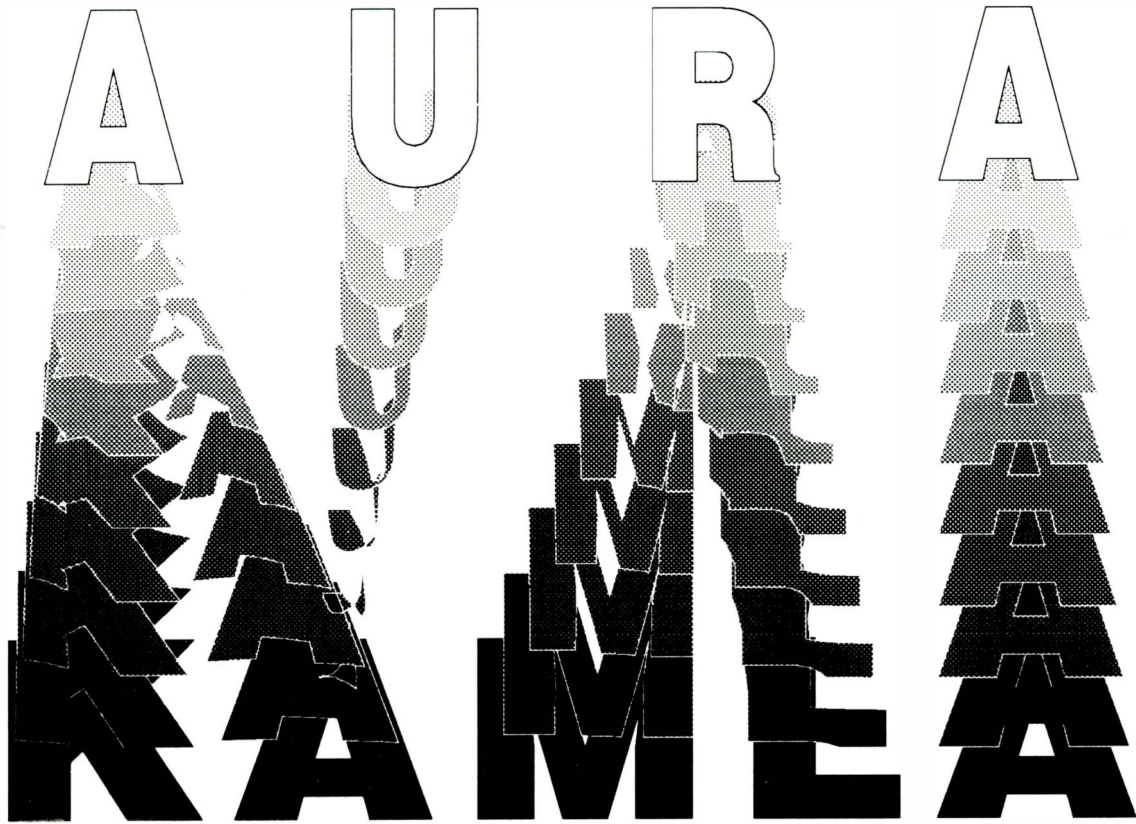


Room averaged response (large room, wall mount)



Modulus of impedance





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# Creek CLS10

Creek Audio Systems, Rosehall Industrial Estate, Coatbridge, Strathclyde, Scotland, ML5 4TF. Tel: (0236) 420 199



The Creek brand is best known for its separate amplifiers and tuners which have enjoyed considerable success among enthusiasts on a tight budget for a fair number of years. What initially started out as an entirely independent operation was taken over by the TGI Group some three years ago (if memory serves right), and has been operating more or less under the Tannoy wing of that organisation since that time, at least in marketing terms if not necessarily manufacture.

The first loudspeaker to bear the Creek logo was actually built by TGI partner Mordaunt-Short, and was in some respects a revival of the classic *Pageant* large bookshelf concept from a decade before. A *Choice* review of the £200 *CLS20* which appeared in issue 90 certainly didn't result in a sudden revival of sales (perhaps the past is sometimes best left where it lies), and the '20 just sort of faded away into obscurity.

If at first you don't succeed, there's nothing like starting with a new marketing brief. After all, no one likes to have bulky bookshelf speakers stuck out in the middle of the room anymore; they all want tiny little wall-mount miniatures that cost next to nothing, like the Goodmans *Maxim 3*. And since Goodmans is also part of the TGI Group, operating from the same manufacturing base as Mordaunt-Short (but not Tannoy), what could be simpler than to take a *Maxim*, tweak it and restyle it a little, badge it as a Creek, christen it the *CLS10* and sell it for an extra tenner?

Trouble is, I wasn't too overwhelmed by the *Maxim 3* at £110 back in issue 108, so I'm going to take some convincing that this lookalike is going to be worth £120. The most striking difference between the two lies not in the green Creek logo in place of

the copperplate *Maxim 3*, but in a brilliant emerald plastic tweeter diaphragm, which is a striking stylistic device that presumably confers a measure of 'youff cred'. Which is no bad thing since the grille is unlikely to conjure up any sort of credibility; such is its determination to fall off at the slightest provocation, that the simplest course is to go along with its suicidal tendencies and stick it in the bin.

The green eyeball is difficult to ignore, but everything is neat enough under the grille, with all the fixing screws hidden beneath an inset fibreboard overlay. Such an arrangement left a few questions begging regarding access in case of driver damage/failure, and leaves me no means of checking the integrity of the fixings.

By peering inside the terminal cutout it is clear that the rear-ported box itself is stronger than many, the 11mm wrap being stiffened by 15mm inset back, an internal brace and presumably the baffle as well. There's a generous magnet too, driving a 90mm plastic cone with a lossy surround.

## Test report

Having taken the curves, I wondered why I'd bothered, since the difference between *M3* and *CLS10* is small enough to be put down to sample variations. If there is a difference — and the impedance trace would seem to suggest the two are electrically identical — then the Creek has a little more output in the upper midband.

The package is fairly typical of a budget miniature that's an easily driven amplifier load, with sensitivity of 85dB and nothing whatsoever of any consequence below 50Hz. Close against a wall, the bass alignment is pretty impressive, with fine bass-to-mid balance followed by a slight peaking up

at around 1.3kHz. Output falls some 7dB across the next couple of octaves, a little abruptly at first but gradually thereafter.

## Sound quality

It's virtually impossible to compare listening test findings between two completely separate review groups, though the evidence suggests that the *CLS10* actually did slightly less well than the *M3*. This is partly I suspect because of a general intolerance of our panel towards the small and less effectual models, but also maybe indicative of eight months development among the competition.

The Creek doesn't disgrace itself by any means, but it doesn't manage to belie its size either, and so ends up as a reasonably polite but rather nondescript contender. Stereo imaging is a strong point, the soundstage being attractively open and unboxy, but a 'rubber band' bass is inclined to clog up, mid dynamics are rather squashed while the top end sounds a bit shut in too.

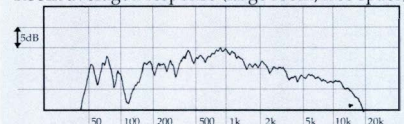
## Conclusion

The *M3* just about made it because it was cheap. The Creek is not as cheap and therefore doesn't quite make it. It's not a bad loudspeaker by any means, just not a particularly distinguished one in the most fiercely contended sector of the market.

## TEST RESULTS

Size (hwxwd)	26x17x21cm
Weight	3kg
Recommended amplifier power	20-60W
Recommended placement	close to wall
In room averaged response limits 50Hz-10kHz	±4dB
Large room/space LF roll-off (-6dB ref midband)	50Hz
Large room/wall LF roll-off (-6dB ref midband)	50Hz
Large room output at 20Hz (ref midband)	below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	86dB
Impedance characteristic (ease of drive)	very good
Typical price per pair (inc VAT)	£120

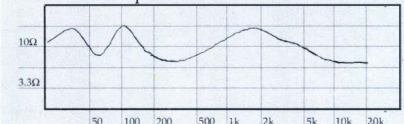
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance





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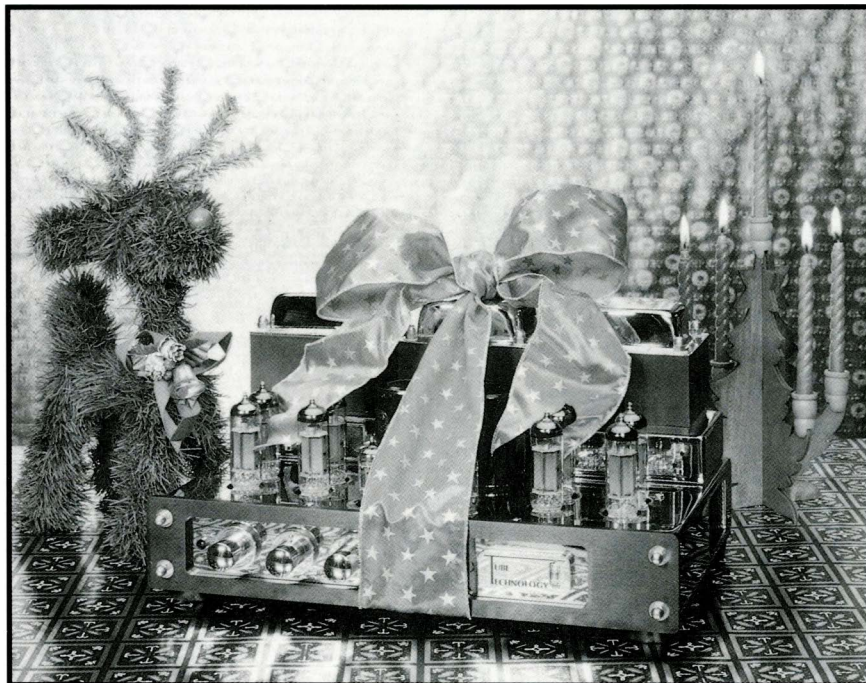
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# Dali 102

CSE, Suite 4, 1-3 Haywra Crescent, Harrogate HG1 5BG.  
Tel: (0423) 528 537



**R**elatively new to the UK market, Dali is a Danish brand which is actually run by the same man who owns the large and influential chain of shops which dominates the market for specialist hi-fi equipment in Denmark. This in turn ensures a pretty handy bedrock of home sales from which to build up export business.

The compact, bookshelf-size 102 is actually the third and by far the simplest and least expensive Dali to come under *Choice* scrutiny. However, whereas both previous entrants have given the impression of a lot of loudspeaker for a lower than expected pricetag, the 102 comes in at £220, which is more par for the course, and even represents something of a premium for a two-way model of this size, in the context of the Mordaunt-Short 5.20, for example.

It's a pretty enough package, if a bit anonymous maybe, the most distinctive touch being a triangular slice off one corner of the grille, whose apparent purpose is to emphasise the fact that each pair of speakers comes as left and right handed examples, with asymmetric mirror-imaged baffles that offset the tweeter towards the inside edge. This is a nice touch that doesn't come cheap in manufacturing terms. The grille frame is pretty thick but sensibly shaped to minimise tweeter interference, but the 102 was definitely preferred without it, so it's fortunate the baffle is neatly finished in a black felt.

Judging by the all up 6kg weight it's solidly built, and in fact the box is built up from 16mm chipboard throughout, though the magnet on the back of the pressed frame main driver is quite small. The machinehead woodscrews were all nice and tight. The main driver has a 120mm plastic cone, while the tweeter uses a small

(19mm) doped fabric dome. Good quality crossover components are well distributed across the inside back panel and hardwired together, though driver and single pair terminal connections use tags.

## Test report

Despite the instruction leaflet's clear recommendation for close-to-wall siting, our standard room curves show the 102 is far more balanced at the bottom end when moved well out into the listening room, unless you prefer a rather boomy midbass that is.

With careful placement it's possible to achieve a good bass-to-mid balance, while the low frequency extension is also good by bookshelf speaker standards. However, the price is extracted both in below average 86dB sensitivity and a current-hungry impedance characteristic that will work the driving amp quite hard.

The balance is characterised by a broad and slightly exposed upper mid plateau, extending from 500Hz up to 1.5kHz, above which the response falls quite gently but inexorably some 6dB into the crossover notch. Above this there's slight recovery and good ultimate extension.

## Sound quality

I remember being well impressed by the Dali during the blind tests, communicating that opinion after the presentation had finished, and being brusquely told by several other panellists that it hadn't got any top end. The presence and treble is rather restrained, as the measurements confirm, and subsequent removal of the grille certainly helped open things up a bit.

Which in turn raises an interesting point regarding our listening test procedures. By

auditioning the speakers behind a curtain — even a black nylon net that's as acoustically transparent as possible — it is still tantamount to adding a second grille, and that in turn is likely to disadvantage the less bright models. With this in mind I plan to remove grilles during future blind tests, the only inconsistency arising with the occasional fixed-cover model (which is why I've always left them on before).

Whether or not the 102 has sufficient treble is, to some extent at least, a matter of personal taste and preference, and will also be influenced by the driving system. But that wasn't the only source of listening panel dissatisfaction, the consensus view being that the 102 is undistinguished at the bass end of things too, sounding rather stodgy, heavy and slow, with unimpressive dynamics.

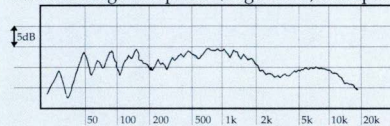
## Conclusion

Attractive presentation and solid cabinet engineering help justify this speaker's £220 pricetag, but despite an attractively even and coherent midband, the sound quality at both ends of the audio band seemed less inspiring. Interestingly, it uses a very similar tweeter to the Rega *Kyte*, yet the relative treble output of this Dali implementation is at least 3dB less, and this fact in particular proved a problem for some of our listeners.

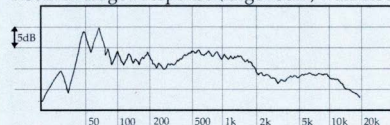
## TEST RESULTS

Size (hxwxwd)	37x21x25cm
Weight	6kg
Recommended amplifier power	20-80W
Recommended placement	clear of walls
In room averaged response limits	
50Hz-10kHz	±4dB
Large room/space LF roll-off (-6dB ref midband)	30Hz
Large room/wall LF roll-off (-6dB ref midband)	30Hz
Large room output at 20Hz (ref midband)	-13dB
Estimated midrange sensitivity (ref 2.83V, 1m)	86dB
Impedance characteristic (ease of drive)	current hungry
Typical price per pair (inc VAT)	£220

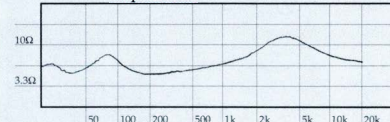
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



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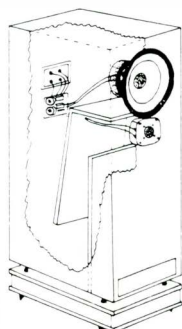
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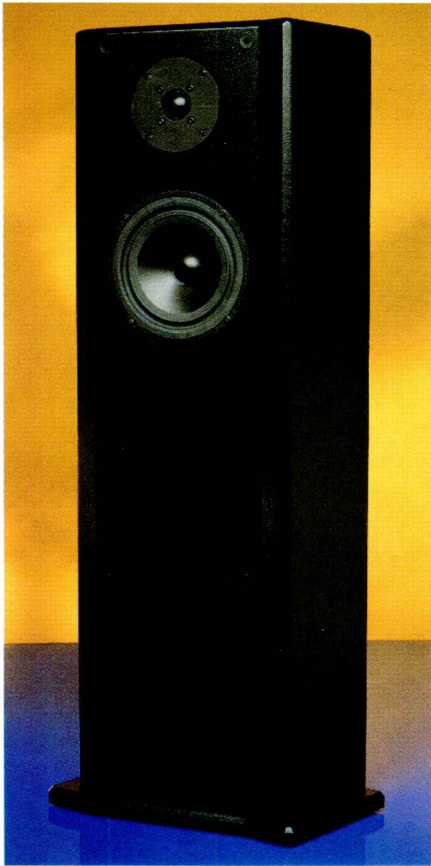
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# Dawn Chorus FS

Dawn Audio Ltd, Durnford Farm, Martyrs Lane, Woking, Surrey  
GU21 5NJ. Tel (0932) 355040



I know virtually nothing about Dawn Audio, though the fact that the company has made two successive appearances at the Penta show is evidence enough of serious intent, and the couple of leaflets I picked up look thoroughly professional, bar the odd literal. I also enjoyed the company of Dawn's John Mays on one of the listening test days, and can confirm that his hearing is both acute and reliable.

The *Chorus* is the less expensive of two Dawn models, and is available in both £482 bookshelf (BS) and £698 floorstanding (FS) forms, examples of the latter arriving (just) in time for our review programme.

I couldn't call it the prettiest of the floorstanders by any stretch of the imagination, the textured black spray finish looking a trifle utilitarian compared to real wood veneers, though it's purposeful and practical enough in its way. It's also rather wider than it is deep, which certainly seems less fashionable than the other way around, and obviously doesn't do much for the fore-and-aft footprint and consequent mechanical stability.

However, the *Chorus FS* does come with a really meaty set of floor spikes, that can be tightly and firmly fitted into very rigidly located sockets on the bottom of the little plinth. And my samples (which I suspect were pre-production) had already been

treated to a part-fill of sand/lead-shot within its lower compartment in order to lower the centre of gravity and improve stability.

The shape is a little unusual, the front baffle being stepped and angled in such a way that the speaker itself can sit square-on to conventional room boundaries, while the drive units point inwards slightly towards the listening seat. As such, the speaker is supplied in mirror-imaged pairs.

Although it's packaged as a floorstander, in reality the *Chorus* is a bookshelf-size sealed-box speaker system which in this form comes complete with an integral spiked stand that matches it cosmetically and allows the user to add his/her own damping medium.

I was unable to gain access to the interior, so have had to rely on received information, to wit that the box is built from 18mm MDF, with internal panel damping, some bracing (including the main dividing shelf), and some isolation for the crossover, fed from floor level bi-wire terminals. The main driver has a cast frame and 110mm plastic cone, the tweeter a soft 28mm dome. A three-quarter length grille is normally supplied, but not to us on this occasion.

## Test report

The *Chorus* in-room measurements do look rather unusual, especially for a quite large floorstanding model, but are by no means entirely unfavourable, showing certain worthwhile strengths overlaid by an overall shape more notable for its smoothness than its neutrality.

The free-space trace highlights the situation, showing a delightfully smooth ( $\pm 2$ dB) midband, from 150Hz in the upper bass right up to 2kHz in the lower treble, but this broad midband is somewhat exposed, or the bass and treble relatively under-nourished, depending on which way you want to look at it. The treble roll-off amounts to around 5dB, which is by no means unusual, and occurs across a fairly broad band starting at a high 2kHz.

The bass roll-off is even more gentle, -3dB at 100Hz, -6dB at 50Hz and -12dB at 20Hz, which is a function of the well-damped 80Hz closed box resonance, so it's not surprising the balance responds well to some wall assistance, but the worthwhile fill-in 50-150Hz is only achieved at some cost in smoothness.

Sensitivity is an adequate 86dB in the context of the mild amplifier load and decent absolute extension.

## Sound quality

The *Chorus* was well liked by all but one member of the listening panel, and so did pretty well overall — and might, with hindsight, have sold itself a little short. My 'blind' notes actually mention this model gradually improving during the course of our twenty

minute or so presentation, and exactly the same thing happened when I carried out the sighted work a week or so later, a factor which doesn't make life easier for the reviewer.

Given a very thorough warming up, courtesy the KLF, the fine overall coherence of this model starts to show through, especially in the way it handles voices, though the pleasure remained tinged with some regret at a measure of coloration that the mid-prominent balance is inclined to emphasise. Bass timing is better than most, and the freedom from boomy effects is most welcome, but really this speaker is about the fine mid-to-top coherence and dynamics, which is where it most obviously excels.

## Conclusion

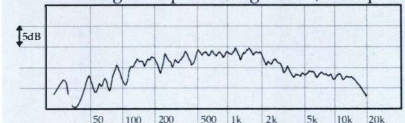
Viewed as a product for the enthusiast prepared to mess around with mass filling and leave power amps permanently on, the *Chorus* works rather well, offering splendid analysis and insight into the midband in particular. But the coloration can be distracting, and there's not a lot of weight and welly on offer for £700.

Not formally Recommended then, but certainly well worth trying in a specialist system, perhaps one installed in a smallish listening room.

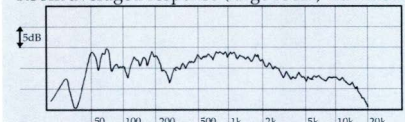
## TEST RESULTS

<b>Size (hwxwd)</b>	91x26x21cm
<b>Weight</b>	21kg (includes optional damping fill)
<b>Recommended amplifier power</b>	20-70W
<b>Recommended placement</b>	about 1ft from wall
<b>In room averaged response limits</b>	
<b>50Hz-10kHz</b>	$\pm 4$ dB
<b>Large room/space LF rolloff (-6dB ref midband)</b>	30Hz
<b>Large room/wall LF rolloff (-6dB ref midband)</b>	30Hz
<b>Large room output at 20Hz (ref midband)</b>	-12dB
<b>Estimated midrange sensitivity (ref 2.83V, 1m)</b>	86dB
<b>Impedance characteristic (ease of drive)</b>	very good
<b>Typical price per pair (inc VAT)</b>	£698

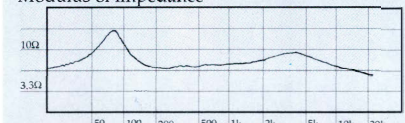
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance





# Faraday FS1

Faraday Sound, 248 Hall Road, Norwich NR1 2PW.  
Tel: (0603) 762 967



**F**araday is a small Norfolk-based speaker manufacturer that differs from the herd in two highly significant — and mutually dependant — ways. The key to the whole thing can be found sticking out like a sore thumb down in the test results, specifically the fact that this large, bookshelf-size (18litre internal volume) model weighs in at a whopping 21kg. And the reason for that backbreaking statistic is that the enclosure is cast from concrete.

The same was true of the £589 *FS5* and £330 *Siren* models, both of which have been through the *Choice* reviewing mill in recent years (issues 94 and 102), and which more or less share the same enclosure as this model. The important advantage of the *FS1* is that it is significantly less expensive, with prices starting from as low as £225 for the basic black paint finish version.

The samples sent in for review cost an extra £30, and feature a rugged textured coating that apparently comes from Texas Homecare, giving a mid grey mottled effect that's not unattractive in its rather DIY way, and certainly quite effectively matts over the various unevennesses of the surface.

Unfortunately you can't just pop down to your local hi-fi shop for a pair. Instead you have to beat a path to Norwich, which is unlikely to be anywhere near as convenient, because Faraday has decided that direct sale is the most sensible approach for its rather idiosyncratic products.

This is understandable, given the aggravation of packing, shipping, stocking and demonstrating something so massive, and means that they can be sold at a much more competitive price. However, it does make the job of the reviewer next to impossible when it comes to assessing relative value for money against products which pass

through normal retail channels. As a guesstimate, the extra cost of normal distribution could easily add 50 per cent to the selling price, so perhaps the *FS1* should be compared to models costing £350-£400. But there again you can undertake the pilgrimage and get yourself an awful lot of speaker for £250.

Another reason for the modest price is the use of cheap Goodmans drivers, the 120mm paper cone main unit having a very small magnet, especially for a ported design. All is well assembled, though mirror-imaged terminals can be confusing. A foam grille is available as an optional extra.

## Test report

Despite its bargain price, this model actually measures rather better than the Faradays tested previously, combining an easy amplifier load with a well judged in-room balance and decent 88dB sensitivity. There's some trade-off at the bottom end, in as much as the bass rolls off fairly rapidly below 50Hz, which is the maximum port output. That the main driver is rather lightweight is seen in the fact that its (unusually well damped) in-box resonance lies above 100Hz.

Siting is relatively uncritical, but a little midbass reinforcement is helpful, so a foot or so out from the wall will provide a good starting point for experimentation. The in-room balance holds within very good overall limits right across the band, with the crossover notch relatively innocuous, though the mid treble does look rather detached and a fair amount of local midband unevenness is bound to add some coloration.

## Sound quality

The *FS1* was quite well received in the blind listening test, albeit with a degree of

polarisation between the panellists, some accusing it of a rather small sound but others enjoying the clarity and detail insights afforded by the very solid enclosure.

Certainly the bass extension is limited, but the quality and control of the midbass clearly gives better overall results than the typical wooden box, and the relative lack of cabinet effects can be mistaken for a lack of weight.

It's not the fastest or most dynamic sound around, and further experiments revealed a few problems when trying to operate at highish levels. Although it does give a nice open sound, the top end is a bit obvious, scrappy and untidy. This was yet another factor which upset our listeners to varying degrees.

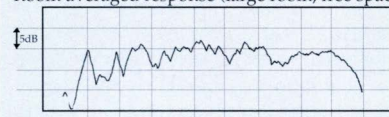
## Conclusion

It's very rare to encounter a speaker where the drive units rather than the enclosure are the limiting factor, but that certainly seems to be the case here, and the net result makes a very good case for adopting the concrete approach, provided you're prepared to live with the questionable aesthetics. Above all the *FS1* is absolutely delightful when working at low levels, delivering a delicate transparency unmatched at the (artificially low) price, but headbangers should maybe look elsewhere.

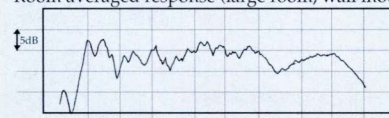
## TEST RESULTS

Size (hxwxwd)	47x27x28cm
Weight	21.5kg
Recommended amplifier power	15-70W
Recommended placement	1ft from wall
In room averaged response limits 50Hz-10kHz	±4dB
Large room/space LF roll-off (-6dB ref midband)	45Hz
Large room/wall LF roll-off (-6dB ref midband)	45Hz
Large room output at 20Hz (ref midband)	below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	88dB
Impedance characteristic (ease of drive)	very good
Typical price per pair (inc VAT)	from £225 (direct sale only)

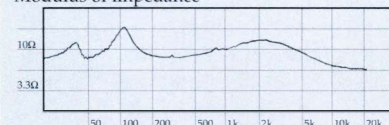
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



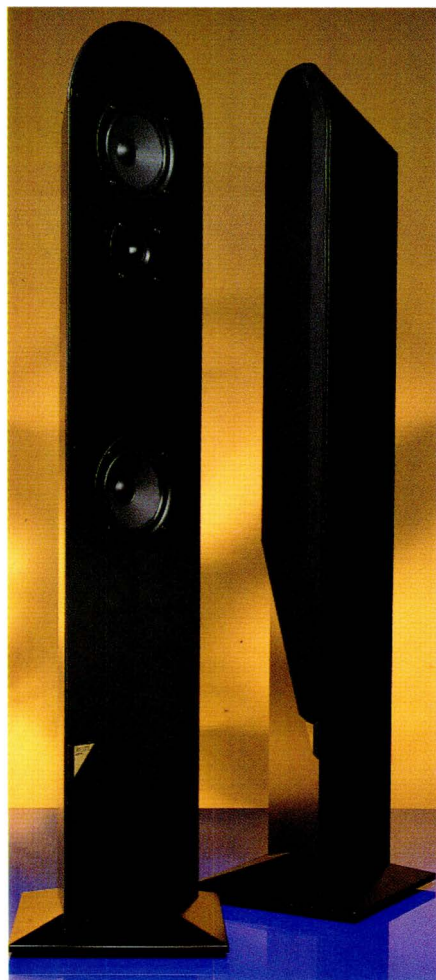
Modulus of impedance





# Jamo Silhouette

Jamo UK, Jamo House, Heyford Lane, Stowe Hill, Weedon, Northamptonshire NN7 4SF. Tel: (0327) 349 449



**Y**ou've got to give someone over at Jamo full marks for creating something which looks entirely different and original from the usual black vinyl cuboid which fails to slip particularly gracefully in the average British lounge, but which Hobson decrees is today's choice. Whether the £400 *Silhouette* will make a better fit will depend on whether you furnish your home from Harrods, Habitat or car boot sales, but at least Jamo has the gumption to give you the option.

But the role of this review must be to establish whether this is a serious hi-fi loudspeaker as well as an intriguing styling exercise. The portents are confusing. First, this must be just about the only speaker manufactured as mirror-imaged pairs for purely cosmetic reasons, so that the grille can finish in a triangular slash across the face, pointing towards the tiny triangular badge on the inside edge (or outside, if you prefer, since the drive units won't know the difference).

The real credibility gap starts yawning when you fix (very cautiously for fear of causing irreparable damage) the spikes into a plastic base which has all the structural

rigidity of an Airfix kit — the contrast when compared with the Linn *Keilidh's* four and a half kilos of optional ceramic is just bizarre. This base incorporates a port (which will presumably get blocked by a deep pile carpet), and the crossover network, and is simply fixed by woodscrews into the ends of the three panels.

Although the base is square, the enclosure itself is triangular in section, a slightly-less-than-rectangular isosceles for students of geometry, the larger hypotenuse side acting as the baffle. This front face is finished off in a semicircle at the top, and a curved spherical-section plastic moulding mates up with the sides, in a joint which is more effectively viewed from a distance than scrutinised close up. After all the work involved it would be a shame not to use the grilles, which fortunately are quite sensibly shaped.

Driver rebating only leaves 6mm of the 12mm MDF panel for the tiny driver mounting woodscrews to bite into, so they don't bite very hard or effectively, and the baffle as a whole feels rather resonant. The other two (12mm MDF) faces are lined internally with eggbox foam, and the chamber is subdivided into a bass-only ported section below the mid and high frequency drivers. Two 100mm paper cone units with modest magnets and pressed frames look after the lower side of things, while the tweeter is a substantial 25mm soft dome device.

The lack of enclosure depth doesn't leave much room to absorb back radiation behind the drivers, but the shape of the back should help reduce direct reflections somewhat. The position of mid and treble drivers places the centre of gravity rather high for the limited footprint. The simple PCB crossover uses standard componentry, fair wire and tag connections.

## Test report

The basic response has been pretty well engineered overall, albeit with relatively modest absolute bass extension and a clear tendency to favour mid and upper bass output, in a pattern not unlike the typical large bookshelf size speaker. To avoid making this any worse, room walls should be avoided and free space siting is likely to give the best results.

Sensitivity is a respectable 88-89dB, but at least 3dB of this is a function of the very demanding impedance. The 55Hz port helps prop up the bass a bit, the inherent box resonance of the bass driver lying above 100Hz. If the response is a bit strong below 200Hz, it's well tailored above that, with just a broad but quite shallow suckout through the presence region.

## Sound quality

Despite the respectable overall balance, a

fine sense of openness, due to the higher than usual driver placement, and a reasonable attempt at bass weight, the *Silhouette* didn't manage to impress the listening panel particularly, which found it altogether too soft, safe and polite to get properly to grips with the contrasts and tensions of the music.

The bass in particular has a 'puddingy' quality that lacks authority, drive and resolution of timbres and textures, though it's reasonably free of unwanted overhang. Voices suffer some nasality and time-smear, and midband dynamics seem decidedly constricted. Removing the grille does help the sound, though unfortunately not the aesthetics.

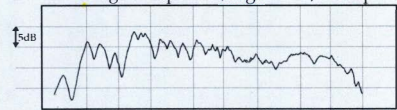
## Conclusion

Although by no means as bad as the cynical expectations of a number of visiting panellists, the *Silhouette* is not £400 worth of serious hi-fi performance, to be sure. But it does deliver a decent overall balance with an attractive openness generated by the high-mounted tweeter, and will pass muster in less demanding applications, for an AV system perhaps. The presentation makes a good blend with current TV styling, and if it appeals, the *Silhouette* might well prove the right solution, notwithstanding its limitations.

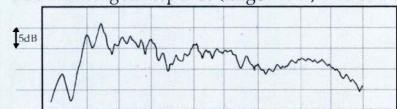
## TEST RESULTS

<b>Size (hxwx d)</b>	(complex) 122.4x24.7x16.8cm
<b>Weight</b>	10kg
<b>Recommended amplifier power</b>	20-80W
<b>Recommended placement</b>	free space
<b>In room averaged response limits 50Hz-10kHz</b>	±5dB
<b>Large room/space LF roll-off (-6dB ref midband)</b>	45Hz
<b>Large room/wall LF roll-off (-6dB ref midband)</b>	45Hz
<b>Large room output at 20Hz (ref midband)</b>	below -15dB
<b>Estimated midrange sensitivity (ref 2.83V, 1m)</b>	88-89dB
<b>Impedance characteristic (ease of drive)</b>	very demanding
<b>Typical price per pair (inc VAT)</b>	£400

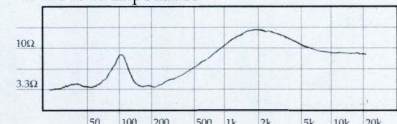
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance





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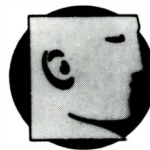
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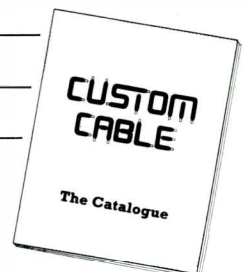
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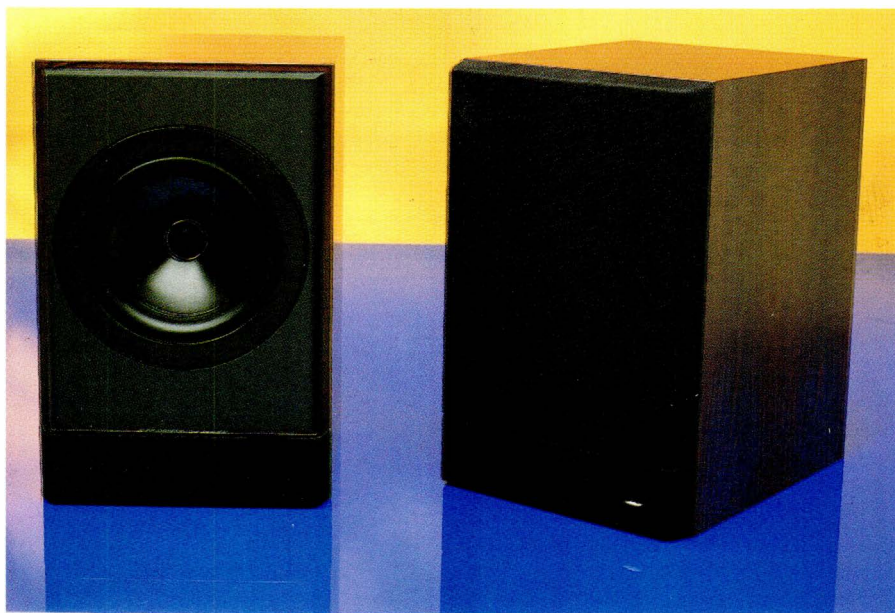
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# KEF Reference Series 101/2

KEF Audio UK Ltd, Eccleston Road, Tovil, Maidstone, Kent ME15 6QP. Tel: (0622) 672 261



**S**mallest of the *Reference Series* loudspeakers, the 101/2 is a little larger than the true miniatures, but is still a small bookshelf model, though the bookshelf concerned has to be sturdy to support its hefty 6.4kg weight. Better still, use a proper stand, placed close to the wall to achieve the correct in-room bass alignment.

KEF's *R Series* has been established for many years, combining hi-tech engineering with stringent quality control and pair matching, and classy standards of real wood veneer finish, all of which goes some way towards justifying the £495 pricetag. The 101/2 is a relative newcomer, and differs from its predecessor in at least one important respect: whereas the 101 was only designed to work in conjunction with a *KUBE* equaliser, the 101/2 has been specifically aligned to work as it stands (with the help of the midbass boost provided by a close-to-wall location). An optional *KUBE* equaliser is available, allowing free space siting and generally greater flexibility, but was not assessed as part of the review package.

Though I've no cause to doubt KEF's sincerity or the value of pair matching to 0.5dB tolerances, I was disconcerted to discover an inoperative tweeter on one of my original pair. The replacements gave no problems during a good sonic hammering, so this was clearly an isolated sample fault.

From the smart wood veneer to the various plastic mouldings, the cosmetics are classy yet restrained, the fixed lower baffle ledge making an aesthetic argument for retaining a clever grille which offers little or no acoustic impediment. Besides, if you leave it off your more ignorant acquaintances will assume you can't afford a hi-fi system with tweeters — even though the more perspicacious will divine the subtle

coherence of a full range co-axial driver. A Uni-Q, to be precise, featuring a 112mm plastic main cone plus a miniature 19mm tweeter fixed onto the polepiece. This driver appears to be mounted on three bolts with rubber bushes that decouple it from the cabinetwork, which is 18mm MDF back and wrap, and further reinforced for the baffle. The sealed enclosure is well stuffed with wadding, and an elaborate high power network is fed from bi-wire terminals.

## Test report

The two in-room response curves show that the close-to-wall alignment has been effectively accomplished, and that the bass extension (-7dB at 30Hz) is better than expected for a 10litre enclosure with a sensitivity rating (86dB) only just below average. Contributory factors include an impedance which is well low at very low frequencies, and a curve shape that indicates significant electrical network modification of normal sealed-box behaviour. Extensive midrange equalisation is also indicated.

The bass-to-mid balance is well handled, though not without some wall-reflection unevenness. Measured output (far field energy) starts to fall, gently and quite smoothly, above a lowish 800Hz, being some 5dB down by the mid treble and continuing to fall thereafter, giving a net balance that is smoother but also duller than the norm.

## Sound quality

Judged on the size of its box, the 101/2 did reasonably well in the listening tests, though not perhaps sufficiently to justify its high price. The smooth and uncoloured midband is a clear strength, and the sound is free from boxiness. But there was also widespread complaint against a ponderous and

slothful bass, and a loss of dynamic contrast

The sound is rich and heavy in overall balance, but drives along with enthusiasm and handles power well when driven hard. However, a fundamental lack of crispness and blandness pervades the proceedings, and the fine locational and off-axis coherence of the coincident driver was not matched by similar timing integrity. Despite a good impression of scale from something so small, the bass seemed lifeless, lacking in authority and drama, and inclined to gloss over more subtle timbres and textures.

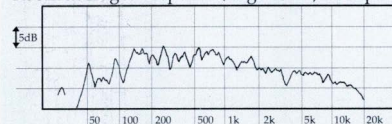
## Conclusion

Although the 101/2 was not considered a success by either myself or the listening panel, dismissal on those grounds alone would be an unwarranted oversimplification. With any small loudspeaker there is some trade-off between different and conflicting criteria. By deliberately and carefully decoupling driver from box, KEF certainly keeps coloration and boxiness well at bay, but I strongly suspect this decoupling is also responsible for the lack of low frequency precision that took the edge off the capabilities of our high quality driving system and irritated our listeners. In another system and room, and to another listener, the value judgement could be quite different. The choice is yours.

## TEST RESULTS

Size (hwxwd)	33x26.5x26cm
Weight	6.4kg
Recommended amplifier power	20-100W
Recommended placement	close to wall
In room averaged response limits 50Hz-10kHz	±5dB
Large room/space LF roll-off (-6dB ref midband)	50Hz
Large room/wall LF roll-off (-6dB ref midband)	50Hz
Large room output at 20Hz (ref midband)	below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	86dB
Impedance characteristic (ease of drive)	demanding at LF
Typical price per pair (inc VAT)	£495

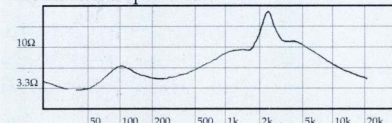
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



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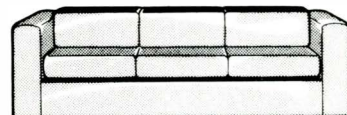
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# Linn Keilidh LS300

Linn Products Ltd, Floors Road, Waterfoot, Eaglesham, Glasgow G76 0EP. Tel: (041) 644 5111



Given the difficulties the rest of the world has in coping even with English, the marketing wisdom of naming your latest product in Gaelic might be questioned, even if the reference (to a shindig or party) is appropriate enough. The *Keilidh* — which I can't help but refer to as a Kylie, even though it has no Australian accent — is a cute and quite demure little £492 compact floorstander, wood veneered on four faces with a charcoal grey baffle and optional black stocking-mask grille.

It's a little smaller than most of the breed, but probably rather more substantially built than most too, turning the scales at around 20kg, with another 4.3kg of heavy ceramic spiked plinth available as a £100 optional extra. It's interesting to contrast Linn's approach with its commercial rivals, but in many ways the *Keilidh* represents a cost effective downgrading of the £1,200 *Kaber*, reviewed and recommended way back in issue 82, but recently significantly updated. In fact *Keilidh* and *Kaber* now share both the optional ceramic base and Linn's new 18mm ceramic dome tweeter (also featured in the £4,000 *Keltik*).

If *Keilidh* is the more prosaic design, with just a single internal chamber to load the twin bass/mid 115mm plastic cone drivers,

there's certainly no evidence of cost cutting or compromise in the engineering involved. Truly wicked spikes may be properly tightened into either the standard plinth made from thick MDF or the ceramic option (which not only adds mass but usefully extends the footprint too). The baffle is 30mm MDF and the wrap 18mm, the whole structure reinforced by two shelf braces and an O-ring to stiffen the sides. It's well stuffed with wadding, and a couple of Ku-stone damping blocks are fixed to the back panel. A purposeful looking PCB network is directly soldered to a triple terminal set. Only two sets are normally needed, for passive bi-wired operation, but *Keilidh* is able to be upgraded at any future stage to active bi-amp or tri-amp modes.

The geometry of the driver line-up is significant, since it places the tweeter rather closer to the floor than usual. This is likely to reduce the impression of height and space in the sound, but does render the tweeter rather less susceptible to the effects of baffle vibration and rocking than if it was higher off the ground.

## Test report

Unlike the *Kaber*, *Keilidh* works best well away from walls, whereupon it delivers a very impressive in-room balance that holds within a well controlled 5dB window all the way from 20Hz up to 15kHz. The exceptional bass extension is one virtue of sealed box loading (system resonant frequency at 65Hz), and is achieved here with a very respectable 87dB sensitivity rating, though this is via a rather demanding amplifier load.

The bass region is exceptionally well controlled, though relative output does drop gently above 300Hz, and has fallen a total of 5dB by the time the broadly depressed presence is reached (1.5-4kHz), subsequently registering a 3dB treble recovery. It's a shape that's characteristic of placing twin main drivers either side of a tweeter, but to Linn's credit the net result here is much flatter than is usually the case.

## Sound quality

Auditioned without the ceramic base, which was only available later in pre-production form, the panel as a whole greeted *Keilidh* with some enthusiasm, especially for its convincingly driving, authoritative and coherent performance on the rock tracks in our test programme, though a couple of panelists did find the slightly 'shut in' balance not entirely to taste.

The treble brightness is certainly obvious, but this did not seem to be much of a handicap, such is the inherent sweetness and clarity of the rather fine new tweeter. The combination of the low down tweeter and broad presence depression does result in some loss of openness and a degree of nasal coloration, but the exceptional strength

of this model is the comparative lack of time-smear, which makes voices sound cleaner, more real and less chesty than is usually the case.

Subjectively already superbly fast and coherent, especially through the bass region, the addition of the ceramic plinth brought an impressive improvement in several respects, sharpening leading edges still further, increasing scale markedly and reducing boxiness to an impressive degree. And if *Keilidh* can sound a mite shut in and squashed when ticking over at lowish levels, its response to a little heavy handedness with the volume control is quite remarkable. It simply goes on getting louder, daring you to give up before it does, and staying exceedingly coherent until the amplifier clips.

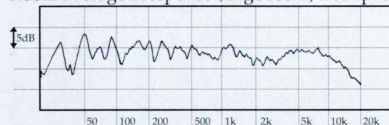
## Conclusion

There's no question in my mind that *Keilidh* is a gorgeous little loudspeaker — possibly Linn's best yet — and certainly very fine value for money. Some may balk at the slightly shut in character perhaps, but the wonderful drive and low frequency integrity results in musical communication of a very high order indeed. The speaker is well deserving of enthusiastic Recommendation, especially when it is used with the extra ceramic plinth.

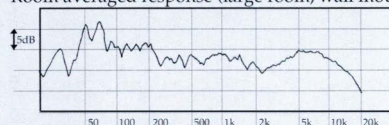
## TEST RESULTS

Size (hxwxwd)	83x20x27.5cm
Weight	20kg (plinth 4.3kg)
Recommended amplifier power	20-120W
Recommended placement	clear of walls
In room averaged response limits 50Hz-10kHz	±4dB
Large room/space LF roll-off (-6dB ref midband)	22Hz
Large room/wall LF roll-off (-6dB ref midband)	22Hz
Large room output at 20Hz (ref midband)	-7dB
Estimated midrange sensitivity (ref 2.83V, 1m)	87dB
Impedance characteristic (ease of drive)	current hungry
Typical price per pair (inc VAT)	£492 (ceramic plinth £100 extra)

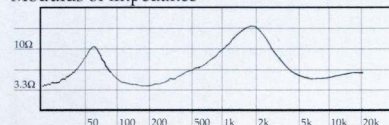
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



# Marantz DS110

Marantz Hi-Fi (UK) Ltd, Kingsbridge House, Padbury Oaks, 575 Bath Road, Longford, Middlesex UB7 0EH. Tel: (0753) 680 868



Not a name one normally associates with the leading edge of hi-fi loudspeaker design, Marantz normally seems too preoccupied with shipping in its best selling CD players and other electronics to worry much about the wooden boxes that sit at the end of the chain. But hi-fi historians will be aware of plenty of precedent. Marantz has marketed speakers of its own on numerous occasions in the past, and with a fair measure of success too, either as entirely separate specialist items or as cosmetic and performance partners to the ever present electronics.

Two new models were actually delivered for possible inclusion in this report, but predictably enough we only had enough space for one, which by random selection turned out to be the *DS110*, a small bookshelf size two-way that sells for £200. Those desperate to know all the ins and outs of the £300 *DS220* will therefore have to cross their legs and wait until May.

The *110* is by no means the cheapest speaker of its size, nor for that matter is it as big as some of its price, but it's not far over the bogey price for a premium quality device such as the Tannoy, Rega and Dali models included in this report, and you only have to pick it up and feel the 5.4kg weight to know you're dealing with something a fair way up from the bargain basement.

A nice touch of design individuality is seen in the distinctive way the corners of the wrap have been cut to give a heavily chamfered effect that rather effectively softens the normal cuboid line. Throw in one of the most convincing simulated woodgrain laminates I've yet seen and the *DS110* becomes one of the prettiest babies around. The grille too has a particularly neat frame, effectively a light plastic spaceframe affair

that should prove largely unobstructive.

The substantial mass is partly due to the massive magnet that drives the main unit's little 90mm paper cone, but the box itself is also built up from substantial 18mm stock throughout. Sadly, the potential benefits may well be squandered by the use of silly little machinehead woodscrews to fix (I use the word loosely) the drivers in place.

The tweeter is an interesting device, using a 19mm titanium dome that's been fabricated complete with a cleverly pleated surround (rather in the JBL manner). The inside of the ported enclosure is very lightly damped with long-haired wool, while high quality crossover components are well distributed on a large PCB fixed inside the (inset) rear panel.

## Test report

The tests show a design of great promise but a frustrating mid-dominated lack of balance at the same time. The room response with the speaker away from walls promises a beguiling combination of high sensitivity with an easily driven amplifier load and an impressively flat response in the midband above 250Hz (middle C), but a resolute roll-off below this, to such a degree that the 55Hz output is down at -10dB.

Placing the speakers close to a wall not only provides the expected midbass reinforcement and reduces the LF roll-off slope to only 5dB over the two octaves but also introduces considerable unevenness across that previously even upper midband. Serious low bass is not even on the agenda, the inherent LF resonance of driver/box being above 100Hz and the port tuned to around 75Hz. The response falls quite gently above 1.5kHz, crossing over to the tweeter across a shallow but broad depression 2.5-5kHz,

while the overall treble relative output is 5-6dB below the midband.

## Sound quality

"A very mixed bag" was the observation at the end of one of the listening test notes, the *DS110* undergoing two separate presentations with distinctly variable results. This I believe shows how difficult it is to evaluate a design which undoubtedly possesses some real strengths, but which is equally flawed in important respects.

The relative lack of bass weight wasn't as obvious as one might have expected, since the *110* has better overall dynamics than most, but the quality of the bass did receive some censure, for a lack of speed, resolution and incisiveness. The midband is the main strength, in a manner that rather reminds me of the sound of Marantz' audiophile electronics. All is delightfully expressive and sweet here, with good transparency and delicacy, though the relative lack of presence and top end darkens the sound somewhat.

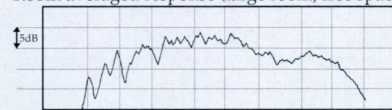
## Conclusion

As a speaker with genuine audiophile midband qualities, the *DS110* could do with better grunt and drive, the end result having many attractive qualities but some lack of overall balance.

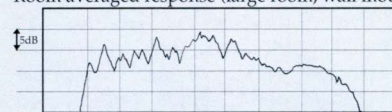
## TEST RESULTS

Size (hwxwd)	33x19.5x20.5cm
Weight	5.4kg
Recommended amplifier power	15-70W
Recommended placement	close to wall
In room averaged response limits	
50Hz-10kHz	±5dB
Large room/space LF roll-off (-6dB ref midband)	75Hz
Large room/wall LF roll-off (-6dB ref midband)	55Hz
Large room output at 20Hz (ref midband)	well below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	88dB
Impedance characteristic (ease of drive)	fairly good
Typical price per pair (inc VAT)	£200

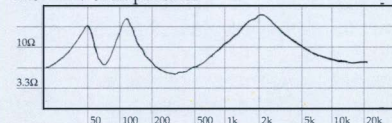
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance





# Mission 753

Centralforce Ltd, Mission Group, Stonehill, Huntingdon, Cambs PE18 6ED. Tel: (0480) 52777



Few loudspeakers in recent years have received as enthusiastic a reception as this cute compact floorstander from Mission. Alvin Gold has already sung its praises and described it in some detail at the front end of issue 112, but it was felt that this additional, more comparative assessment was more than worthwhile, for a model which has already sparked a great deal of new interest in the whole mid-priced floor-standing concept.

Certainly £595 seems a remarkably good deal for the perceived value on offer. Classy (non-rainforest) rosewood veneer with extensive chamfering and bevelling sets a cabinetwork benchmark that rivals will struggle to better at any price. Added to this the sight of a five driver array all the way up the front baffle left several visitors wondering how Mission could possibly manage it at the price.

Having visited the new factory with all its gleaming hi-tech CNC lathes and whatnot, I'm no longer surprised, though I remain

impressed, by the considerable care and effort which has gone into the realisation of the 753 concept. And when you get down to the nitty gritty of the componentry, it's clear the money has been very intelligently spent, albeit with perhaps more of an eye on the presentation rather than the underskin engineering.

The happenyworth of tar that irritated me concerns the inadequacy of the floorspike arrangements. The spikes themselves are pretty feeble, and attempting to lock-nut them properly merely rotated the socket in the plinth woodwork, which may help explain why the bass performance proved less than the best.

In other respects, however, the ingredients make pretty impressive reading. A 19mm MDF wrap forms front, back, top and bottom, sandwiched between 26mm sides. Several internal braces include an airtight shelf that separates the lower reflex-ported bass enclosure from the full range upper sealed box section. A combination of eggbox foam and bitumen pads keeps internal damping to a minimum.

Four apparently identical drivers with 95mm paper cones and big magnets are fitted, the lower two for bass only duties, the upper two operating full range up to the tweeter mounted right up near the top edge. Each main driver is clamped by a steel ring arrangement held under tension by eight tight bolts, thanks to an elaborately routed baffle surface. A 25mm multi-layer plastic dome tweeter has a lightweight plastic frame incorporating a slight horn flare. A complex PCB crossover is fed from bi-wire terminals.

## Test report

The measured performance is a little surprising, good in parts though not perhaps quite up to expectations. Sensitivity is a decent enough 88dB, but the amplifier load is quite demanding and ultimate bass extension is unexceptional, the impedance trace showing that the feed to the bass/mid drivers has an electrical LF roll-off.

The overall balance is exceptionally flat 50Hz-12kHz, but paradoxically is much smoother in our particular room when placed well clear of the rear wall. The design-intended close-to-wall site gives a comparatively obtrusive midbass and upper midband.

## Sound quality

The 753 did well in two separate unsighted presentations, liked for its fine balance and open, lively disposition, with good detail, articulation and expressiveness. However, some felt the presentation was all a little overdone, at some expense in communication and involvement, and the rather obvious top end was not to every taste.

I spent considerable time moving these speakers around trying to get the best out of them, ending up rather frustrated as a re-

sult. The balance was best a foot or two out into the room, but then bass sounded ill-timed and not particularly convincing. The bass was better against the wall, but some of the overall coherence and smoothness was then lost.

The initial impression of a lovely open yet warm and rich sound is very seductive, but there's a degree of time-smear that thickens the quality of voices somewhat, and the slightly limited bandwidth hampers the overall authority. However, with careful siting the system can deliver superb focus and genuine transparency, while the solid build and four bass drivers allow most impressive loudness levels to be generated without noticeable distress with a powerful amplifier.

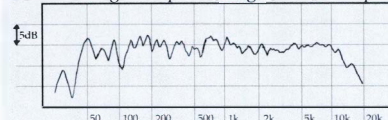
## Conclusion

I am happy to confirm that the 753 is a fine loudspeaker that's undoubtedly Recommended as good value for money at £600. On appearance and perceived value grounds alone it's bound to succeed, though I have to admit it wouldn't be my personal choice in what is currently the most exciting segment of the speaker market. This is partly because of the room-matching paradox mentioned above, and also the floor-coupling inadequacies. It's good, but not quite as good as I'd expected.

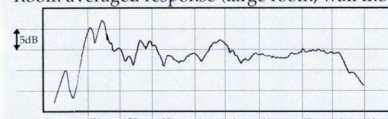
## TEST RESULTS

Size (h x w x d)	90x22x30.5cm
Weight	23kg
Recommended amplifier power	20-150W
Recommended placement	experiment, see text
In room averaged response limits	
50Hz-10kHz	±3dB
Large room/space LF roll-off (-6dB ref midband)	45Hz
Large room/wall LF roll-off (-6dB ref midband)	30Hz
Large room output at 20Hz (ref midband)	below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	88dB
Impedance characteristic (ease of drive)	quite demanding
Typical price per pair (inc VAT)	£600

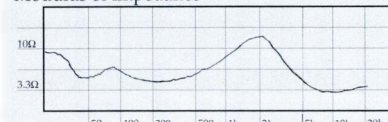
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance

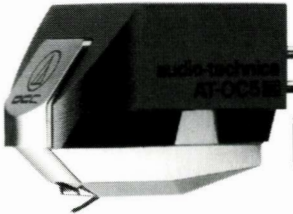


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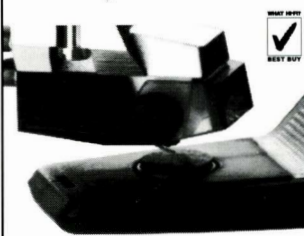


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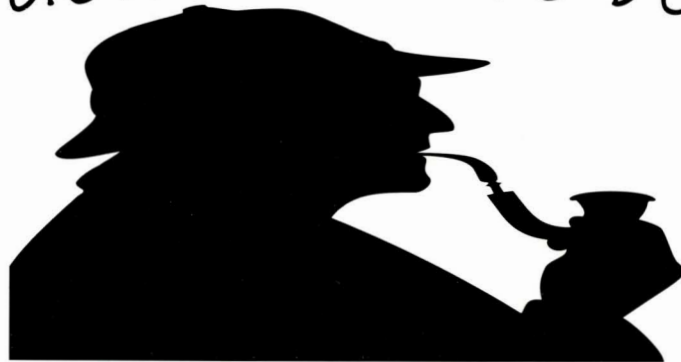
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# Monitor Audio MA800 Gold

Monitor Audio Ltd, 34 Clifton Road, Cambridge CB1 4ZW.  
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The Autumn '92 Penta show saw three new Monitor Audio introductions, including (according to the press release) an *MA800/Gold*, which is what it says on the box sitting out in the hall. The glossy colour brochure, however, shows a picture of the same loudspeaker under the title *Monitor 800 Gold*. Whatever it says on the birth certificate, it seems to slot neatly enough into the *Monitor/MA* range, between the near miniature £400 *MA700* covered in the last loudspeaker project, and the floor-standing *1200*.

The driver lineup looked familiar enough from the *700*, but the cabinet was also ringing bells rather deeper down in my appalling memory. I checked the dimensions, did a little correlation with the *Directory* and up popped the *Studio 15*, the classy £1,200 all-metal-diaphragm model I saw back in issue 102. Take the drivers from one, cabinet from the other, tweak the two together and stir in an Easyflow port, and up pops this lovely looking *800 Gold*, sold to the man with £600 left on his credit limit.

I daresay there are other detail differences, but the basic recipe looks promising enough, if a tad expensive compared to the latest generation floorstanders, taking into account the cost of adding a decent pair of stands. There's a lovely real wood veneer on five faces including the base, yet this design needs to be placed well clear of walls, and the back has been left plain and unveneered, the logic of which escapes me.

It's tall and slim, yet deep enough to provide a good footprint, and feels surprisingly heavy. You can of course use the MDF frame grille, which has some chamfering to minimise acoustic interference, but it would

be a pity to hide the beautiful veneered baffle and flush-mounted drivers, providing you can tolerate the gold-finish protective mesh over the 25mm metal dome tweeter.

The main driver has a 120mm plastic cone with integral phase plug, a cast frame and a big magnet, and was tightly bolted in place. The box is 19mm MDF throughout, with bitumen damping pads on the side walls and a foam lining all round. Heavy internal wiring is fed via a simple hardwired crossover from bi-wire terminals.

## Test report

This is not only the best Monitor Audio model I've measured, it's just about the best speaker I've ever encountered in terms of delivering an even, smooth and overall flat response under live listening room conditions. There are close parallels to the *700* to be sure, but the overall balance above 250Hz is considerably smoother, and the already very slight depression through the crossover region has been eliminated.

So far, most excellent, but two areas of weakness remain, relating to the overall performance envelope of the speaker in the context of what should be expected for £600. The first is the bandwidth limitations at both extremes of the audible range. MA's anodised 25mm metal diaphragm tweeter does start to roll off earlier than most, and -3dB at c10kHz is sailing rather close to the wind. The bass end rolls off rapidly below 50Hz, with marginal extension advantage over the smaller *700*. Add in the fact that the resolutely below average 85dB sensitivity is also the same as the *700*'s, and you're left with basic performance parameters that the typical seven litre miniature often matches.

## Sound quality

A certain grudging respect rather than enthusiasm greeted the *800*'s listening test performance, generating comments such as: "very smooth — too smooth?... An easy listen." and "Just misses the tune somehow, but taps the feet and tickles the fancy quite well."

There's no denying the the beautifully flat balance is its own reward, delivering a subtle neutrality and tonal naturalness that few can approach. And the sound is notable for a remarkable lack of the intrusive nasties that can let down the very best speakers, and which tend to become more irritating the more transparent the system becomes.

But the limited bandwidth does act as a constraint in a top quality system, and the bass does have a certain heavy quality that is not at its best on material with strong, complex rhythmic content. This makes for a warm and comfortable sound that's a trifle short of gusto, enthusiasm and involvement.

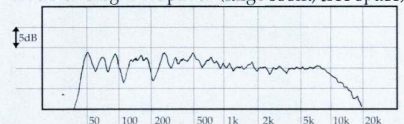
## Conclusion

I have to admit I find the weighing of the pros and cons of this model particularly difficult. The lovely presentation is backed by some real sonic strengths, but the medium somehow takes precedence over the message, and both loudness and bandwidth do lag the current competition to a degree.

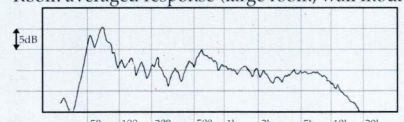
## TEST RESULTS

Size (hwxwd)	51.5x20x27.5cm
Weight	11.5kg
Recommended amplifier power	20-100W
Recommended placement	stands in free space
In room averaged response limits	
50Hz-10kHz	±3dB
Large room/space LF roll-off (-6dB ref midband)	45Hz
Large room/wall LF roll-off (-6dB ref midband)	45Hz
Large room output at 20Hz (ref midband)	below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	85dB
Impedance characteristic (ease of drive)	very good
Typical price per pair (inc VAT)	£600

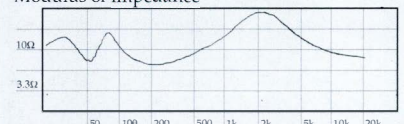
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



# Mordaunt-Short 5.20

Mordaunt-Short Ltd, 3 Ridgway, Havant, Hampshire PO9 1JS.  
Tel: (0705) 407 722



**M**ordaunt-Short really fooled me with this one. I kept losing it, and mixing it up with a couple of 5.30s I've had around the place this past couple of months. The list said it was a 5.20, and therefore reason dictated it would look like an updated version of the 3.20, which itself was simply a stretched version of the baby 3.10. Ergo (if you're still with me) I should be expecting to find a slightly less height disadvantaged variation of the little 5.10 I'd recently reviewed (issue 110).

What I eventually found with a 5.20 logo on the back was something altogether much larger than one has any right to expect for a pricetag of £150 the pair. This is a genuine step up from the miniature volumewise, and shows no sign of economies being extracted elsewhere; no spring clip terminals here, instead a proper double pair of bi-wire terminals.

The ingredients follow the company's familiar recipe book, with heavy investment in plastics tooling for front baffle, back, trim, driver frame and even the main driver cone. One major advantage of this approach is sample-to-sample consistency, helping make everything fit properly together during manufacture.

One of the intriguing elements in reviewing an M-S design is in figuring out which bits have been borrowed from which other models in the range. The 5.20 turns out to be most closely related to the much taller 5.40 that was Recommended in the last group test (issue 110), using just one of the '40s two baffles and main drivers in a box which has the same width, half the height and a little less depth, while combining this with a version of the 20mm metal dome tweeter used in the 5.10.

The engineering is all pretty classy stuff.

The moulded baffle and back are webbed for extra stiffness and clamped together against the 15mm chipboard vinyl woodgrain wrap by four long steel bolts running front to back. The inside is lightly damped, and the crossover minimalist.

The 110mm plastic cone main driver has a pole-piece phase compensator, and uses a hefty magnet. Careful magnetic screening techniques allow the speaker to be used as a television plinth or cover if you want to, without interfering with the colour purity. The drivers were really tightly bolted in place, held by generous threaded inserts cleverly incorporated into the baffle moulding.

## Test report

The 5.20 shows very much the pattern already established by other models in the Mordaunt-Short range, but unfortunately seems to exaggerate all the least desirable characteristics, showing a detached and potentially boomy bass, a rather prominent and uneven upper midband, and a distinctly suppressed treble.

The c2kHz transition from upper mid to treble seems to be a crucial factor in the performance of this Mordaunt-Short series. My original review of the 5.30 showed a step down of about 4dB, but a more recent sample I tried had reduced this to about 2.5dB — and sounded a lot better for it. Nicest of all subjectively, the 5.40 shows just a shallow depression, with only about 1.5dB of treble loss. Portentously perhaps, the 5.20 is just about the worst of the lot, falling 6-7dB between 1kHz and 3kHz.

Given the unevenness, best guess for effective sensitivity is a decent enough 87dB, especially considering the very undemanding amplifier loading, but the fact that the

port is tuned to 55Hz ensures that the midbass is favoured ahead of genuine low frequency extension.

## Sound quality

One member of the listening panel waxed quite enthusiastic about this model, but on this occasion he was wrong, the majority was right, and weren't shy in coming forward to say so (those that managed to avoid dozing off, that is).

The most persistent and widespread complaints were at the turgidity of the timing, the plodding nature of the bass, and the loss of drama, tension and excitement. Partly at least it's a balance problem, inasmuch as there's a lack of coherent richness and warmth to voices, along with a rather hyped and forward presence, resulting in an apparently detailed but ultimately thin and unsatisfying effect.

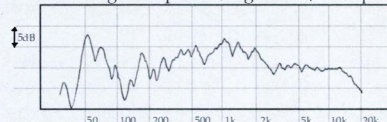
## Conclusion

There's no denying you get an awful lot of very classy engineering for your money in this package. Trouble is, the basic recipe is flawed and the concoction as a whole is the least smooth and well balanced of all the 5 Series models we've assessed — which is somehow all the stranger as it shares quite a number of important components with the altogether more delightful 5.40.

## TEST RESULTS

<b>Size (hwxwd)</b>	36x21.5x21.5cm
<b>Weight</b>	5.7kg
<b>Recommended amplifier power</b>	15-70W
<b>Recommended placement</b>	clear of walls
<b>In room averaged response limits</b>	
<b>50Hz-10kHz</b>	±7dB
<b>Large room/space LF roll-off (-6dB ref midband)</b>	45Hz
<b>Large room/wall LF roll-off (-6dB ref midband)</b>	45Hz
<b>Large room output at 20Hz (ref midband)</b>	below -15dB
<b>Estimated midrange sensitivity (ref 2.83V, 1m)</b>	87dB
<b>Impedance characteristic (ease of drive)</b>	very good
<b>Typical price per pair (inc VAT)</b>	£150

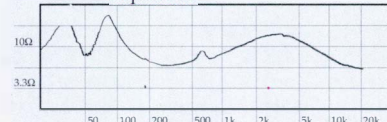
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



# Morel Bassmaster 602

Morel UK Ltd, 11 Foxtail Road, Ransomes Lane Industrial Estate, Ipswich IP3 9RT. Tel: (0473) 719 212



**M**orel as a company has been around since 1975, but until recently my only knowledge of its activities has come from encountering some rather interesting and unusual main drive units that have been cropping up in complete loudspeakers from specialist brands like SD Acoustics and Origin Live. I hesitate to call the Morel drivers unique, because Danish driver manufacturer Dynaudio produces something at least superficially similar, and I've no idea which came first. But this first of a new generation of complete speakers from Morel certainly takes full advantage of one particularly unusual feature of the driver, and throws in plenty of other unconventional thinking at the same time.

The picture shows a driver complement and baffle configuration that is decidedly different, though students of hi-fi history might be reminded of that classic of the Seventies, the Gale 401. Not that the *Bassmaster 602* is as big or hefty as a Gale. In fact it's quite delightfully compact, and is clearly also very solidly built indeed — so much so that I was entirely unable to gain any access whatsoever to the interior.

I've therefore had to take information on the innards on trust. The unusual feature of the Morel main driver is that it drives a 115mm plastic cone/dome diaphragm directly from a large (75mm) voice coil that sits outside the magnet(s). The rear radiation from the area outside the voice coil is free to pass through the frame in the usual way, but the radiation created behind the central dome has to pass out via a central hole through the magnet structure.

The possibly unique bass-loading technique — hence *Bassmaster* — consists of subdividing the enclosure into two separate and independently ported chambers,

one energised by the rear radiation generated by the cone section outside the coil, the other from that coming from the dome through the magnet structure. Both ports are small and foam damped. The tweeter arrangement is equally unconventional, consisting of two apparently identical 30mm soft dome devices both operating together 2-5kHz and just one continuing thereafter.

The whole thing is beautifully finished in classy wood veneer and radiused edges, and comes in various finishes at different prices from £1,095 upwards, our samples having the upmarket gold-plated bolts, protection bars, bi-wire terminals and badge.

## Test report

Sadly, the room averaged far-field traces do not substantiate Morel's claims for exceptional bass extension, and show other problems at the same time. Simply compare the *602* traces with those for the *SD4*, which uses a very similar Morel main driver, and note the latter's greater overall smoothness and marginally better absolute extension.

In fact the Morel's trace is excellent above 1kHz, suggesting that the odd twin-tweeter arrangement actually works rather well, but the 4dB peak 600-900Hz, following immediately after a broad 3-6dB suckout 200-500Hz, looks decidedly anomalous, making the assessment of sensitivity very approximate, our low 84dB figure accompanying a quite demanding amplifier load.

## Sound quality

Despite (or perhaps partly because of) the balance anomalies, the *602* was very well received by a listening panel that praised the good detail and generous soundstage, decent dynamics and the fine sense of purpose and pace: "Not as cosmetically pure as

some, but very enjoyable nonetheless."

The Morel certainly delivers an impressive scale of sound from a very compact package, but extended listening over a wider variety of program sources found the hyped presentation increasingly tiresome. It's an informative speaker, but lispy, spitty tendencies along with a lack of warmth and some nasal and pinched effects colour the sound, in a way that can be immediately impressive but is ultimately inaccurate. The bottom end delivers fine weight and clarity, obviously aided by the very rigid cabinet-work, but I didn't find its analysis of complex high level bass lines particularly exceptional.

## Conclusion

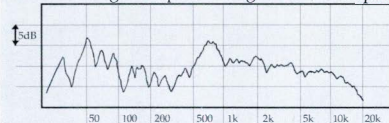
Interesting but flawed is the final verdict on the *Bassmaster 602*, which undoubtedly impressed our listening panel, but quite possibly for the wrong reasons. It's difficult to isolate the subjective effects of the treble from the upper mid peak of the main driver, but the twin tweeter arrangement seems to be worth further exploration.

As for the main driver's 700Hz peak, looking at a cross-sectional diagram of the interior I suspect reflection and standing wave effects created by the internal partitioning, one panel of which is situated less than the depth of the driver itself behind the cone section of the main diaphragm.

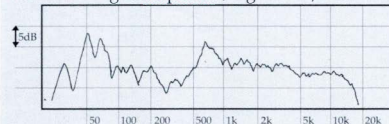
## TEST RESULTS

Size (hwxwd)	24.5x40x22.5cm
Weight	10.5kg
Recommended amplifier power	25-150W
Recommended placement	stands in free space
In room averaged response limits	
50Hz-10kHz	±6dB
Large room/space LF roll-off (-6dB ref midband)	25Hz
Large room/wall LF roll-off (-6dB ref midband)	25Hz
Large room output at 20Hz (ref midband)	-11dB
Estimated midrange sensitivity (ref 2.83V, 1m)	84dB
Impedance characteristic (ease of drive)	quite demanding
Typical price per pair (inc VAT)	from £1,095

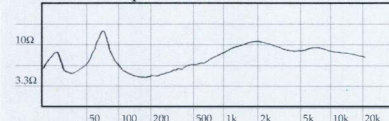
Room averaged response (large room, free space)

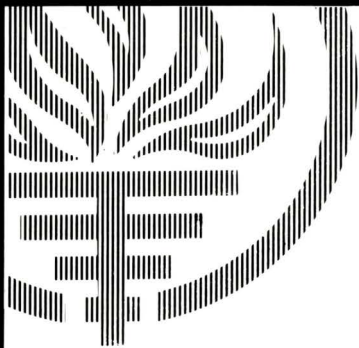


Room averaged response (large room, wall mount)



Modulus of impedance





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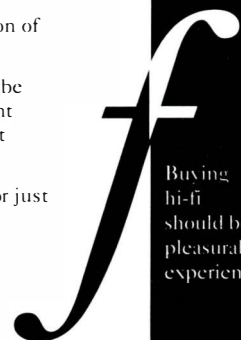
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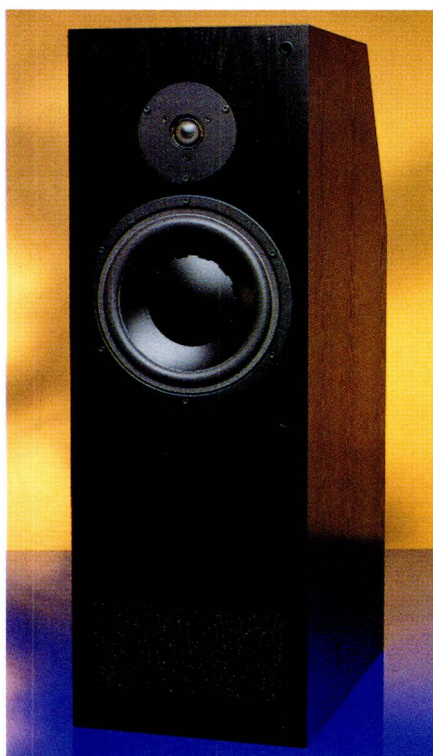
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Professional Monitor Company, 27 The Avenue, Highams Park, London E4 9LB. Tel: (081) 531 5308



**T**he Professional Monitor Company does at least have some justification for the pretentiousness of its name, the company principals being ex-BBC engineers who have since supplied both the Corporation and various other professional users. It's a relatively small and new operation on the hi-fi scene, which first came to our attention through the pretty little *LB1*, a pricey but exceedingly pleasant and essentially neutral compact design that was recommended in our last loudspeaker project (issue 110).

What could be more logical than to scale up the *LB1* into something altogether more capable of butt kicking?

Enter the *AB1*, with a pricetag of £1,600 and featuring a bigger box and main driver, but otherwise showing a very close family similarity to its baby brother. Since each dimension has been increased by roughly half as much again, students of mathematics will immediately realise this amounts to a total volume increase of three and half times (I had to use a calculator), while the avoirdupois is also up, by a factor of around 2.5.

This then is a rather large and bulky box, and a little oppressive too when finished on five of the seven faces in black real wood veneer — I'd opt for the light oak alternative, while being tempted by the extra cost rosewood.

A matching low stand from Foundation is an almost mandatory extra. It costs £160, but conveniently matches the footprint, pro-

vides floor-coupling spikes and lifts the tweeter to the right height.

One reason for the bulky enclosure is that it uses something known as a transmission-line, preceded by a decoupling cavity, to load the rear of the main driver, a technique which is purported to give good absorption of higher frequencies along a three-legged fold inside the box, plus worthwhile low frequency reinforcement via a generous port below the main driver. In this instance the line is tuned to 35Hz, against 55Hz for the *LB1*.

The seventh face of an otherwise cuboid box is a slanted slice off the top rear that then acts as a reflector to direct rear radiation down into the line.

The main driver is a Dynaudio device with a 155mm plastic cone/dome and wide surround, driven from an unusually wide (and hence high power handling) 100mm voice coil, and a relatively modest, magnetically shielded magnet. The pressed steel frame was held by six decent bolts that could have been tighter. The tweeter is a 30mm soft dome.

The box is 19mm MDF throughout, which is not a lot considering the areas involved, but the internal folding does add a fair measure of stiffness. A complex cocktail of bituminous damping pads and eggbox foam line many of the internal surfaces. Neutrik *Speakon* connectors provide a reminder of the Pro ancestry, and are integral with a rear panel that contains a complex, high quality PCB crossover, with extensive use of tag connections throughout.

## Test report

The contrast between this large model and the smaller PMC *LB1* is fascinating. The larger enclosure and main driver secure worthwhile increases in sensitivity (by 2-3dB) and bass extension (by about 10dB below 40Hz), but at some cost in midband smoothness, and in a rather more abrupt step-down in the transition from main driver to tweeter.

In isolation the *AB1* combines an impressive overall bandwidth with generous sensitivity and a straightforward amplifier load. The midband does look distinctly lumpy, however, and the 50Hz output that corresponds to one of our main room modes looks decidedly strong, while the 9dB drop between 1kHz and 2kHz is bound to have some rather unwelcome subjective consequences.

## Sound quality

While the panel certainly appreciated hearing something with serious bass extension, there was no avoiding the rather too heavy balance that the *AB1* created in our (fairly large) listening room, and concomitant boomy tendencies that occurred on the wrong programme material.

The net result was fullsome praise for fine dynamics and excellent detail, but reservations about some lack of projection and an overall effect that was rather too laid back, a little dark and shut in, and somewhat lacking in agility.

As one panellist put it: "It's so good in some ways the failings elsewhere become that much more irritating".

The sighted tests I performed later confirmed the balance difficulties, but did draw closer attention to a fine level of transparency and freedom from boxiness that is in some ways more reminiscent of a panel rather than a box loudspeaker. To the listener carefully positioned at the 'sweet spot' in the room the *AB1* can deliver stunningly convincing stereo images, with great delicacy and precision. It can also handle plenty of power with some authority and aplomb.

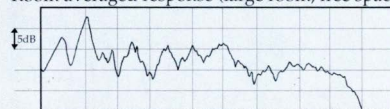
## Conclusion

Growing up the little *LB1* into this much larger *AB1* has certainly succeeded in adding extra grunt and gusto, but at some cost in overall smoothness and some sacrifice of the more open neutrality of the smaller model. The *AB1* has its own undoubted charm, but is perhaps best suited to the largest rooms.

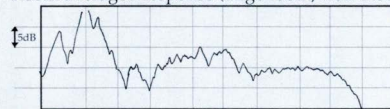
## TEST RESULTS

<b>Size (hxwxrd)</b>	79x27x43cm (stand adds 26cm to height)
<b>Weight</b>	23kg (stand 8kg)
<b>Recommended amplifier power</b>	20-200W
<b>Recommended placement</b>	stands clear of walls
<b>In room averaged response limits</b>	
<b>50Hz-10kHz</b>	±7dB
<b>Large room/space LF roll-off (-6dB ref midband)</b>	20Hz
<b>Large room/wall LF roll-off (-6dB ref midband)</b>	20Hz
<b>Large room output at 20Hz (ref midband)</b>	-6dB
<b>Estimated midrange sensitivity (ref 2.83V, 1m)</b>	88dB
<b>Impedance characteristic (ease of drive)</b>	good
<b>Typical price per pair (inc VAT)</b>	<b>£1,600</b> (stand £160)

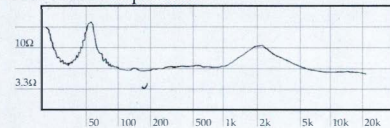
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



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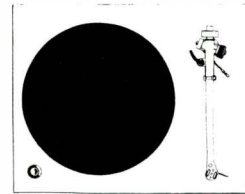
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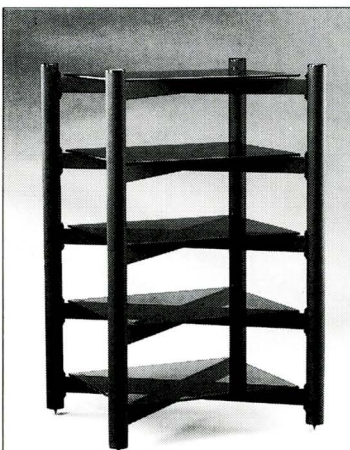
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**B**est known for its long established domination of the market for high quality, budget priced turntables, Rega has more recently applied its very individual but often highly effective design skills to the rather different worlds of amplification and loudspeakers. The company has also recently changed its policy towards the press, and now cooperates over the loan of review products. As a result, this is the second loudspeaker review project in succession to feature a Rega model.

Last time around we covered the already well established *ELA*, which can be seen with hindsight to have been very much a trendsetter in anticipating the modern fashion towards compact floorstanding designs.

Now Rega is making a bid for the much larger market for small bookshelf size speakers, with the all new and decidedly pretty little *Kyte*, which manages to sell for less than the magic £200 price point and still incorporates a real wood veneer wrap. It's a surprisingly lightweight affair, slightly taller than the true miniatures but covering a very small footprint.

The cosmetic detailing is superb, especially in the foam-damped triangular port and the cutaway foam grille, which was widely admired by visiting panellists. It looks good without the grille too, apart perhaps from the velcro grippers, thanks to the lovely baffle finish and edging, and rebated drive units. Another innovative plus point is a clever wall bracket expressly designed to provide the speaker with three-point support against a wall; best news of all is that it costs only £7.

The instruction leaflet warns against messing with the (tight) main driver screws, but in practice the unit is held tightly by a tacky gasket, and is an unusual device in a

number of ways, with a decent size magnet, a very classy cast frame, and small 19mm voice coil with protruberant shaped polepiece, driving a 90mm paper cone. The baffle is very substantial 18mm MDF, the wrap 13mm veneered board, and the box lightly filled with well teased long-haired wool. All is hardwired, with a simple high quality crossover.

## Test report

The small bass driver with natural in-box resonance around 100Hz inevitably limits the amount and extension of the available bass output quite severely, especially as the port output (centred on 55Hz) is quite heavily damped.

Free space siting is neither an option nor the manufacturer's intention, but placement close against the wall provides a well judged midbass fill, resulting in an unusually well balanced in-room response overall, albeit with certain obvious characteristics. The upper midband is about 3dB stronger than the midbass/lower mid, while the presence and lower treble is also suppressed by about 3dB across a broad two-octave band 1.5-6kHz. The mid treble is a shade exposed, 7-11kHz, with good ultimate extension.

Sensitivity is a pretty generous 87dB, and is largely uncompromised by a basically easy amplifier load, though impedance does drop somewhat at very high frequencies, which will almost certainly be harmless but which might embarrass the occasional amplifier on the wrong programme material.

## Sound quality

Despite undergoing the rigours of two separate presentations, and inevitably sacrificing marks because of its lack of serious bass weight and extension, the little *Kyte* com-

fortably made it into the top half of the test group, which is very creditable indeed.

Several panellists started off with negative impressions, due to the lack of weight, but gradually came round to a more positive frame of mind as the session progressed, impressed by the overall coherence, fine speed and excellent timing.

As with any speaker, the *Kyte* has its fair share of cosmetic flaws, such as the slightly forward midband, recessed presence and isolated treble, but these effects were slight enough, and the inherent quality of the tweeter good enough not to spoil the enjoyment unduly. The brighter than usual balance was well liked overall, with the proviso that it could perhaps prove a problem with less well behaved systems and discs. I became even more impressed by this speaker during more extended listening, especially with the unusual amount of information from the well controlled and very coherent bass, and a surprising ability to go quite loud without distress.

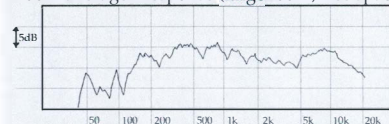
## Conclusion

I'm not going to promise the *Kyte* will appeal equally to all ears and systems, but despite some lack of weight this is a most impressive design. Unusually communicative and fundamentally well balanced and behaved, a Best Buy rating seems appropriate.

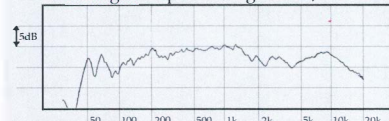
## TEST RESULTS

<b>Size (hxwxwd)</b>	31x19x20cm
<b>Weight</b>	3.3kg
<b>Recommended amplifier power</b>	15-70W
<b>Recommended placement</b>	close to wall
<b>In room averaged response limits</b>	
<b>50Hz-10kHz</b>	±4dB
<b>Large room/space LF roll-off (-6dB ref midband)</b>	100Hz
<b>Large room/wall LF roll-off (-6dB ref midband)</b>	50Hz
<b>Large room output at 20Hz (ref midband)</b>	below -15dB
<b>Estimated midrange sensitivity (ref 2.83V, 1m)</b>	87dB
<b>Impedance characteristic (ease of drive)</b>	good
<b>Typical price per pair (inc VAT)</b>	£198

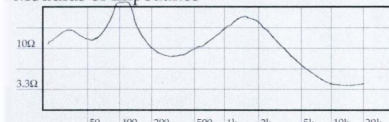
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance

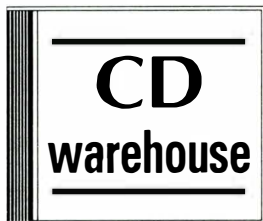


# An invitation from Bill Wilson

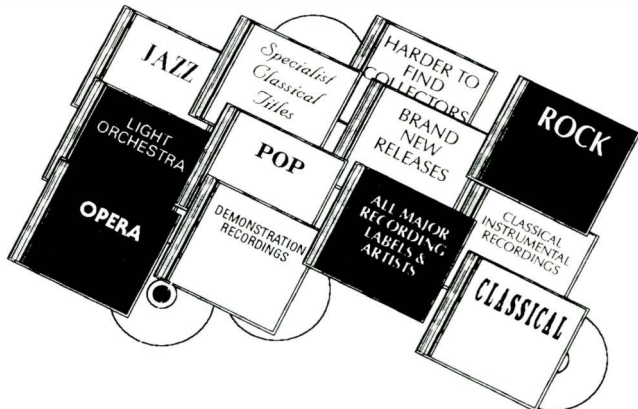


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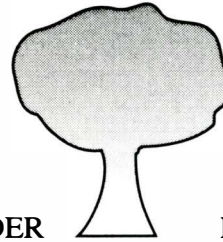
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# Rogers LS6a

Swisstone Electronics Ltd, Unit 3, 310 Commonside East, Mitcham, Surrey CR4 1HX. Tel: (081) 640 2172



For the past few loudspeaker projects we've been working our way steadily through the *Mk2* versions of Rogers' popularly priced *LS* series of speakers. The little *2a/2* was a particular success in issue 106, so much so that it rather undermined the slightly larger *4a/2* (issue 110), which brings us neatly onto the largest of the threesome, the £350 *LS6a/2*. This can either be seen as a logical extension of the two smaller models, or as a straight successor to the *6a* covered back in issue 86, or indeed both of these.

So much for the context, but when stacked up among the 24 other models assembled for this group review, there's no avoiding the fact that the *6a/2* package does look distinctly old-fashioned, notwithstanding the recent *Mk2* restyle. One can argue with perfect justification that the laws of acoustics are entirely immune to the vagaries of fashion, that traditional virtues are their own reward, and that Rogers customers already equate the passing of Dunn & Co (gents outfitters) with the imminent onset of Armageddon, but that doesn't change the marketplace perception.

The bluff four-square box has little spurious decoration, apart from a slight chamfer around the baffle edge. It's all clean enough, though the clear plastic main driver cone looks a shade odd and aesthetics are improved with the demure and acoustically well designed grille in place.

Tightly bolted to the baffle, the main driver has a pressed frame and massive magnet to drive the 150mm plastic cone. The treble is handled by a small 19mm metal dome, lurking beneath mesh protection and tightly woodscrewed in place. The vinyl woodprint box, complete with a characteristically naff smell hitherto unique to Rogers

but now spreading to Celestion too, is assembled from 16mm MDF throughout. The back is slightly inset to stiffen the wrap, while an O-ring horizontal brace helps stiffen the baffle in the important area between the drivers. A generous port is offset in the front baffle, and the inside of the carcass lined in absorbent foam. Twin terminal pairs allow bi-wiring to feed a simple high quality crossover network.

## Test report

Provided the *6a/2* is kept well clear of walls, the in-room response looks very good indeed, and represents a substantial improvement over its predecessor in smoothness, bass extension and sensitivity, which is some achievement, especially as the load seen by the amplifier remains just as easy to drive. Given even half a chance, however, the midbass is inclined to get out of hand.

But there's really very little to criticise in what is clearly an impressive package for the money, though the crossover region shows a mild notch and leaves the treble a shade detached in consequence. It's also noteworthy that the port is tuned to a very low 27Hz, which helps explain the fine extension but will do little to help control the natural 65Hz driver/box frequency.

## Sound quality

The *6a/2* performed twice behind the black curtain, and while the results were reasonable enough, I have to say they fell rather short of the high expectations inspired by the splendid *2a/2*, and the fine measured performance to boot.

More than one panellist complained that the overall mix was altogether too safe, tending unerringly towards the bland and the boring. The majority felt that there was

the potential for a fine loudspeaker here, but that the elements somehow didn't quite all come together and work in the same coherent direction. My own consistent criticism — blind, sighted and with various stands — was that the bass had a rather heavy 'big box' sound that's all a bit lazy and sluggish.

Vocals are handled pretty well on the whole, though spoken male voice had some chestiness, and consonants in general seemed a little softened. The speaker is quite capable of establishing a decent degree of dynamic resolution, but the dynamics themselves seem somehow rather lifeless and uninspiring. Nevertheless, the decent sensitivity and power handling does enable good levels to be achieved without signs of strain.

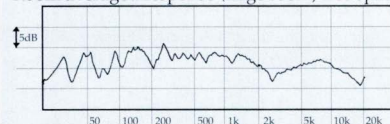
## Conclusion

This loudspeaker reviewing can be a perverse and frustrating business. Here we have a speaker that may not be the most exciting looker on the market, but which measures very well and has been very well put together from classy ingredients at a relatively modest price. But at the end of the day I've been unable to extract the sort of musical communication or deliver the sheer fun factor its baby *2a/2* brother so ably demonstrated a few months previously. Don't expect me to try and explain why!

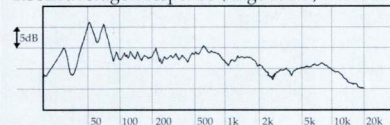
## TEST RESULTS

Size (hwxwd)	51x28x29.5cm
Weight	10kg
Recommended amplifier power	15-80W
Recommended placement	stand, clear of walls
In room averaged response limits	
50Hz-10kHz	±4dB
Large room/space LF roll-off (-6dB ref midband)	22Hz
Large room/wall LF roll-off (-6dB ref midband)	22Hz
Large room output at 20Hz (ref midband)	-8dB
Estimated midrange sensitivity (ref 2.83V, 1m)	87dB
Impedance characteristic (ease of drive)	very good
Typical price per pair (inc VAT)	£350

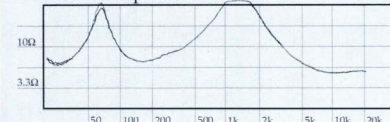
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



# Royd Topaz

Royd Loudspeaker Company Ltd, Unit B2, Stafford Park 15, Telford, Shropshire. TF3 3BB. Tel: (0952) 290 700



There's always been something a little old-fashioned about Royd. I think it's called virtue, and the sort of value system that combines a determined individuality and engineering integrity with a certain naivety about the big wide commercial world out there. The net result is a range of products with charm and sometimes flair as well, but which you're unlikely to find down at the local discount and distressed merchandise emporium.

The model range doesn't change all that often, or all that dramatically when it does, but the '92 season introduces a sufficiently significant package of improvements to require new models and price points.

The company's main speciality has long been the seven litre miniature speaker, which comes in about five different performance grades from the £115 *A7II* up to the £375 *Sintra II*. The £173 *Topaz* which is the subject of this report actually comes in to replace the £140 *Seven*, and represents the first step up from the *A7II*. The actual recipe for the *Topaz* is to combine the classy cast frame main driver that's used in the (£245) *Sapphire* with a notoriously inexpensive but nonetheless sonically highly respected Audax tweeter.

The cabinetwork has been tidied up, especially in the chamfered picture frame edging around the (fixed) grille, though this seemed to have gone a bit wrong on one of our pair, leaving a pock-marked effect. Assuming this was a sample defect, the net effect is tasteful, conservative, yet very smart. The other main innovation is a further development of the massy/lossy rear port which doubles as a brace for the main driver magnet, and now communicates through a series of pencil size perforations, to minimise unwanted resonances.

Access to the innards is made difficult because the grille doubles as a dust cover for the unusual 19mm coil open-pole main driver. It can be removed for service if necessary, albeit at some cost to the integrity of the velcro fastening, but the naked appearance is pretty tacky and best avoided. All feels very solid, the more so because 4.7kg is pretty substantial for such a small unit, thanks in part to a decent size magnet but also a 15mm MDF cabinet wrap. The 90mm paper cone main driver is secured (more or less) to the 12mm chipboard baffle by eight woodscrews, none of which was particularly tight.

## Test report

The *Topaz* actually shows considerable common ground with the *Sapphire*, and such differences that there are tend to be pretty subtle, and perhaps on balance still favour the earlier design.

It's difficult to say whether the port changes have improved the bass, which responds quite well to some nearby wall assistance, but nevertheless remains somewhat heavy and isolated 50-100Hz. Furthermore, there's been a slight exaggeration to the upper mid peak that is a regular characteristic of Royd's little main driver, which is unlikely to be helpful. On the positive side, the crossover is now smoother, though the mid and upper treble are a bit lacking.

Although the trend shows significant departures from neutrality which will have a noticeable effect on the character of the sound, at least most of the transitions (bar the 5dB step down between 1.5kHz and 2kHz) are quite gradual, and the fine detail is significantly smoother than many. The size dictates that there's going to be little grunt down below 50Hz (though there is just a

little), but sensitivity is a useful 87dB despite making only modest demands on the amplifier, which is very creditable.

## Sound quality

The *Topaz* turned in a pretty respectable performance in the listening test, and certainly did enough to justify its quite modest price. The bottom end is fruity enough to give some sense of scale, but the rather detached and thumpy qualities also gave rise to some criticism.

It's impressively cheerful and lively, and also quite articulate, with good leading edges and fair dynamics, but is also ultimately a little shut in and slightly scrappy overall. Agile rather than truly fast, the result is at once both involving yet also slightly exasperating, with fine detail and plenty of communication but some rather flat perspectives and loss of transparency.

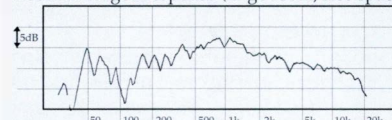
## Conclusion

The *Topaz* has plenty of charm, delivering a lively sonic performance for a competitive price. However, against this must be set some peculiarities — which again is pretty much par for the £170 course — but which leave it just below the borderline for Recommendation (by our recently tightened criteria). That said, it deserves a fair hearing, preferably in a complete system context.

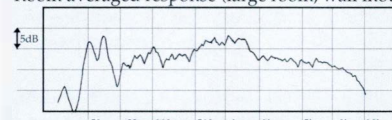
## TEST RESULTS

Size (hwxwd)	30.5x20.5x19cm
Weight	4.7kg
Recommended amplifier power	15-70W
Recommended placement	about 1ft from wall
In room averaged response limits	
50Hz-10kHz	±4dB
Large room/space LF roll-off (-6dB ref midband)	50Hz
Large room/wall LF roll-off (-6dB ref midband)	50Hz
Large room output at 20Hz (ref midband)	below -15dBdB
Estimated midrange sensitivity (ref 2.83V, 1m)	87dB
Impedance characteristic (ease of drive)	very good
Typical price per pair (inc VAT)	£173

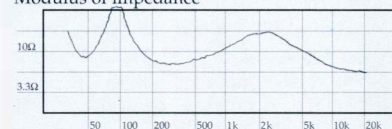
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



# SD Acoustics SD4

SD Acoustics, The Factory, Alpha Road, Surbiton, Surrey KT5 8RP.  
Tel: (081) 339 9594



**T**he *SD4* is a large loudspeaker, true or false? Both really. For £699 you certainly get an imposing piece of furniture standing a metre off the deck and in a rather attractive combination of wood veneer and black laminate. But closer examination reveals that slightly less than half is made up of acoustically active enclosure, and that the lower half-and-a-bit is effectively just a box full of less-than-fresh air.

Which isn't to imply it serves no valuable function. In fact the reverse, since it provides a high stand with a decent footprint floor-spiked base to get the drive units well off the deck, with the added potential that it may be filled (or more practically part-filled) with sand and/or lead shot to provide a heavier and more stable platform with some additional vibration damping capability. The simpler alternative is to substitute the neat little £75 Foundation frame which SD's distributor supplied for use in this review (and which wasn't quite long enough, actually reducing the footprint significantly).

Despite its tall floor-standing presentation, the *SD4* is therefore really no more than a slightly larger version of the compact

*SD3* that was reviewed and recommended in issue 108, but the difference in size actually proves quite significant, and the *4* of course comes complete with its own integral stand. The driver line-up seems exactly the same for both, but the *4*'s enclosure is about half as big again, and the port tuning different too.

The overall shape is high and therefore somewhat top-heavy, so however the floor-coupling is managed there's a good case for adding some extra mass to the lower chamber, thus giving the quite large fore-and-aft footprint good conditions for stability. There's an advantage in height too, in getting the tweeter up or above ear height, which seems to improve the sense of openness.

The three-quarter length grille is really part of the styling, so happily the frame is quite thin, if unchamfered. The box is built up from 22mm MDF, which feels quite lively to the knock test, despite the foam lining of the top section and the stiffening of the dividing shelf. Properly tight bolts secure the 115mm plastic cone Morel main driver, which has a very large voice coil and a generous shielded magnet. The bi-wire terminals and simple crossover are mounted high up on the back and inside the main enclosure, which not only subjects them to unnecessary vibration, but also means leaving the outside connecting wires dangling down to the floor.

## Test report

The commonality with the *SD3* is unmistakable, but the *4* delivers altogether superior results in every respect. The bass is now properly tuned, giving an impressive combination of relatively smooth balance and good fundamental extension, which was only achieved by blocking up the port of the *3*. Sensitivity is up a useful 2dB, albeit to a still low 85dB.

Provided the *SD4* is kept well clear of walls, the overall balance is remarkably flat right across the band from 20Hz up to the slightly early treble roll-off which starts at 11kHz. Imbalance colorations will be relatively subtle, amounting to a slight lack of fullness and richness through the upper bass and lower mid, plus a touch of forwardness in the upper midband.

## Sound quality

The *SD4* was quite well liked in the listening test, but not universally so, attracting praise for its midband openness, dynamics and good sense of scale, alongside several complaints of a lazy, loose bottom end and a general difficulty in getting involved in the music.

All of which sums up the speaker rather well. It certainly has an engaging transparency and delicacy through the main vocal bands, and a refreshing freedom from boxiness too, but there's also the chesty

quality that's indicative of some time-smear, and a general lack of low frequency precision, authority and grip.

The ear immediately focuses on the fine midband, leaving the bass to get on and do its own thing in its own way. I wouldn't go so far as to call it slow, and there's certainly very little overhang, but neither does it seem to drive the music along with any particular enthusiasm. The net result can be very pleasant indeed, especially when operating at relatively modest levels, but is ultimately a bit insubstantial, and becomes less convincing when the volume is wound well up.

Although most of the reviewing was done on the supplied Foundation plinths, I also tried spiking the enclosure directly, and felt this created a slight improvement in overall coherence and focus. One could then, of course, go on for hours trying different cocktails and quantities of fill for the lower box...

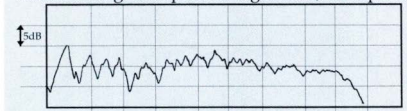
## Conclusion

I can't say that the *SD4* is particularly good material value for money, as £300 seems a hefty extra chunk for putting *SD3* components in a box three times the size. But it is an engagingly neutral and transparent performer with the sort of priorities favoured by valve amp enthusiasts, and is certainly worth checking out if loudness is less important than delicacy.

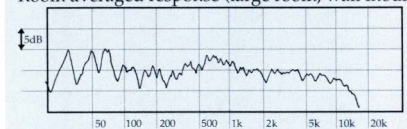
## TEST RESULTS

Size (hwxwd)	100.5x20x30.5cm
Weight	19kg
Recommended amplifier power	20-120W
Recommended placement	clear of walls
In room averaged response limits	
50Hz-10kHz	±4dB
Large room/space LF roll-off (-6dB ref midband)	25Hz
Large room/wall LF roll-off (-6dB ref midband)	25Hz
Large room output at 20Hz (ref midband)	-10dB
Estimated midrange sensitivity (ref 2.83V, 1m)	85dB
Impedance characteristic (ease of drive)	very good
Typical price per pair (inc VAT)	£699 (plinth £75)

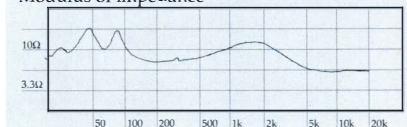
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)

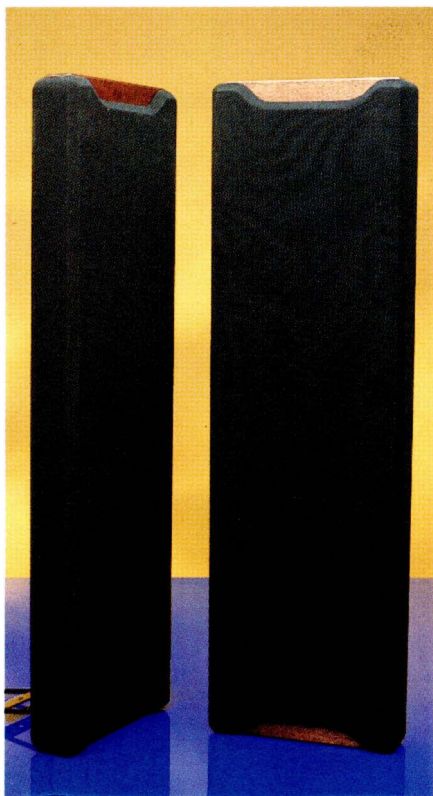


Modulus of impedance



# Sequence 30

Sequence Design Ltd, 1 Orston Lodge, Old Farm Road, Hampton, Middlesex TW12 3RQ. Tel: (081) 941 6737



**A** brand new name on the UK hi-fi scene, Sequence made its first appearance at the Autumn 1992 Penta Show with one of the most talked about debut models for quite some time. To be frank, it wasn't so much astonishment at the breathtaking sounds that were coming from the Sequence room, but rather a feeling of amazement that anyone could manage to make an almost flat and able-to-be-hung-on-the-wall loudspeaker actually work at all, never mind selling it for a very competitive £200.

Such a combination of radical and discrete styling at this price will certainly guarantee quite enormous interest from both trade and potential customers. However, the main question this review must address is whether or not such a remarkably tempting package is actually capable of delivering genuine hi-fi standards of performance.

The name and the product may be new and unfamiliar to our readers, but the principals behind the operation have a great many years' collective experience in the hi-fi business, claim solid technical and financial backing, and certainly provide some evidence of serious intent in the copious and very professional literature provided.

Being only 7cm thick, the Sequence already looks dramatically different from the herd, and is also very nicely detailed in a number of ways. Top and bottom of the wraparound cloth grille are a couple of classy looking hardwood sections that house ter-

minals and spikes in the base, a badge on the top, and the alternative mounting slots top and bottom. Particularly clever is the stand/bracket, which is a simple twin-pronged affair that either fixes to the wall, with the speaker hung on the prongs, or slots in at the base to give freestanding support, albeit without much rigidity.

One less desirable consequence of the remarkable thinness is significant width and even more height, which ensures a pretty substantial area of wall will be obscured by black nylon cloth. This certainly dictates that the speakers will look rather conspicuous when placed against the magnolia-through-white wall of the typical British residence. The lighter cloth alternative might well be preferable.

I never did figure out how to get it apart, short of risking damage to the cloth, so cannot report on any of the internals. What was clear from feeling through the grille is that it's basically a two-way design, ported down at the base, with a main driver cone about 100mm diameter, and its magnet sits within a (presumably sealed) cutout in the rear panel.

The specification describes doped paper as the cone material, crossing over to a 25mm plastic dome tweeter.

The leaflet provided discusses a large number of acoustic advantages to be gained from the shape and construction, most of which are difficult to verify, though I remain rather perturbed by the fact that the main driver is mechanically decoupled from the enclosure. Perhaps Sequence should have fitted an adjustable wall spike on the back of the magnet, in order to make sure that it stayed still, and not worried so much about what the decoupled cabinet was doing against the floor.

## Test report

Unfortunately, the measured performance of the Sequence 30 doesn't really match up to expectations raised by the glossy leaflet. Certainly the impedance is very mild and easy to drive, even by a television set amplifier, but the sensitivity is a pretty low 85-86dB and bass extension notable for its absence.

Flush-mounting close against the wall does at least give a reasonable in-room output down to 50Hz, but only roughly comparable with many of the sub-miniature designs that are available today.

Furthermore, close-to-wall siting seems quite unhelpful across the main midband, introducing some unevenness. However, the overall response limits are tighter than most of its rivals manage, although the behaviour of the tweeter above 10kHz is certainly less than encouraging.

## Sound quality

The listening panel was by and large unim-

pressed by the Sequence 30, and although subsequent sighted work allowed more opportunity to experiment carefully with positioning, I still didn't achieve particularly inspiring results, in a room admittedly rather larger than the designers intended.

Several of the panel notes began positively enough, but then went on to complain of increasing boredom and lack of involvement, observations that closely parallel my own hands-on work.

Most commented too on the lack of size, scale and authority, and little at all in the way of bass definition or differentiation. Dynamics sound curiously squashed and unconvincing, the net result being rather small and compressed, with some cuppy and nasal colorations.

## Conclusion

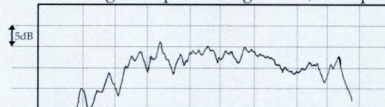
I should have loved to have been able to give this stunningly innovative design a stunningly positive review, and perhaps a Recommended swingtag.

It remains a very interesting prospect on styling and presentation grounds alone, and may well work better in a smaller room volume. Unfortunately I'm unable to avoid the conclusion that it's not all that special in sound quality terms, with a performance envelope that's pretty representative of the archetypal £120 miniature.

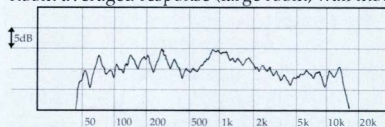
## TEST RESULTS

<b>Size (hxxwxd)</b>	87x25x7cm
<b>Weight</b>	6kg
<b>Recommended amplifier power</b>	20-60W
<b>Recommended placement</b>	against wall
<b>In room averaged response limits</b>	
<b>50Hz-10kHz</b>	±5dB
<b>Large room/space LF roll-off (-6dB ref midband)</b>	100Hz
<b>Large room/wall LF roll-off (-6dB ref midband)</b>	50Hz
<b>Large room output at 20Hz (ref midband)</b>	below -15dB
<b>Estimated midrange sensitivity (ref 2.83V, 1m)</b>	85dB
<b>Impedance characteristic (ease of drive)</b>	very good
<b>Typical price per pair (inc VAT)</b>	£200

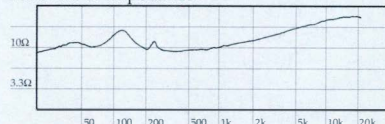
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



# Tannoy 605LE

Tannoy Ltd, Rosehall Industrial Estate, Coatbridge, Strathclyde, Scotland, ML5 4TF. Tel: (0236) 420 199



**T**annoy's Sixes have been among the more successful ranges of today's hi-fi loudspeakers, not just in terms of critical acceptance but also out there in the marketplace where it really counts. *Choice* has covered the majority of the models over the last year or so, with pretty positive results on the whole. There are still one or two gaps to fill, but even before we've had time to do one or two of the larger models, Tannoy has started to tweak the originals. This is in order to create something specially for the audiophile on a limited budget, the *LE* referring to the fact that a limited edition of only 1,000 pairs will be produced.

The 605 which forms the basis of this *LE* variation is the standard size two-way, reviewed and Recommended back in issue 106 and one step up from the bargain basement miniature 603. The *LE* model incorporates a considerable amount of non-retrofitable modification over its forebear, sufficient to sell at the forty quid premium of £190 a pair, in Tannoy's view at least.

In a concise yet unusually informative press release, the changes cover the following points. The plastic moulded top and base are now damped with lead shot, which has put the total mass up 50 per cent. Gold-plated bi-wire terminals feed a simplified crossover fitted with a superior quality DMT polypropylene capacitor, using solid-core internal cables and silver-loaded solder. For optimum distribution the now directly coupled main driver is now sited above the tweeter on the baffle. An optional foam plug provides a measure of adjustment over the port and hence the low frequency alignment.

Tweaks apart, the hexagonal cabinet shape is the most striking feature. A six-

panel wrap makes up baffle, back and sides, while top and bottom plastic mouldings are finished in an attractive chameleon tortoise-shell laminate. Injection moulding forms the main driver's 120mm plastic cone, while the tweeter is Tannoy's established 25mm metal dome. Adequately tight machinehead woodscrews secured the drivers to the 16mm chipboard vinyl woodprint wrap, while the generous main magnet is seated against an internal top-to-bottom vertical brace via a lump of lossy gunk. A very adequate grille is supplied, plus a magnetically held removable mesh protector for the metal dome.

## Test report

This *LE* variation differs quite markedly from the standard model, and our normal in-room tests threw up some rather curious findings, quite unlike anything I've encountered with any of the 200 or more speakers that have previously been through the same measurement programme. Everything seems fine through the bass and midrange, then the already rather exposed upper mid peaks up quite dramatically at 600Hz, before plunging into a 9dB notch at 900Hz, but climbing out of it again by 1.3kHz. There's no sign of a similar main driver problem on the original 605 trace, and, most surprisingly of all, it's nowhere near as audibly distressing as you might expect.

Thanks in part to the lack of main driver equalisation, sensitivity is significantly higher, especially in the midband but also the treble, and without significantly compromising the easy amplifier load. Measured with foam plug in place, close-to-wall siting gives the best LF alignment, but the wide distribution of the hexagonal cabinet does tend to 'read' the wall, so it's worth experimenting with positioning and port together.

## Sound quality

Measurements notwithstanding, the 605LE still sounded pretty good to the listening panel, which recognised certain cosmetic deficiencies, including some midband oddities, but nevertheless liked the good overall transient coherence, reasonable weight and scale, and decent overall speed, timing and rhythmic integrity.

"A bit of an oddball" is one quote which sums up pretty well a device which clearly improves on the communication skills of the standard 605, generating plenty of listener involvement, but which does miss out rather in the smoothness stakes. Interestingly, the extra base and top mass loading seemed to make the *LE* significantly less stand-sensitive than the standard model, which is a very worthwhile bonus — and one equally applicable to all existing 605s.

## Conclusion

I'm still rather perplexed by this model. In many ways it represents a real advance over the standard 605, and I'm convinced that the modifications are a very cost effective way of significantly improving an already very competent speaker. In many respects it's a satisfying and good value package, well worth checking out, but I remain sufficiently perturbed by the midband behaviour to withhold formal Recommendation.

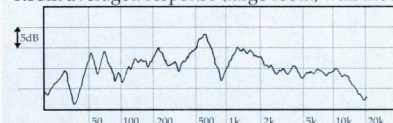
## TEST RESULTS

Size (h x w x d)	40x27.5x18cm
Weight	10.5kg
Recommended amplifier power	20-80W
Recommended placement	1-2ft from wall
In room averaged response limits	
50Hz-10kHz	±5dB
Large room/space LF roll-off (-6dB ref midband)	30Hz
Large room/wall LF roll-off (-6dB ref midband)	30Hz
Large room output at 20Hz (ref midband)	-10dB
Estimated midrange sensitivity (ref 2.83V, 1m)	87dB
Impedance characteristic (ease of drive)	good
Typical price per pair (inc VAT)	£190

Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



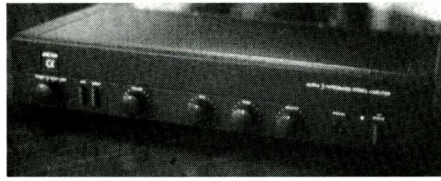
Modulus of impedance



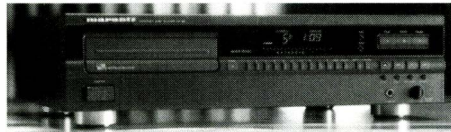
# MAINWAY

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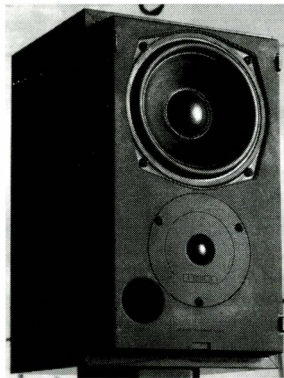
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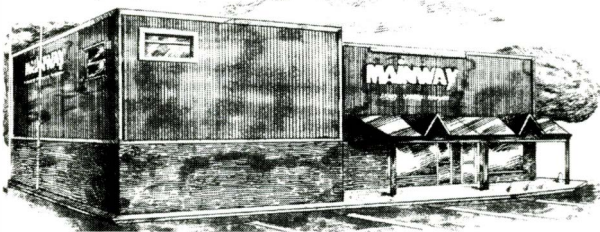
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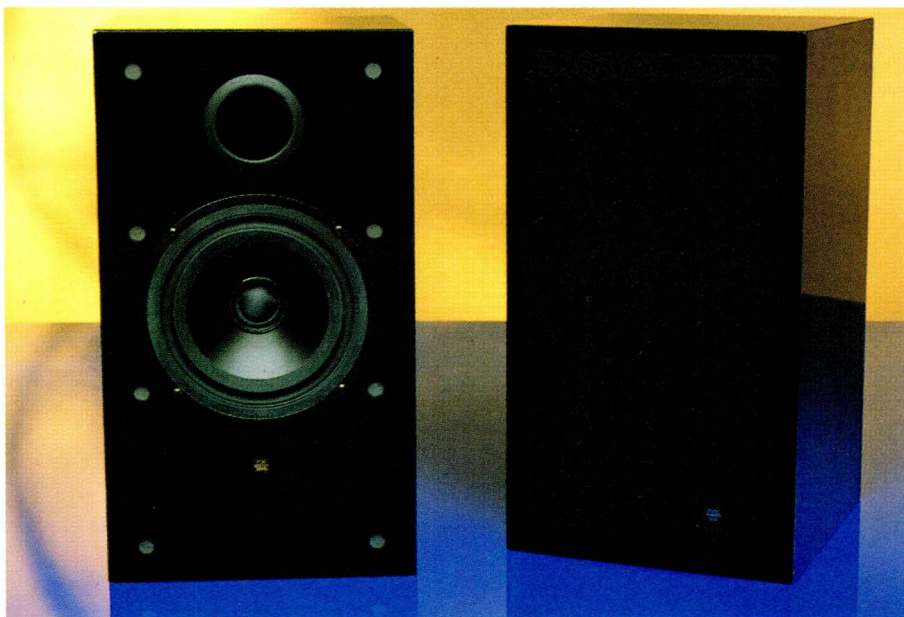
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# Thiel SCS

MPI Electronic (UK) Ltd, 36 Wood Lane, Partington, Manchester, M31 4BP. Tel: (061) 777 8522



**T**hank you Terry Coffield, whoever you are. This is a very pretty and beautifully packaged loudspeaker, well worth that extra personal touch of the builder signing his or her name on the back, indicating not just where the buck stops, but also where praise is due.

Thiel is a well regarded US specialist speaker manufacturer that has been around since the late Seventies, but whose products have only quite recently become available in the UK. There are five Thiel models, all subscribing to a 'coherent source' underlying design philosophy. The pretty SCS that came in for review is the smallest and least expensive model in the range, but at £975 it's actually the third most expensive in our twenty five strong group, so it's pretty clear that Thiel isn't too interested in the budget bookshelf market, just yet anyway.

Budget it isn't, but bookshelf it certainly could be, in theory and by US standards at least, though all our tests were carried out on high quality stands of various types. In fact our tests suggest the best site is likely to be a foot or two away from the wall, though Thiel conveniently carves two slots in the rear panel, so the speaker can simply be hung on a screw driven into the wall.

SCS translates as small coherent source, and refers to the use of a solitary coaxial two-way driver, making this arguably the most coherent of all the Thiels. Actually manufactured by Norwegian company Seas, the driver follows the KEF practice of mounting a miniaturised tweeter on the polepiece of the main driver (see 101/2 review). I understand that KEF's Uni-Q patent applications are currently being granted in various territories.

The piano gloss finish all round is the only option, and very nice it looks too, with very

little orange peel grain, spoilt only by eight little inset magnets that grip the foam grille. The driver is rebated and solidly tightened with woodscrews, using a 115mm plastic cone in a cast frame driven from a massive magnet. The polepiece tweeter has a 25mm dome, all solder linked with classy wire to a quite elaborate high power hardwired crossover that's well distributed across the back panel.

The inside is as much a work of art as the exterior, and is built from solid 25mm MDF throughout, with extensive bracing and careful cutting away just behind the cone, and plenty of stuffing in the same area.

## Test report

The in-room responses don't look particularly promising for a thousand pounder it must be said, though at least the wall/space siting option looks pretty viable. Close examination of the curves does point quite strongly towards free space siting providing the smoother end result, with an overall balance that's just a little mid-forward. The wall-loaded balance is altogether lumpier by comparison.

Sensitivity is around 87dB, which seems fair enough until you notice that the impedance is a resolute and current hungry 40hms across the band, so subtract 3dB to compare like-for-like power inputs against 8ohm loads. Nor is the bass extension anything special either, the 55Hz port tuning pretty well guaranteeing there won't be much in-room output below 45Hz. Interestingly, comparison with the Uni-Q KEF 101/2 shows a very similar overall pattern of early, gently but determined high frequency roll-off: ignore the quite alarming looking SCS crossover notch and the two curves can be overlaid almost exactly.

## Sound quality

If the measurements seem a little disappointing in context, the SCS did a fine job of salvaging its reputation in the blind listening tests, where it romped home in fine style near the head of the field. I suspected it may have been over-praised, the panel getting carried away at finding something with real performance immediately after a trio of budget tinies. But extended sighted listening merely led me to the conclusion that the panel had got it pretty well right after all.

Much as I hate to admit it, the SCS is rather well named, simply because the sound it delivers is unusually coherent and relatively free from the time-smear that's the rule rather than the exception. The presence is a little dark, the top end a bit detached, and bass extension somewhat limited. But the bass-to-mid balance and control are very superior, the music driving along with great purpose and intent, admirable liveliness and impressive dynamics.

## Conclusion

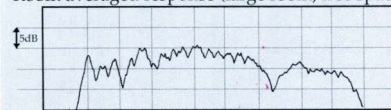
Expensive and somewhat limited in overall performance, the SCS is nevertheless a delightful little musical communicator. I've been racking my brains to think of an equally small and similarly engaging bookshelf loudspeaker, and my lack of success represents positive grounds for Recommendation.



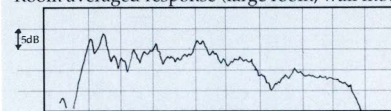
## TEST RESULTS

Size (hxwxwd)	40x22x23cm
Weight	10kg
Recommended amplifier power	20-100W
Recommended placement	1-2ft from wall
In room averaged response limits	
50Hz-10kHz	±5dB
Large room/space LF roll-off (-6dB ref midband)	50Hz
Large room/wall LF roll-off (-6dB ref midband)	45Hz
Large room output at 20Hz (ref midband)	below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	87dB
Impedance characteristic (ease of drive)	current hungry
Typical price per pair (inc VAT)	£975

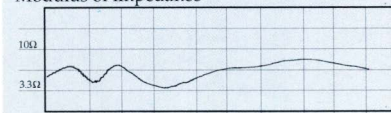
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



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# Wharfedale Diamond V

Wharfedale Loudspeakers Ltd, Sandreas Way, Crossgates, Leeds LS15 8AL. Tel: (0532) 601 222



Even Britain's most popular car, the Ford *Cortina*, only made it to *MkIV* status, but what was certainly Britain's most popular hi-fi speaker once upon a time steams on (and on) regardless. The *Diamond* might fairly be regarded as the original protominiature of the modern era, proving to a lot of people's satisfaction that tiny loudspeakers can actually be rather good, and that the weight and welly lost on the roundabouts is often more than not made up for by agility on the swings. The fact that it doesn't take up much space and costs less money too are the added bonuses that turned the *Diamond* into an overnight success and spawned a host of rivals, several of which proved no less successful.

This latest incarnation is the £130 *MkV*, which has moved on quite a long way from the original, and now looks much more like that current bestseller, the *Mission 760*, than the characteristically squat shape of the original *Diamond*, both in overall dimensions and in the treatment of the grille assembly. Imitation is certainly a form of flattery, but quite how that squares with Wharfedale's recent takeover of *Mission*, and then arranging for *Mission's* MD to run the whole shooting match, is anyone's guess.

The slight price premium over the competition is amply justified by decidedly superior engineering content. You get real 4mm socket/binders for starters, and also a really generous main driver magnet and an MDF front baffle no less than 22mm thick, to which both drivers were securely fastened. The carcass is more modest 13mm chipboard, lightly filled with wadding and loaded by a small rear port. A quite complex PCB crossover is tag-connected to the drivers and terminals.

The main unit has a 90mm textured plastic cone, while the tweeter uses a 25mm metal dome, protected beneath phase compensators. The MDF and fixing screws are all hidden beneath a neat plastic moulding which provides an attractive continuous curve, interspersed with chamfered cutouts for the diaphragms themselves. A fabric grille in a substantial plastic frame clips on firmly, without causing much apparent acoustic impediment.

## Test report

One of the more interesting aspects of these regular large scale comparative reviews is the ability to compare the performance of a new model with its predecessor of a couple of years ago. The *Diamond V* is certainly much smoother in overall balance than the *Diamond IV*, with the upper-mid bump now nicely flattened, and the transition much more gradual to a flatter treble. However, the port is now tuned to 65Hz rather than 50Hz, which will probably assist power handling but makes the midbass significantly stronger than before, at a slight expense in extension.

The net effect of these changes is a distinct shift away from the mid and towards the (mid)bass, giving a balance that's significantly richer and heavier overall. Which in turn means that this is the first *Diamond* that's not really ideally balanced when placed close to a rearward wall — a distance of 1-2ft clearly gives a better result, in our listening room at least.

## Sound quality

Presented in sequence with several immediate competitors, the *Diamond V* was not considered much of a success or achievement, admittedly by a panel which had a

rather lowly opinion of miniature size speakers in general, and showed some lack of patience with their shortcomings.

As I sit listening to them checking back over the blind listening test notes, I find myself in surprisingly close agreement with those who found the overall effect, but especially the thuddy bottom end, really rather boring.

Grille removal does help open up the relatively sweet top end quite well, but no amount of experimentation with stands and positioning really managed to rescue them. The bottom end remained opaque while the midband sounded dynamically squashed and lacking in expressiveness, and the whole thing seemed slow and time-smeared.

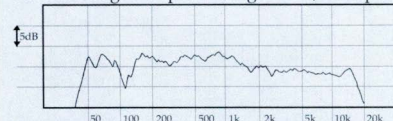
## Conclusion

Some miniatures can make the heart sing, others could be prescribed for insomniacs, and quite what design factor makes the difference remains difficult to define or predict. The *Diamond V* should have been a good one, given the fine engineering content for the money, but under our listening conditions at least it sounded opaque and rather lifeless. Perhaps the revised bass alignment is responsible, or maybe a crossover more complex than some; but whatever the cause, the overall effect proved rather disappointing.

## TEST RESULTS

Size (hwxwd)	27x18x20cm
Weight	4kg
Recommended amplifier power	20-60W
Recommended placement	quite close to wall
In room averaged response limits 50Hz-10kHz	±4dB
Large room/space LF roll-off (-6dB ref midband)	50Hz
Large room/wall LF roll-off (-6dB ref midband)	50Hz
Large room output at 20Hz (ref midband)	below -15dB
Estimated midrange sensitivity (ref 2.83V, 1m)	86dB
Impedance characteristic (ease of drive)	very good
Typical price per pair (inc VAT)	£130

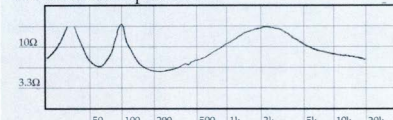
Room averaged response (large room, free space)



Room averaged response (large room, wall mount)



Modulus of impedance



# A

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\*As reviewed in this issue

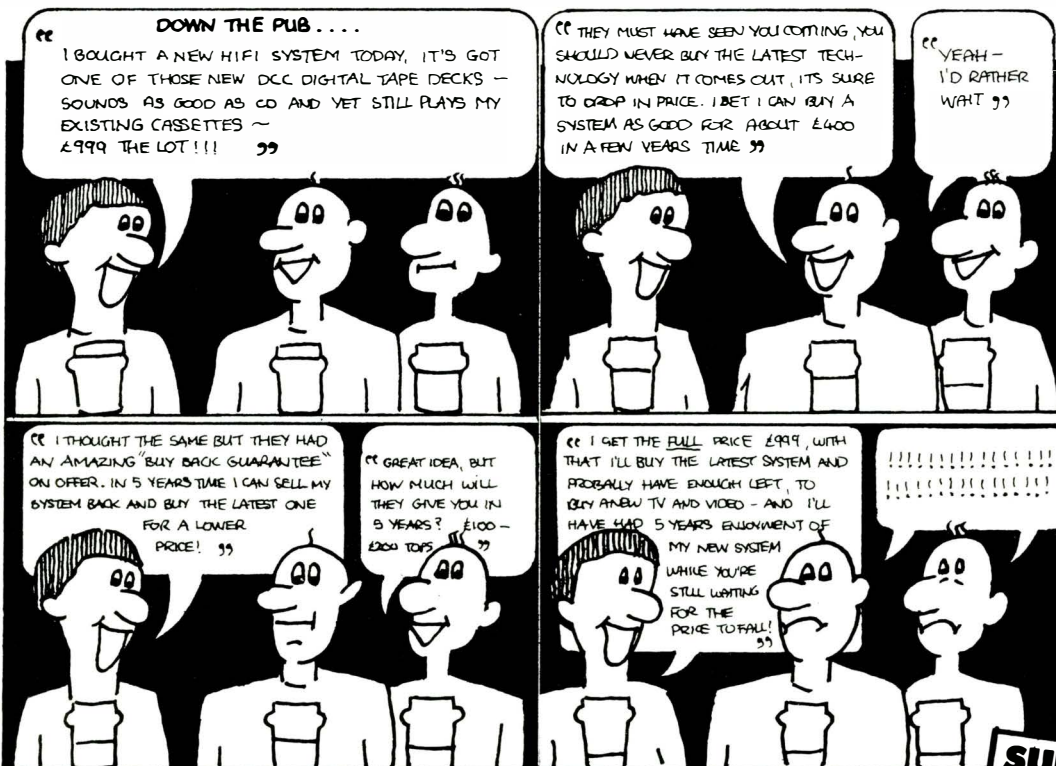
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# Conclusions, Best Buys & Recommendations

**E**xactly where to draw the line between Recommended models (including Best Buys) and the rest is perhaps the least enjoyable part of these projects. Contrary to popular myth, reviewers don't enjoy playing God, and realise that livelihoods may be affected by a decision one way or another.

The responsibility is made more onerous because the very act of choosing Recommended models automatically implies a group of 'Not Recommended' ones, even though that is by no means the intent. With that in mind, and also aware that the relative performance of a speaker can vary significantly according to the listening room or system, I've always been relatively generous, giving borderline cases the benefit of the doubt and typically awarding Recommendation to around 60 per cent of the total.

However, the other side of the same coin is that too

## **Summing up this month's 25 strong loudspeaker line up, Paul Messenger attempts to point out the good, the bad and the fungoid.**

high a Recommendation rate devalues the status of the award, so a decision was made (some six months back) to be more stringent and sparing. From 13 out of 20 (May '92) to ten out of 23 (Sept '92) I've whittled it down this time to eight out of 25. I still feel it's harsh to leave out the borderline models, and wonder if it might be worth reviving the 'worth considering' category that *Choice* used to use many years ago. I could easily pick another half dozen models that are well worth such an honourable mention.

Even though the formal Recommended rate is low, this has actually been one of the more interesting collections of speakers for some time, a large number falling into two distinct sub-groups.

First, there's the usual bevy of miniatures, with a box size of less than ten litres and pricetags of under £200, which have long dominated the sales charts (measured by sales volumes). Historically these have done surprisingly well in the blind listening tests too. The fact that the tests are done with a fixed and modest volume level that doesn't cause them any distress, plus the sheer design simplicity and relative lack of distortion-generating cabinetwork has often resulted in the occasional tiny doing far better than expected, and so embarrassing a number of much more expensive and pretentious models.

But times seem to be changing. Only the little Rega *Kyte* scraped into the overall top ten this time, though the Canon *S-30*, Celestion *1*, Marantz *DS110* and Royd *Topaz* also deserve honourable mention. Instead of wallowing in the wake of more agile babies, the latest floorstanders like the Linn *Keilidh* and Mis-

sion 753 (and several more besides) are confirming that a good biggun can do the business, providing enough care has been taken over the design.

My one disappointment from this group of speakers is to notice how few have made any real attempt to deliver low frequency output below 40-50Hz. Only nine of the 25 managed better than -15dB of relative output at 20Hz, which in my book is one of the factors that distinguishes the men from the boys when it comes to generating a real sense of scale and authority. To state that 50Hz bandwidth is for wimps is maybe over-stating things a little, but perhaps that's what this section of the project is for.

## **Best Buys**

To be frank, you don't get an awful lot of hi-fi speaker for today's £100, because the price constraints leave the engineering content very thin on the ground. But the Celestion *1* does have enough engaging characteristics to win friends and influence purchasers, its liveliness and good communication skills being fair compensation for some cosmetic inadequacies.

The second Best Buy is the stylish £198 Rega *Kyte*, which can be wall mounted for an extra £7. Superb coherence and timing is fair compensation for some lack of grunt, though the bright balance might not make a happy match with every budget system.

## **Recommended**

Though it looks vaguely fungoid, the £150 Canon *S-30* bounces along happily, especially on its dedicated stand, until you try to annoy the neighbours.

At 20 odd kilos, the Faraday *FS1* isn't going to bounce anywhere, and you'll have to visit Norwich to hear or pick up a pair. Direct sale keeps the price below £250 (depending on finish), while the speaker itself is proof positive that the enclosure is just as important as the drive units.

You won't find many floorstanding speakers selling for as little as £350 (and saving the price of stands), so the fact that the Celestion *15* is by no means the smallest of the breed is an added bonus. The end result may not be too subtle or delicate, but you get a lot of enjoyable sound for your pound.

The £492 Linn *Keilidh* just goes to show that a carefully designed compact floorstander can outperform — and out-boogie — the bookshelf variety. Superb speed and coherence, especially with the optional ceramic plinth.

Stunning presentation gives the £600 Mission 753 a great head start, but find the right siting in your listening room and you will gain a delightfully open soundstage with bags of drive and headroom.

In the context of the Linn and Mission models, the £975 Thiel *SCS* is no great bargain. But it looks gorgeous, can certainly boogie, and I can't think of a better sounding model in such a compact enclosure.

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Other new items eagerly awaited are the AVI tuner; the AMC CD6 CD player to complement their truly great bargain, the CNT3030 hybrid valve amplifier. This £470 integrated amplifier really does upgrade many a system.

On the loudspeaker front the new RUARK TEMPLAR floor standing units, the SD4's plus the JAMO pro-logic surround sound system 4 setup are all worth an audition. Constantly changing, please ring for latest situation.

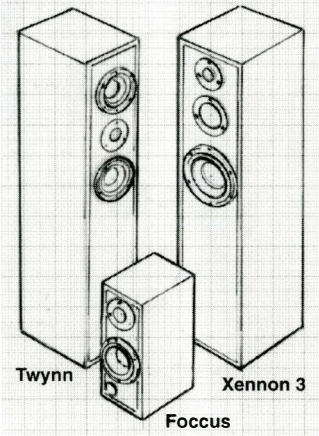
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# Tech Talk: Loudspeakers

**T**he 'blind' tests lasted three days with five listeners, making up around 30 presentations of about half an hour each. Split evenly between vinyl and Compact Disc, the programme covers as broad a range of music as possible.

Care is taken to try and 'normalise' the relative volume of each loudspeaker, though differences in frequency balance, bass extension and room drive unavoidably get in the way. An operator places the loudspeakers carefully and securely. Grilles are deliberately left on at this stage.

Choice of ancillary components inevitably influences the type of sound, possibly as much as the room itself, and is one potential source of prejudice I know no way of avoiding. The main drive system comprises Naim amplification (NAC52 preamp and NAP135 monoblok power amps), backed up by Linn and NVA alternatives (notably the NVA *Phono 2* head-amp). Vinyl disc sources included the Linn *Sondek/Lingo* with Naim *ARO* and Linn *Ekos* tonearms, with Linn *Arkiv*, Audio Note *IO* and Lyra *Parnassus* cartridges, along with a Naim *CDS* CD player, all mounted on Mana tables.

Bookshelf models were mainly used on Linn *Kan*

## **Paul Messenger outlines the procedures followed to evaluate this month's loudspeakers and the science behind the conclusions**

*II*, Foundation *Designer*, Heybrook *HBSI* and Slate Audio stands, with others brought in for hands-on work. Most of the work was done with a single run of heavy multi-strand Naim *NACA5* cable, backed up by Audio Note *Silver* and others as appropriate.

My thanks go to Jason Kennedy for all his hard work as operator on the blind listening tests, and also to the panellists: Ken Weller (Tannoy), David Inman, Richard Dunn (NVA), Dave Wiley, Russell Kauffman, Phil Ward (Canon Audio), Doug Randall (Marantz), Andy Whittle (Rogers), Alan O'Rourke (Ruark), Chris Jackaman (Audiolab) and John Mays (Dawn Audio).

### **Measurements**

Every loudspeaker has its own distinct frequency balance. This 'fingerprint' says much about the way a specific model will sound, though it isn't the only discriminating factor.

Without decrying the value of anechoic work, far field room averaged response measurement is much closer to the real world situation. It gives better correlation with listening test findings, and is particularly relevant to comparative group testing.

A single isolated in-room frequency response of a specific loudspeaker is of limited value, but averaging measurements taken at a number of points in the listening area provides a good indication of the sub-

jective frequency balance. Further comparison of a group of loudspeakers allows some of the effects of the room to be taken into account. The test programme is based on two separate sets of room measurements, one taken with the speaker placed close against a rear wall (but more than a metre from side walls), the other a metre out into the room; intermediate positions produce more or less intermediate results.

A conventional pen recorder/mike set-up (Neutrik) is used to carry out sequential sinewave sweeps (high pen and paper speeds) for a succession of microphone positions.

A perfectly flat straight line is not a realistic target. Low frequencies are inevitably heavily modified by the main room modes — most notably the 10dB or so boost at 30Hz (or 10dB suckout at 42Hz if you prefer), and by the main early reflection modes. Room reflections also create interference well up into the midband, especially when the speaker is close to the wall.

Nevertheless, comparison with listening findings and established references suggest that the ideal balance should be as flat and smooth as possible. Gentle variations are preferable to sharp discontinuities, prominences tend to be more irritating than dips, and a gentle high frequency roll-off usually sounds perfectly acceptable.

Sensitivity differences have as much to do with impedance variations as conversion efficiencies, which is one reason why the impedance is plotted and presented. Halve the impedance and a speaker will suck twice the current and therefore twice the power for the same amplifier volume setting. By adopting four ohms rather than eight ohms impedance, 'current hungry' designs therefore 'pinch' 3dB of extra sensitivity. Few amplifiers deliver this extra 3dB in full, so an apparent sensitivity advantage may largely be negated in practice.

### **The listening room**

The speaker and microphone sites parallel the listening tests, giving a measuring distance of three to four metres. The 4.3x5.5x2.6m room itself is sturdily built, sparsely furnished and has a wooden floor.

One consequence of the room-based testing is that the low frequency extension is defined as much by the room as the loudspeaker. Low frequency roll-off is traditionally expressed as the -6dB (sometimes -3dB) point referred to the sensitivity. Such a technique can be applied with room measurements, but the results tend to be strongly modified (even modulated) by the main room modes.

Probably more useful is to specify the relative level of 20Hz ref the midband sensitivity. However, this has the drawback that a good percentage of speakers don't go down much below 50Hz, never mind 20Hz. Until I can figure out a better approach, I am quoting the -6dB points for both free space and wall mount conditions, plus the 20Hz level.



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Nad 3225 PE Marantz PM30SE	288.95	303.95	331.95	339.95	355.95	387.95	407.95	447.95
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- Denon DCD690
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- Denon DCD1290
- Kenwood DP3040
- Marantz CD4211
- Marantz CD52
- Marantz CD5211
- Marantz CD52SE
- Marantz CD62
- Marantz CD72
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- Sony CDP497
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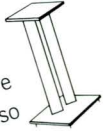
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<b>NAD 3020i</b> Amplifier £98.95 <small>SAVE £30</small>	<b>Rotel RCD965BX</b> Compact Disc Player £279.95 <small>Old Price Held</small>	<b>Mission 760i</b> Loudspeakers £119.95 <small>Claim Free Shams &amp; Cable</small>
<b>Marantz CD52 MKII</b> Compact Disc Player £199.95 <small>Claim Free CDs</small>	<b>NAD 3240E</b> Amplifier £139.95 <small>SAVE £80</small>	<b>Famous Name</b> NICAM Video Cassette Player £299.95 <small>SAVE £100</small>
<b>NAD 5420</b> Compact Disc Player £144.95 <small>SAVE £35</small>	<b>Ruark Swordsman 1</b> Loudspeakers £199.95 <small>SAVE £45</small>	<b>Rotel RA930AX</b> Amplifier £169.95 <small>Old Price Held</small>
<b>Philips CD634</b> Compact Disc Player £139.95 <small>SAVE £60</small>	<b>NAD 5425</b> Compact Disc Player £159.95 <small>SAVE £40</small>	<b>Technics RSBX404K</b> Cassette Deck £124.95 <small>SAVE £15</small>
<b>NAD 5120</b> Turntable including Cartridge £69.95 <small>SAVE £30</small>	<b>Marantz CD52 MKI</b> Compact Disc Player £164.95 <small>SAVE £30</small>	<b>Rotel RT950BX</b> Tuner £199.95 <small>Claim Free Manual</small>
<b>Denon DCD660</b> Compact Disc Player £149.95 <small>SAVE £30</small>	<b>Yamaha KX260</b> Cassette Deck £149.95 <small>Claim Free Tapes</small>	<b>Systemdek IIX900</b> Turntable £199.95 <small>OLD PRICE HELD</small>

Selected offers available from our friends Superfi

**HUGE CLEARANCE SALE**

The following products must be cleared at crazy prices. Most are in very limited numbers so hurry to avoid disappointment. Some are brand new, others are ex display but generally in mint condition with full instructions, accessories leads and guarantee. Please note they can only be purchased from our **Sevenoaks, Watford & Leicester** branches. (Mail order from Sevenoaks branch only).

**DEDUCT 30% OFF THESE PRICES**

**ACOUSTIC ENERGY** £869.95

**AE1 RW**

**ARCAM**

Alpha 2 L Spks £199.95

Alpha Tuner 2 £184.95

Black Box 3 £359.95

Delta 80 £339.95

Delta 90.2 £409.95

**B&O**

BC2300 £1709.95

BE4500 £409.95

BE6500 £615.95

BG4500 £359.95

BM3500 £314.95

BM4500 £509.95

BM6500 £715.95

CD6500 £615.95

BG6500 £405.95

Centre 8500 £1444.95

**CANON** S50 £349.95

**CASTLE** Warwick £229.95

**CELESTION** Durham £259.95

CEL7 £199.95

CEL9 £239.95

DL411 £99.95

DL411 £189.95

3rd Dimension £149.95

**DENON**

DCD480 £179.95

DCD580 £289.95

DRA435 £199.95

DCD660 £299.95

DCD960 £139.95

PMA250.2 £139.95

**DUAL**

CT700 £139.95

CS750 £299.95

**DUNLOP/SYSTEMDEK** £299.95

IXE900 £299.95

**EAR**

EAR 509 £2099.95

EAR TX4 £445.95

EAR 802 £1312.95

**GOODMANS**

MAXIM 3 £109.95

**JPW**

Sonata + £134.95

**KENWOOD** DP7030 £299.95

DP950 £169.95

UD50 £499.95

UD70 £699.95

UD90 £849.95

**MARANTZ**

CD42 MKI £144.95

CD62 £299.95

CD72 £399.95

PM30 £129.95

SD62 £249.95

SD315 £179.95

**MUSICAL FIDELITY**

B1 MKII £229.95

P180 £899.95

CD1 £399.95

**NAD**

3020i £129.95

3225PE £149.95

**PHILIPS**

CD604 £129.95

CD624 £159.95

CD850II £299.95

**ROGERS**

LS4A £255.95

**ROKSAN**

Artemiz £690.95

**SD ACOUSTICS**

SD3 £399.95

**SONY**

MHC1200 £569.95

MHC2600

**SPENDOR** SP2/2 £554.95

**TECHNICS**

RSBX707K £219.95

RSTR212K £149.95

SLPS700K £269.95

**TEAC**

P10 TRANS £1499.95

P500 TRANS £649.95

**THORENS**

TD280II £189.95

**YAMAHA**

AX1050 £599.95

TX550 £179.95

CDX1050 £429.95

CDC615 £299.95

**GALE**

210 £100.95

**DELTEC**

Little Bit £399.95

Bigger Bit £649.95

PDM1/3 £1195.95

**MOTH**

Line Drive £499.95

**QLN**

Signature £1099.95

**ROTEL**

RP855 £169.95

**TECHNICS**

SBCS60K £69.95

**WHARFEDALE** Delta 30.2 £99.95

**GOLDRING** GL75 TT £39

**B&W** DM22 £99

**KEF** 101/2 (pr) £249

**DENON** DCD800 £79

DCD800 £99

**MARANTZ** PMA520 £139

CD65 CD £129

**NAD** 5240 CD £199

**MERIDIAN** 203 £199

**DEDUCT 40% OFF THESE PRICES**

**ARISTON** Maxim CD3 £429.95

**ATC** SCM20 £1388.95

**B&O** RL140 £590.95

RL45.2 £255.95

Lab 5000 £1195.95

**CASTLE** Warwick (grey) £199.95

**CELESTION** DL6SII £185.95

**DEDUCT 50% OFF THESE PRICES**

**AIWA** DXM77 £149.95

**CAMBRIDGE** C70 £249.95

**NAD** 8225 £149.95

**USED BARGAINS**  
 Available at Sevenoaks Branch only

**AUDIOLAB** 8000C&P (pr) £499

**QUAD** 34 PRE £199

44 PRE £249

306 PWR (Grey) £199

405/1

**ORACLE** Alexandra T/T £499

# Hi-Fi Choice

## mail order offers

*Our Mail Order Section this month features, among the old favourites such as Furukawa interconnects, some great new accessories to help improve the performance of your system*

*We're also pleased to be able to offer a selection of audiophile recordings from specialist labels from around the world.*

**Goldring Magic Record Cleaner £11.95**  
Kit consisting of a double sided velvet brush and spray on Goldring Magic record rejuvenating fluid.

**The Purifier £16.90 per pair**  
*The Purifier* is a ferrite cable clamp designed to reduce RF induced noise in audio, video and computer systems. The clamps will accept single or multiple cables of up to half an inch in diameter and can be used on both signal and mains cables. Can be particularly beneficial for digital interconnects.

**Nagaoka Anti-Static Record Sleeves No 102 £6.99**  
Packs of 50 plastic record sleeves that can be used on their own or inserted into an existing card or paper sleeve. The sleeves keep records dust free and eliminate static.

**Mk 10 Carbon Fibre Brush with Velvet Pad £9.99**  
The carbon fibres efficiently remove dirt from the record grooves, which is then collected by an integral felt pad.

**System Cleaning Kit 1 £15.99**  
Everything needed for maintaining a hi-fi system, all contained in one handsome wallet pack. Stylus cleaner, auto-reverse, wet tape head cleaner and cleaning fluid, manual CD cleaner and fluid plus a carbon fibre record cleaning brush.

**Milty Work Mat £7.99**  
The Milty Work Mat is a large rubber mat that has been designed to support records, Laserdiscs and Compact Discs while they are being cleaned. It holds the disc firmly in place, without any danger of damaging it. It's a real boon to disc cleaning and makes using cleaning brushes and solutions completely painless.

**Newnes Audio and Hi-fi Engineer's pocket book (second edition) £10.95**  
This useful little book covers a wide range of audio topics with concise explanations to clarify the information. The book covers everything from turntables and cartridges to DCC and DAT with as much technical information as the mere mortal could wish for. If you really want to know what makes your CD player tick this is the book for you.



**Technics Auto Compact Disc Cleaner £39.95**  
A powered wet/dry CD cleaner that can be run off batteries or the mains. It works by rotating the disc and applying the wet cleaner first (cleaning solution is supplied), then reversing direction and dry cleaning it. The whole process takes just 40 seconds and a set of batteries should clean 80 discs.

**Audio Technica CD lens cleaner AT-6078 £16.95**  
The focusing assembly for the laser head of a CD player is a very delicate affair and yet it requires cleaning from time to time to give of its best.

Rather than fumbling about with cotton buds, and perhaps wrecking your CD player into the bargain, we would suggest you employ an Audio Technica AT-6078 CD lens cleaner.

This is a standard size disc with a set of eight tiny brushes set into it. To clean your laser, just apply a drop of cleaning fluid on to one of the brushes, place the cleaning disc in to your player and press play.

Ten seconds, and some rather dismal music later, hey presto, a clean laser assembly, and a cleaner sound from your Compact Discs as a result.

**CD Jewel Cases £5.00 pack of five**  
Who invented these bloody awful things in the first place? Replace your broken jewel cases and ensure that your discs are properly protected.

**Last SF-100 Extra Strength Record Cleaner £19.95**  
Last SF-100 is designed to remove the compounds left over from the pressing process. Use for a first cleaning of new records as well as to revitalise older vinyl.

**Last SF-200 Record Preservative £21.95**  
Without going too deeply into the technical details Last SF-200 is absorbed into the surface of the vinyl and stabilises the vinyl to prevent gouging and fracturing of the groove wall that can occur during playback. A single application can keep records sounding 'brand new' for 200 plays or more.

**Last SF-300 All Purpose Record Cleaner £15.95**  
The one to use to for day to day cleaning after your records have been cleaned and protected with SF-100 and SF-200.

available at only £21.95 but as stocks are limited we must restrict this offer to one sample kit per reader.

As well as products to protect and clean your record collection, Last also makes a range intended to perform the same service on Compact Discs.

The SF-600 CD Cleaner and protection kit consists of a special CD cleaner/polish to remove dirt, scratches and finger prints from CDs as well as protective shields, an applicator, an application base and a brush. Refills of cleaner/polish are also available separately.

**CD cleaner and protection kit £17.95**  
**Cleaner only £13.95**

**Gold plated 4mm banana plugs £7.95**  
Top quality solderless gold plated banana plugs for use with speaker cables. Simply push the speaker cable into the body of the plug and tighten for a perfect connection. This Furukawa plug accepts cables up to 4mm in diameter. Sold in packs of four.

**Kontak cleaning solution £19.90**  
Kontak is a two stage contact cleaner for all audio and mains connections. All connections are susceptible to oxidation and contamination which impairs electron flow and thus affects sound quality.

Here's what Paul Messenger had to say when he tried some on his system: "The effect on the power amps alone was so astonishing I had to carry on and cover the whole system. By the time I was finished the system was utterly transformed. Timing and coherence were back with a vengeance; surface noise and coloration were both much less audible and the soundstage had liberated itself from the boxes"

**The Art of Digital Audio - John Watkinson (revised reprint) £49.50**

This book describes all of the essential theory of digital audio, and a good deal of practice, but it is not a history book. Nor is it a conventional textbook, largely because such things have to choose a target audience and stick to that academic level.

The need for understanding in digital audio is too wide and the subject is too interdisciplinary for that. As you can imagine this is a comprehensive tome that covers all aspects of digital technology including disc drives, rotary and stationary head recorders and even interconnects. It is a must for anyone wanting to get fully acquainted with the subject.

In order to let you try out the Last record cleaning and protection system we have negotiated a special price to enable you to purchase a full size bottle of both the extra strength cleaner and the preservative for just £34.95. We also secured a limited number of trial samples of all three products which are

**SPECIAL OFFER**



**Copland:** *Appalachian Spring Suite, Eight poems by Emily Dickinson.* Keith Clark/ Pacific Symphony Orchestra, Marni Nixon, Soprano (in the poems).

Music by America's best loved composer, *The Appalachian Spring Suite* is presented in its original version for 13 instruments. Grammy Award nominee in 1987.

**Walker & Garson:** *Reflections. Portrait of a friend - Love - First song - Ethereal - Yearnings - Pied piper - The park - Magic spell - You're one of a kind - Reflections - Reason.*

Jim Walker on flute and Mike Garson on piano from the jazz group 'Free Flight' offer something peaceful and soothing for those quiet moments. Surprisingly natural sound.

**Helicon Ensemble:** *Vivaldi/Bach*  
**Vivaldi:** *Sinfonia in C-Trio Sonata in G minor - Double Concerto in E-Flat.* **Bach:** *Trio Sonata in C - Double Concerto in D minor.* (Compact Disc also contains *Prelude in C*)  
 Albert Fuller conducts from the harpsichord a varied original instrument ensemble in works featuring two solo violins, including the great *Double Concerto* by Bach and three rare works by Vivaldi.

**Walton:** *Facade Suite - Strauss/Hasnohrl: Till Eulenspiegel - Scriabin/Elliott: Waltz in A-Flat - Nielsen: Serenata in Vano.* Chicago Pro Musica.

An instrumental from Walton's whimsical *Facade* in the composer's original scoring makes a perfect vehicle for these brilliant musicians.

**Prof Johnson's Astounding Sound Show:** *Sampler. Orchestral Fanfare - Red Norvo Quintet - Cal Arts Ensemble - Richard Morris - Organ - Susan Mc Donald, Harp - Kronos Quartet - David Rosenthal, Tubulung*  
 A perennial audiophile favourite, this sampler of Prof Johnson's early work shows what Reference can do with a wide variety of musical and sonic experiences. Includes the only known recording of an unusual tuned mallet instrument, the Tubulung

**Nojima:** *Nojima Plays Ravel. Miroirs: Noctuelles - Oiseaux tristes - Une baroque sur l'océan - Alborada del gracioso - La valse des cloches - Gaspard de la Nuit: Odine - Le gibet - Scarbo.*

Here is the eagerly awaited sequel to Nojima's first American recording, featuring some of his most renowned specialities  
*Gaspard de la Nuit* is the pianist's Everest, attempted by only a few. The Nojima performances are simply incandescent.

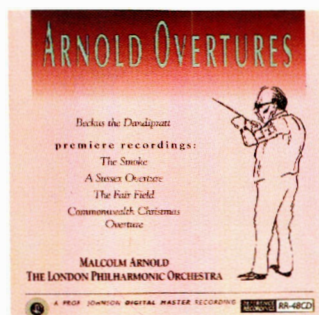
**Respighi:** *Church Windows*  
 Keith Clark, Pacific Symphony Orchestra  
 This grandiose work, scored for full symphony orchestra, pipe organ and tam-tam, has at last been given its due, musically and sonically, in this celebrated recording.

**Tafel Music:** *Popular Masterworks of the Baroque.*

**Pachelbel:** *Canon & Gigue.* **Handel:** *suite from 'Water Music'* **Purcell:** *air from Suite no. 3 in D and Suite from 'The Moor's Revenge'* **Vivaldi:** *Concerto op. 10-2, 'La Notte'*

Canada's finest original-instrument Baroque ensemble plays familiar favourites with outstanding scholarship and musical panache.

**Robert Farnon conducts the Royal Philharmonic Orchestra:**  
 Film music and other works  
*Suite from Captain Horatio Hornblower - Lake in the woods - Canadian impressions - A la Claire fontaine - and more.*  
 The Royal Philharmonic Orchestra, conducted by the composer, Robert Farnon at the Town hall, Watford.



**Stravinsky:** *L'Histoire. Stravinsky: L'Histoire du soldat suite. Blackwood: Capriccio Espagnol.* Chicago Pro Musica.  
 Stravinsky's landmark composition for a mixed ensemble of seven. Grammy winning performances

**Marni Nixon:** *Marni Nixon sings Gershwin Summertime - Let's call the whole thing off - Someone to watch over me - I've got a crush on you - But not for me - The real American folk song - Nice work if you can get it - Embraceable you.*  
 Marni Nixon's impeccable intonation and diction bring a welcome elegance to these songs which are too often jazzed up.

**Dick Hyam:** *Dick Hyam Plays Fats Waller. Ain't misbehavin' - Keepin' out of mischief now - African ripples - Honeysuckle rose - Willow tree - Stealin' apples - I've got a feeling I'm falling - Handful of keys - My fate is in your hands - Jitterbug waltz*  
 The world's first direct-to-CD on RR-33DCD. A technological and musical triumph. RR-33DCD is available as a deluxe numbered limited edition.  
 Encoded on the highly sophisticated, computerised Boesendorfer reproducing piano, Hyman's performances were played back for Prof Johnson's microphones, and the digitised signal was transmitted via microwave to the Compact Disc master as the music was being played. Also on ordinary CD and LP.

**Eileen Farrell:** *Torch Songs. Stormy weather - Round Midnight - The end of a love affair - Black coffee - When your lover has gone - Don't explain - Something Cool*

The album Farrell fans have been waiting for. America's great blues diva makes these songs of lost love her own.

**Star of Wonder:**  
*Silent night - Nativity carol - We three kings - We'll Dress the house - Come all ye faithful - Deck the hall*  
 Festive music for the holiday season by an outstanding professional chorus. The ideal audiophile Christmas present.

**Berlioz:** *Fantastique. Symphonie Fantastique.* Varujan Kojian, The Utah Symphony Orchestra.  
 This is widely considered to be the recording of this magical work. The Utah Symphony Orchestra, playing in Salt Lake City's Symphonic Hall, give a world class performance.

**Opus 3 test record 1:** Depth of image. Produced with the idea of analysing hi-fi systems and their ability to reproduce depth of image.

**Eileen Farrell:** *Rogers & Hart. I could write a book - I wish I were in love again - Wait till I see him - I didn't know what time it was - Love me tonight - Nobody's heart - and more*  
 A wide ranging survey including many great standards and a few rarities. Farrell's affinity for the songs of this era is undisputed.



**Opus 3 test record 2:** Timbre. Timbre or tonal accuracy is a crucial area of performance for audio equipment, this disc is composed of tracks designed to show up the timbral strengths of the components it's played through.

**Opus 3 test record 3:** Dynamics. Carefully chosen extracts to illustrate what is meant by musical dynamics with comprehensive liner notes to show you what you should be listening for. How good is your hi-fi system?

**Opus 3 test record 4:** Depth of image, Timbre, Dynamics  
 Combining elements from all three discs to form a basis for completely evaluating audio equipment.

**Eileen Farrell:** *Sings Johnny Mercer Skylark - I remember you - Early Autumn - Laura - I thought about you - T- and more.* Arranged by Manny Albam and Loonis McGlohan, this album includes rarities and favourites from the vast catalogue of America's most poetic and prolific lyricist.

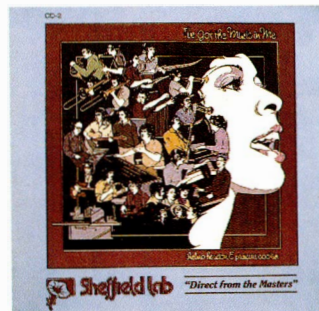
**Jim Brock:** *Tropic affair Pass a grill - Ladies of the Clabash - Tropic affair - Anya - Quo qui's groove and more.* Vibrant, steamy and sensual, this stunning contemporary instrumental jazz recording contains more than a touch of the tropics.

**Eileen Farrell:** *It's over I get the blues when it rains - How about me? - Easy to remember - Gone with the wind - I remember April*  
 Arranged and conducted by Robert Farnon, this album gives Farrell the opportunity to demonstrate her considerable skills, in touching songs of lost love.

**Malcolm Arnold:** *Conducts the London Philharmonic Orchestra. A Sussex overture - Bechus - Dandi Pratt - The smoke - Anniversary overture - The fair field - Flourish for orchestra - The Commonwealth Christmas overture.*  
 On this very latest Reference recording the London Philharmonic Orchestra is conducted by the composer, Malcolm Arnold, at the Town hall, Watford. This Keith Johnson production includes first recordings of Britain's leading living composer's lesser known works.

**Nojima:** *Nojima plays Liszt. Sonata in B minor - Mephisto Waltz - La Campanella - Harmonies du Soir*  
 The recipient of more rave reviews than any piano recording in recent memory, this is truly one for the history books

**Chicago Pro Musica:** *Weill, Varese, Bowles and Martinu. Threepenny Opera suite - Octandre - Music for a farce - La Revue de Cuisine.*  
 The Chicago Pro Musica gives brilliant performances of four magnificent 20th Century works. Kurt Weill's pungent suite for wind, brass and percussion is the centrepiece.



## Furukawa cables

We have a variety of interconnects and speaker cables on offer, all sourced from respected Japanese specialist Furukawa and all of which were rated as either Recommended or Best Buys in our comprehensive cable survey in July and August. For those of you interested in reading more about these cables, copies of our guides to both loudspeaker cables and interconnects are available from our back issues department. We are able to supply a variety of lengths, please see the order form for prices.

### Speaker cables FS-2T14

Cheapest of Furukawa's Evencap range, this PCOCC cable was rated a Best Buy because of its "natural sense of dynamics and scale"

### FS-2T20P

Consisting of some 80 PCOCC strands, 20P was praised for its "lively and engaging presentation" and was considered to be "taut, detailed and well controlled".

### FS-2T35P

Similar to 20P, but with 140 strands arranged in seven bundles, this cable was rated "a real corker".

### Digital Interconnects FV-1010

75ohm PCOCC digital interconnect which earned Recommendation for its good sense of depth and quality of construction.

### FO-1110

Voted a "must for 'optical only' transports" 1110 employs a PMMA fibre. Glass and multi glass versions, the FO-1210 and FO-1310, are also available.

### Analogue Interconnects FD-1010

One of Furukawa's 'unbalanced' coaxial range, manufactured from PCOCC.



## Record and CD Price Table

### Prof Johnson's Sound Show:

Ref RR-7 (LP only) (£18.50)

### Berlioz: Fantastique

Ref RR-11 (double) (£24.99)

Ref RR-11CD (£13.99)

### Tafel Musik: Baroque

Ref RR-13 (£18.50)

Ref RR-13CD (£13.99)

### Respighi: Church Windows

Ref RR-15 (£18.50)

Ref RR-15CD (£13.99)

### Stravinsky: L'Histoire

Ref RR-17 (£18.50)

Ref RR-17CD (£13.99)

### Copland: Apalacian Spring

Ref RR-22 (£18.50)

Ref RR-22CD (£13.99)

### Helicon Ensemble: Vivaldi

Ref RR-23 (£18.50)

Ref RR-23CD (£13.99)

### Nojima Plays Liszt:

Ref RR-25 (£18.50)

Ref RR-25CD (£13.99)

### Nojima Plays Ravel:

Ref RR-35 (£18.50)

Ref RR-35CD (£13.99)

### Mike Garson: Serendipity

Ref RR-20 (£18.50)

Ref RR-20CD (£13.99)

### Walker & Garson: Reflections

Ref RR-18 (LP only) (£18.50)

### Marni Nixon: Marni sings...

Ref RR-19 (£18.50)

Ref RR-19CD (£13.99)

### Star of wonder:

Ref RR-21 (£18.50)

Ref RR-21CD (£13.99)

### Chicago Pro Musica: Weill

Ref RR-29 (£18.50)

Ref RR-29CD (£13.99)

### Eileen Farrell: Torch Songs

Ref RR-34CD (£13.99)

### Dick Hyams Plays Fats Waller:

Ref RR-33 (£18.50)

Ref RR-33CD (£13.99)

Ref RR-33DCD (£27.99)

### Opus 3 test record 1

Ref OP-7900CD (£17.99)

Ref OP-7900LP (£17.99)

### Opus 3 test record 2

Ref OP-8000LP (LP only) (£17.99)

### Opus 3 test record 3

Ref OP-8300CD (£17.99)

Ref OP-8300LP (£17.99)

### Opus 3 test record 4

Ref OP-9200CD (£17.99)

Ref OP-9200LP (£17.99)

### Thelma Houston: Music in me

Ref CD-2 (£13.99)

### Eileen Farrell: Sings Rogers & Hart

Ref RR-30 (£18.50)

Ref RR-30CD (£13.99)

### Jim Brock: Tropic Affair

Ref RR-31 (£18.50)

Ref RR-31CD (£13.99)

### Eileen Farrell: Sings Johnny Mercer

Ref RR-44CD (£13.99)

### Eileen Farrell: It's Over

Ref RR-46CD (£13.99)

### Malcolm Arnold/RPO:

Ref RR-48 (£18.50)

Ref RR-48CD (£13.99)

### Robert Farnon/RPO

Ref RR-47 (£18.50)

Ref RR-47CD (£13.99)

### William Walton: Facade Suite

Ref RR-16 (£18.50)

Ref RR-16CD (£13.99)

### Reference Jazz Sampler

Ref RR-S2CD (CD only) (£10.99)

### Reference Classical Sampler

Ref RR-S1CD (CD only) (£10.99)

# Choice Offers Order Form

## Accessories

Please indicate which items you require by ticking the appropriate box.

<input type="checkbox"/> JE8A	Mk 10 Carbon Fibre Brush with Velvet Pad	£9.99
<input type="checkbox"/> JE9A	System Hi-Fi Cleaning Kit 1	£15.99
<input type="checkbox"/> JE13A	Goldring Magic Record Cleaner	£11.95
<input type="checkbox"/> JE14A	The Purifier	£16.90
<input type="checkbox"/> JE15A	Anti-Static Record Sleeves	£6.99
<input type="checkbox"/> JE16A	Milty Work Mat	£7.99
<input type="checkbox"/> JE17A	Kontak Cleaning Solution	£19.90
<input type="checkbox"/> JE18A	Newnes Audio and Hi-Fi Engineer's pocket book	£10.95
<input type="checkbox"/> JE19A	The Art of Digital Audio	£49.50
<input type="checkbox"/> JE20A	Technics Auto CD cleaner	£39.95
<input type="checkbox"/> JE21A	Audio Technica CD lens cleaner	£16.95
<input type="checkbox"/> JE24A	Gold plated 4mm banana plugs	£7.95
<input type="checkbox"/> JE25A	Last SF-100 extra strength record cleaner	£19.95
<input type="checkbox"/> JE26A	Last SF-200 record preservative	£21.95
<input type="checkbox"/> JE27A	Last SF-300 record cleaner	£15.95
<input type="checkbox"/> JE29A	Last SF-600 CD clean and protect	£17.95
<input type="checkbox"/> JE30A	Last cleaner only	£13.95
<input type="checkbox"/> JE31A	Trial pack, SF-100 and 200 (full size)	£34.95
<input type="checkbox"/> JE32A	Trial pack, SF-100, 200 and 300	£21.95
<input type="checkbox"/> JE33A	CD jewel case (five pack)	£5.00

## Furukawa Price Table

Please circle the cables you require.

### Interconnects - RCA to RCA

**FV1010 (each)**

**FD1010 (pair)**

### Fibre optics - TOSLINK

**FO1110 (each)**

	0.5m	1.0m	1.5m	2.0m
FV1010 (each)	50.00	55.00	57.50	60.00
FD1010 (pair)	85.00	92.50	97.50	NA
FO1110 (each)	NA	45.00	50.00	NA

### Speaker cables

Please state termination required, solderless, gold plated banana plugs, spades or pins or any combination. All prices are per pair.

	2.0m	2.5m	3.0m	3.5m	4.0m	4.5m	5.0m
<b>FS2T14</b>	52.00	57.75	63.50	69.25	75.00	80.75	86.50
<b>FS2T20P</b>	65.00	74.00	83.00	92.00	101.00	110.00	119.00
<b>FS2T35P</b>	95.00	111.50	128.00	144.50	161.00	177.50	194.00

**Yes! Please send me ..... Hi-Fi Choice sweatshirts at a mere £14.99 each. Available in Large only**  JE22A/L

Please complete the coupon in BLOCK CAPITALS and send with correct payment to:  
**DENNIS DIRECT, PO BOX 2505, ALCESTER, B50 4JU**

Total number of items ordered ..... Total for order £.....  
Please add £1.50 per order to cover postage.

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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 dem 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) 56860. Mon-Sat 9-6. NAD, Yamaha, Marantz, Sony, Tannoy, Denon, Kenwood, Rogers, Musical Fidelity, Quad. Dem and home trial facilities, free install, credit to

£1000. Amex, Diners, Visa, Access. Service dept. V J HI-FI, 119 High Street Margate. (0843) 226977. For full details see our above entry.

## LANCASHIRE

NORMAN AUDIO, 216 Church Street, Blackpool FY1 3PT. 0253 295661. For details see Preston branch entry ( below). Open 9-5.30, Closed Wed.

**BADA**

ROMERS HI-FI CENTRE, 94-96 High Street, Rishton, Blackburn, Lancs, BB1 4LQ, Tel: 0254 887799. Musical Fidelity, Technics, Pioneer, Marantz, Revox, Tannoy, Celestion, Sony, Panasonic, Mission. Single Speaker Dem Room, Also wired for pro logic. No appts nec. Home trial fac by arrangement. Free Install, Service Dept. Access, Visa, Switch, Interest free on selected products. Open 9-5:30 Wed 9-1:00

## LEICESTERSHIRE

MAYS HI-FI, 27/33 Churchgate, Leicester. LE1 3AL. (0533) 625625. Sony, Technics, Denon, Kenwood, Pioneer (Reference Point) Philips, B&W, Tannoy, Mission/Cyrus, Dual, Listening room, free install, service dept. Full range of credit facilities. Open Mon-Sat 9-5:30 Thurs 9-1:30  
LEICESTER HI-FICO, 6 Silver Walk, St Martins Square, Leicester LE1 5EW. Tel: (0533) 539753. Fax (0533) 626097. Acoustic Energy, Arcam, Marantz, Micromega, Mission/Cyrus, Musical Fidelity, Nakamichi, Meridian, Rogers, Roksan, "and oodles more", 2 Dem rooms, home trial arranged, free install, service dept. Credit facilities, Access, Visa, Diners, Amex, 6 days 9.30-5.30. Bada Member

**BADA**

LISTEN INN, 6 Hotel Street, Leicester. (0533) 623754 (Fax) 0533 623758. Linn, Arcam, Royd, Heybrook, Creek, Neat, Mission, Cyrus, Audiolab, Quad, Denon, etc. 2 Dem Rooms.  
SOUND ADVICE, The Factory, Duke St. Loughborough LE11 1ED. (0509) 218254. Shahinian, Rega, Naim, Linn, Royd, Yamaha, Rotel, Arcam, Nakamichi, JPW 3 demonstration areas, no appts necessary, free installation, service department. Lombard credit charge, Access, Visa. Mon-Fri 9.30-6.00, Sat 9.30-5.30.

STEREO SHACK, 1-3 Guildhall Lane, Leicester. Tel 0533 530330. Aiwa, A.R., Denon, Kenwood, Jamo, Mission, NAD, Phillips, Pioneer, Rotel, AV 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. Quad, Nakamichi, Arcam, Marantz, NAD, Castle, JPW, Rogers, etc. Separate demo studio. Home trial. Free installation. Access, Visa. Tues - Sat 9-5 pm.

**BADA**

STAMFORD HI-FI CENTRE, 9 Red Lion Square, Stamford, Lincs PE9 2AJ. (0780) 62128. Pioneer, Technics, Cyrus-Mission, Rotel, NAD, Yamaha, Kenwood, Marantz, Quad, plus all major speaker manufacturers. Expert advice, comparator demonstrations, on two floors, part exchange Hi-Fi purchased for cash. No appointments necessary, home trial facilities, free installation, service department. Mastercard, Visa & credit charge, finance available. Mon-Sat 9-5.30pm, closed Thursdays.  
SUPERFI, 271A High Str, Lincoln LN2 1JG. (0522) 520265. See main entry under Nottinghamshire for full details.

## LONDON

ANALOG AUDIO, 849 High Road, London N12. (081) 445 3267. Cambridge, Denon, Rotel, Yamaha, Marantz, Wharfedale, Teac, Mordaunt-Short, Cerwin Vega, Nad. Free install. Service dept. Instant credit up to £1000. Visa & Access. 9.30-6.6 days  
AUDIO T, 190 West End Lane. West Hampstead, London NW6 1SQ.

(071) 794 7848, Fax (071) 431 3570. Great hi-fi from Linn, Arcam, Audiolab, Cyrus, Denon, Meridian, Mission, Philips, Rotel, Proac, Micromega, Yamaha,

and many more. Tue-Sat 10-6pm. 3 yr gntee on Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. 2 dem rooms. A/V Dept.

**BADA**

BILLY VEE SOUND SYSTEMS, 248 Lee High Road, London SE13. (081) 318 5755. Arcam, Linn, Naim, Quad, etc. 2 dem rooms. Int. free credit. Access, Visa. Closed Thurs.

**BADA**

CORNFLAKE SHOP, 37 Windmill St (just off Tottenham Court Rd), London W1. (071) 631 0472 (domestic). (071) 323 4554 (multiroom). Fax. (071) 323 4554 Fax. (071) 4367165. Tues-Sat 10-7 Rega, Roksan, Naim, Monitor Audio, Arcam, Nakamichi, Rotel, Epos etc. 3 dem rooms. (incl. home cinema) Friendly, professional service. Home trial facilities. Appointments preferred. Full delivery and repair service. Multiroom specialists. Access & Visa.  
COVENT GARDEN RECORDS, 84 Charing Cross Road, London WC2

(071) 379 7635, Fax (071) 836 1345. London's premier digital audio centre. Photo CD, DCC, CD, & 16X9 TV'S. Audiolab, B&O, Marantz, Mission, Cyrus, Philips, Pioneer, Rotel, Rogers, Quad, Sony, Technics, single speaker dem rooms, appointments suggested, installation service available. All major credit cards accepted. Mon-Sat 10am-7.30pm  
DOUG BRADY HI-FI, 14-18 Monmouth St. London WC2H 9HB. (071) 379 4010. Wide range of top specialist hi-fi from Britain, America and Japan. 3 dem rooms. Closed Monday

**BADA**

GRAHAM'S HI-FI, Canonbury Yard, 190a New North Rd, London N1 7BS. (071) 226 5500. Winner Sony/HFN Greater London Dealer Award 1986-1989-1990. Linn, Naim, Rega, etc. £400-£3000-£13,000. Open Tues-Sat

**BADA**

HI-FI COMPONENTS, 84 Battersea Rise, London, SW11 1EH.

Tel: 071 2231 110. Tannoy, Kenwood, Rotel, NAD, QED - Wharfedale, Dual, Shure, Ortofon, Celestion. Appts nec, Service Dept. Access, Visa, Diners, Amex, Open 10-6 Closed Wed.

KJ WEST ONE, 26 New Cavendish St, London W1M 7LH

(071) 486 8262/63. Fax (071) 487 3452. Arcam, Audio Alchemy, Audio Lab, Audio Research, Croft, Deltac, Epos, Marantz, Meridian, Mission, Musical Fidelity, Pink Triangle, Roksan. Appts nec. Home trial. Free installation. Service dept. Major credit cards. Mon-Sat 10-6pm. (Late night Thur til 7pm).

MUSICAL IMAGES LTD. See under Middlesex & full page advert in the Product Directory.

MYERS AUDIO, 6-7 Central Parade, Hoe Street, Walthamstow, London, E17 4RT. Te 081 520 72777 Fax 081 5036677.

SOUND ORGANISATION LONDON, 4 Picketfords 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. 2x single speaker listening rooms. Appts preferred. 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, Nakamichi, Celestion, Cambridge Audio, Dual, Denon. Monitor Audio, Marantz, NVA, Sony ES. Appts preferred. Installations available. Access, Visa. Standard credit facilities. Mon-Sat 9.30-6.30.

STUDIO 99, 79-81 Fairfax Road, Swiss Cottage, London NW6. (071) 624 8855. Naim, Rega Quad, Meridian, Mission/Cyrus, ATC, Nakamichi, KEF, Yamaha, Arcam, Epos, Acoustic Energy, Bang & Olufsen, etc. 2 single speaker dem rooms. Service dept. Visa/c, Access/c & finance terms. 10-7 Mon-Fri, 10-6 Sat.

**BADA**

SUPERFI, 2-4 Camden High Street, Camden, NW1 0JH (071) 388 1300. See main entry under Notts for full details.

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.

**BADA**

VOLUME ONE, 41 Upper Wickham Lane, Welling. (081) 304 4622. For full details see entry under Kent.  
ZEBRA, 18-24 Brighton Road, South Croydon CR2 6AA. 081 688 2093. Audio Lab, Arcam, KEF Reference, Marantz, Mission, Micromega, Pioneer, Rotel, Sony, Tannoy, and large range of AV equipment. S2 Air Conditioned Demo Rooms. in a more casual environment. Service department. Mon-Sat 9.30-6.00. Access, Visa & instant credit up to £1000 subject to status.

## GREATER MANCHESTER

CENTRAL RADIO, 30-32 Shudehill, Manchester M4 1EY. Tel 061 834 67600. JBL, Mission, B&W, Wharfedale, Aiwa, Teac, Harman Kardon, Dual, Thorens, Pioneer. Service Dept. Free installation. Access, Visa, Switch. Interest Free and standard. Credit available. Mon-Sat 9-5.30.

THE AUDIO COUNSEL, 12 Shaw Road, Oldham, Manchester OL1 3LQ. (061) 633 2602. Linn, Yamaha, Rega, Rotel, Arcam, Micromega, EPOS, Creek, Nakamichi, Denon. 2 dem rooms. Free install. Visa, Access, Licenced credit brokers up to £1000 instant credit. 10.00-5.30 Tues, Weds, Sat; 10.00-7 Thurs & Fri. Closed Mon.

MURRAY HI-FI, 19 Middle Hillgate, Stockport. (061) 429 7666. Linn, Naim, Rega, Arcam, Yamaha, Royd, Epos, Creek, Nakamichi, Rotel. Full demo facilities, free installation & delivery, service dept. Full 2yr guarantee on all products. Access, Visa, Lombard Tricity, licensed credit broker. 10-6 Tue-Sat.

SWIFT OF WILMSLOW, 4-8 St Annes Parade, Wilmslow. (0625) 526213. Aura, B&W, Denon, Kenwood, Marantz, NAD, Pioneer, Rotel, Tannoy, Revolver, JPW. Open 9:30am-6:00pm 2 dem rooms. No pressure!

**BADA**

## MIDDLESEX

AUDIO T, 159a Chase Side, Enfield, Middx EN2 0PW. (081) 367 3132, Fax (081) 367 1638. Great hi-fi from Arcam, Audiolab, Cyrus, Denon, Meridian, Micromega, Mission, Philips, Rotel, Yamaha and many more. Tue-Fri 10-6pm. Sat 9:30 - 5:30 3yr gntee on Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. 3 dem rooms. A/V Dept.

**BADA**

HARROW AUDIO, 27 Springfield Rd, Harrow. (081) 863 0938. Mon-Sat 9.30-5.30. A&R, Audiolab, Cyrus, Denon, Epos, Monitor Audio, Musical Fidelity, Nakamichi, Quad, Rotel, Tannoy, Thorens, Yamaha. etc.

**BADA**

MUSICAL IMAGES LTD. 173 Station Rd, Edgeware (081) 952 5535, fax (081) 951 5864 and 45 High St. Hounslow. Tel (081) 569 5802, fax (081) 569 6353. Most brands available - see full page advert in Product Directory. Interest free credit available, ask for details. Demo Room, Repairs & Service, Mail Order facilities.

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, Spenhdor, Systemdek, Tannoy, Yamaha. One demo room, in-car demo for car hi-fi systems. Appts not always necessary. Home trial facilities. Free installation, service dept. Lombard Tricity, Access, Visa, Amex, Diners Club. Mon-Sat 9.30-6, Thurs, Fri 9.30-7.

SIGHT N SOUND, The Treaty Centre, Hounslow, Middlesex TW3 1ES. 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

# The Choice Dealer Directory

## 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 **BADA**  
P & A AUDIO (BIRKDALE) LTD 31 Liverpool Road, Birkdale, Southport (0704) 68373. Arcam, Cambridge, Creek, Denon, Michell, Mission/Cyrus, Mordaunt-Short, NAD, Pink Triangle, QED, Revolver, Rogers, Rotel, Royd, Tannoy. 3 Single speaker demo rooms and Nicam surround sound dem room. Free delivery, installation (Merseyside) Service dept. Mon-Sat 9-5.30 Half day Tues, Access, Visa, Lombard

## WEST MIDLANDS

AMADAELUS SOUND & VISION, 10 Boldmere Road, Sutton Coldfield, West Midlands Tel (021) 354 2311 Arcam, Audio Innovations, B&O, Carver, Castle, QED, Wharfedale, Yamaha, Cambridge Audio, Hafler. 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 Medieval Spon Street, Coventry. (0203) 525200. All major agencies. Free inst. Service dept. Part ex. 3 dem rooms. Mon-Sat 9.30-5.30. Wed til 8pm. **BADA**

GRIFFIN AUDIO LTD, 94 Bristol Street, Birmingham. (021) 692 1359/(021) 622 2230. Arcam, Castle, Cyrus, Denon, Linn, Marantz, Naim, Quad, Rega, Rotel. Tues-Sat 10-6. **BADA**

MUSICAL APPROACH, 37 High Street, Aldridge, Walsall. W. Mids. (0922) 57926. Linn products, Arcam, Creek, NVA, Revolver, Onix, Epos, Marantz, Rotel, Quad & more. Dem facs. Home trial. Service dept. Credit facs available. Access, Visa. 9.30-5.30 Mon-Sat. 9.30-1 on Thurs.

MUSIC MATTERS, 351 Hagley Road, Edgbaston, Birmingham B17 8DL. (021) 429 2811. Roksan, Nakamichi, Arcam, Audioblab, Musical Fidelity, Mission/Cyrus, Meridian, KEF, Monitor Audio, Pink Triangle. 2 single speaker luxury demo rooms. Appts nec, home trial facilities, free installation, service dept. Access, Visa, instant credit up to £1000, interest free credit available. Tue-Thur 10.30-6, Fri 10.30-8, Sat 10-5.30.

NAAMHI-FIVISION, 122-123 New Street, Birmingham. (021) 633 4944. Pioneer, Akai, Aiwa, Panasonic, Yamaha, Toshiba, Hitachi, Bose, Wharfedale, Sony. Demo facilities available, appointments preferred. Access, Visa, 10 month interest free credit. Amex, Lombard Tricity Creditcharge. Mon-Sat 9-6.00.

## NORFOLK

BASICALLY SOUND, The Old School, School Rd, Bracon Ash, Norwich NR14 8HE. (0508) 70829. Arcam, Linn, Naim, Denon, Spondor, Exposure, Audio Technica, Creek, Rega, Epos, etc. 2 comprehensive dem rooms. Home trial. Free installation. Visa, Access, HP facilities. Tues-Sat 9.30-1, 2-5.30.

MARTINS HI-FI, 5 High Street, Kings Lynn. (0553) 761683. Est. 1968. Making good vibrations for 20 years **BADA**

MARTINS HI-FI, 85/91 Ber Street, Norwich. (0603) 627010. Est. 1968. Making good vibrations for 20 years **BADA**

## NORTHAMPTONSHIRE

AUDIO CRAFT 23-25 Derngate, Northampton, NN1 1TY. Tel: 0604 36291 Bang & Olufsen, Kenwood, Technics, Marantz, Celestion, Mordaunt-Short. No appts nec, Free Install, Service Dept. Open Mon-Sat 9-5:30pm

CLASSIC HI-FI + VIDEO, School Lane, Kettering, Northants. (0536) 515766. Rotel, Musical Fidelity, Wharfedale, Yamaha, JBL, Cyrus, Nad, Pioneer, Marantz, Kenwood, Kef, Celestion, 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, Epos, Royd, Mission, Cyrus, Arcam, Audioblab, Neat, Creek, Quad, Denon etc. 2 Dem Rooms **BADA**

## NOTTINGHAMSHIRE

CHANTRY AUDIO, Chantry Walk, 18a Eldon Street, Tuxford, Nr Newark, Notts NG22 0LH. (0777) 870372 Pink Triangle, Deltec, Rotel, SD Acoustics, Ruark, NVA, Michell, Ion Systems, Croft Acoustics, Kelvin Labs, and much more. 2 dem rooms. Home trial, free installation. Access, Visa & credit facilities and mail order. Mon-Fri 9:30-5:30pm Sat 9:30-5:30. Sun & evenings home dem by appt.

DEFINITIVE AUDIO, (0602) 813562. For a carefully considered approach to building a true hi-fidelity audio system with components derived from the following manufacturers; Audio Innovations, Snell, Wadia, Micromega, Deltec, Voyd, Systemdek, SME, Revox, Audionote, Ortofon, Pioneer. Demos by appt. Please phone for further details. Installation free of charge. Mon-Sat 10-7pm, Closed Wed a.m.

NOTTINGHAM HI-FI CENTRE, 120-122 Alfreton Road, Nottingham. (0602) 786919. Over 25 years experience, superb demo rooms, extensive range, free parking. Mon-Sat 9-5.30. **BADA**

PETERELLIS AUDIO, 29 Kirkgate Newark, Nottingham, NG24 1AD (0636 704571) Quad, Castle, Arcam, QED, Sugden, Tannoy, Thorens, Marantz, Dennon, Teac. Demo Room, Free Install, Service Department. Access, Visa, Mon-Sat 9-5:30 Close at 1:00pm on Thursday.

SUPERFI, 15 Market Str, Nottingham NG1 6HY. (0602) 412137. Kenwood, Technics, Denon, Aiwa, Rotel, Wharfedale, Mission, Marantz, NAD< Celestion, and many more. 2 single speaker dem rooms. Free install on systems, service dept. Access & Visa, Amex. Open 9-5.30, 6 days.

## OXFORDSHIRE

ASTLEY AUDIO LTD, 3 Market Place, Wallingford. (0491) 39305/34349. Technics, Panasonic, Pioneer, Kenwood, Sony, Yamaha, Denon, Dual, Mission, Tannoy. Home trial, free installation. Service dept. Access, Visa, Amex, Diners. Instant credit. Tue-Fri 9-5.30, Sat 9-5. Records & CDs stocked

AUDIO T, 19 Old High St, Headington, Oxford OX3 9HS. (0865) 65961, Fax (0865) 60415. Great hi-fi from Arcam, Audioblab, B&O, Cyrus, Denon, KEF, Meridian, Mission, Rotel, Sony, Yamaha and many more. Open Mon Fri 10-6pm, Sat 9:30-5:30. 3 yr gntee on Hi-Fi. Free del & instal. 30 day upgrade scheme. Home dems. PX. 2 dem rooms. A/V Dept OXFORD AUDIO CONSULTANTS LTD, Cantay Hse, Park End Street, Oxford OX1 1JE. (0865) 790879 fax (0865) 791665. NAD, Rotel, Musical Fidelity, Pioneer, Marantz, Rogers, TDL, Thorens, Audio Research, Proceed. 2 Demo rooms. Service Dept, Home trial and free installation. Instant credit, Access, Amex, Visa 10-6 Mon-Sat  
WESTWOOD AND MASON, 46 George Street, Oxford Tel: 0865 247783 Arcam, Rotel, Rega, Epos, Tanoy, Royd, JPW, Mission, Nakamichi, Denon, Aiwa, Naim, Quad, Aura, Teac. Open 9:30-5:00pm. Dem room. Closed Thursdays. **BADA**

WITNEY AUDIO VISUAL, 28 High St, Witney, Oxford. (0993) 702414. Aiwa, Akai, AR, Bose, B&W, Cambridge, Dual, Mordaunt-Short, NAD, Onkyo, Pioneer, Roberts, Sony & Sony ES, Tannoy, Wharfedale, Yamaha, Reference Point Dealer. Dem facilities. Mon-Sa 10-6 Free installation, credit to £1,000. Access, Visa. Service dept. **BADA**

## SHROPSHIRE

AVON HI-FI, 12 Barker Street, Shrewsbury, Shropshire SY1 1QJ. (0743) 55166. NAD, Quad, B&W, Arcam, Kenwood, Aiwa, Bose, Nakamichi, Revolver, Onkyo. Dem room. Home trial. Free install. Service dept. Access, Visa. £1000 instant credit. Mon, Tues, Wed, Fri, Sat 9-5.30.

CREATIVE AUDIO, 9 Dogpole, Shrewsbury. (0743) 241924. Linn, Naim, Roksan, Mission, Arcam, Rogers, Denon, Marantz, Rotel, Celestion, etc. Dem room. Home trial and free installation. Credit to £1000. Access, Visa. Tues-Sat 9.30-5.30. Service dept.

MID-SHROPSHIRE AUDIO, 4 Holland Court, Dawley, Telford TF4 2EX. (0952) 630172. Audio Innovations, Marantz (inc Music Link), Denon, Tannoy, Ortofon, Pink Triangle, Ion Systems, Systemdek, Ruark, Monitor Audio etc. 2 dem rooms. Home trial, service dept. Instant credit up to £1000 Access, Vsa, Amex.

## SOMERSET

MIKE MANNING AUDIO, 110 Middle Street, Yeovil, Somerset BA20 1NE. (0935) 79361, Fax (0935) 32923, Mobile (0850) 325965. Naim, Roksan, Pink Triangle, A+R (Arcam), ION, NAD, Pioneer, Rotel, Denon, etc. Dedicated listening lounge, for relaxed and unpressured demonstrations. Appts not usually nec. but best to phone first. Home trial facilities on request, free installation, service department. Instant credit, Access & Visa, etc. 9-5.30 closed Mondays.

## STAFFORDSHIRE

GRANGE HI-FI LTD, 153 Branston Rd, Burton-on-Trent, Staffordshire DE14 3DQ. (0283) 33655. Audio Innovations, Arcam, Celestion, Denon, Pink Triangle, Marantz, Rotel, Rogers, Systemdek, SME, Tannoy, Dem fac, appts nec on Sat, Free Install. Service dept Access, Visa. 9.00-5.30pm. Closed Mon & Wed afts, open until 7:00pm Thursdays. Closed for lunch 12.00-12.30.

## SUFFOLK

AVALON AUDIO VISION, 12 St Margarets Plain, Ipswich, Suffolk, Tel: 0473 281922. Pioneer, Mission/Cyrus, NAD, Rotel, Yamaha, Marantz, KEF, Mordaunt-Short, Mitsubishi, Wharfedale. Single Speaker Demonstration Room. No appts nec, Home trial fac, Free Install, Service Dept. Full HP fac, Interest Free Credit available on most components, Part exchange. Open 9:30-6:00 Mon-Sat.

BURY AUDIO, 47 Churchgate Street, Bury St Edmonds, Suffolk, IP 33 1RG. Tel 0284 724337. Arcam, Goldring, Heybrook, Infinity, Marantz, Meridian, Proac, Rotel, Target, Roksan, Etc. Single Speaker Room. No appointments necessary. Home trial facilities. Free Installation. Service Department. Access, Visa, Switch Open 6 days a week.

EASTERN AUDIO, 41 Bramford Rd, Ipswich. (0473) 217217. Quad Audio Lab, Denon, Dual, Marantz, Mission, NAD, Nakamichi, Technics, Arcam. Mon-Sat 9.30-6. **BADA**

## SURREY

AUDIO SOUTH, 24 (The Woolmead) East Str, Farnham, Surrey GU9 7TT. (0252) 714555. Audio Innovations, Audio Note, Deltec, Yamaha, Cary, JPW, Marantz, Rotel, Snell, Voyd. Dem room and evening appointments available. Home trial facilities. Free installation. Access, Visa. 10.30-6 Mon-Sat. Closed Tuesdays.

DATASOUND, 23 South Street, 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.

PJ HI-FI - the Hi-Fi Shop, 3 Bridge Street, Guildford, Surrey GU1 4RY. Tel: (0483) 504801. 9-6 Mon-Sat. Linn, Meridian, Creek, Arcam, Quad, Revox, Musical Fidelity, Rotel, NAD, Nakamichi, Marantz. **BADA**

RIVERSIDE HI-FI, 422 Richmond Road, East Twickenham. TW1 2EB. Tel: (081) 892 7613. Fax: (081) 892 7749. See main entry under Middlesex.

ROGERS HI-FI, 13 Bridge Street, Guildford, Surrey. (0483) 61049. Aiwa, Creek, Denon, Dual, JPW, Marantz, Philips, Pioneer, Systemdek, Tannoy. Demonstration facilities available, no appointment necessary. Free installation. Service department. Access/Visa. Instant credit up to £,000 subject to status. Monday-Saturday 9.30-6pm, later by appointment.

SOUNDSEXCLUSIVE, 1 Kent House, High Str, Cranleigh GU6 8AU. (0483) 268185. Michell (amplification & decks), Marantz, Ariston, Ortofon, AME, Sumo, Proac, Jamo, Origin Live, Kiseki. Demo room, appts preferred, home trial facilities, free install, service dept. Access, Visa. Open 9-5.30 Mon-Sat.

SPALDINGS HI-FI, 352-4 Lower Addiscombe Rd, Croydon, Surrey. (081) 654 1231/2040. 3 dem rooms and home dem. Free installation, credit. Mon-Sat 9-6. Tues to 8. Closed Wed. Service dept. **BADA**

SURBITON PARK RADIO, 48 Surbiton Rd, Kingston-Upon-Thames, Surrey. (081) 546 5549. Quad, Castle, Dual, Denon, Kenwood, Rotel, Pioneer, QED, B&W, Tannoy. Demo facilities. Access, Visa. 9.30-5.00 Tues-Sat. Service dept.

SURREY HI-FI, 45 High Street, Godstone, Surrey RH9 8LS. (0883) 744755. Parking, easy access - just 2 mins off junction 6, M25. Tube Technologies, Rel Acoustics, Audio Lab, Quad, TDL, Nakamichi, KEF, Thorens, Rotel, Marantz, Denon, Michell, Tannoy, Top Line, Rel Acoustics, Single speaker demo room. Demonstration by appointment, free installation, service dept. Access, Visa, Mastercard. 0% Credit. Open 9-6, closed Wed.

TRU-FI SOUND AND VISION, 2 Central Parade, Redhill, Surrey. (0737) 767404/766128. Aiwa, Audio Technica, B&W, Nakamichi, Mission, Mordaunt-Short, Nakoaka, Sony, Technics. Dem facilities. Free installation. Service dept. 0% finance. Access, Visa. Mon-Sat 9.30-6.

TRU-FI SOUND & VISION, 10 Church Street, Leatherhead, Surrey. (0372) 378780. Sony, Technics, Panasonic, Mitsubishi, Ferguson, Aiwa, Pioneer, Sanyo, B&W, Mission. Free installation. Credit facilities. Access, Visa. 9.15-5.30 Mon-Sat. Closed Wed. Service dept

ZEBRA 18-24 Brighton Road, South Croydon CR2 6AA. 081 688 2093. See main entry under London.

## SUSSEX (EAST)

DEFINITIVE AUDIO, Brighton. (0273) 208649. Audio Innovations, Impulse, Voyd, Snell, SME, Audionote, Micromega, Goldring, JPW, Pioneer. Demonstration by appointment, home demonstration a pleasure. Free installation, Access, Visa. Mon-Sat 9.30-6.00pm

JEFFRIES HI-FI, 69 London Road, Brighton, East Sussex, Tel 0273 609431. 2 Dem Rooms, closed Mon. Late night Wed. Free parking. Bus route. Credit Facilities. **BADA**

JEFFRIES HI-FI, (Poutrsmouth), 29 London Road, Portsmouth, PO2 0BH Tel: 0705 663604. 2 Dem Rooms, Closed Mondays. Late night Wednesday. Free parking. Bus route. Credit facilities. **BADA**  
JEFFRIES HI-FI, 4 Albert Parade, Green Street, Eastbourne, East Sussex. Tel: 0323 31336. 2 Dem Rooms. Closed Mon. Late night Wed. Free Parking. Bus Route. Credit Facilities. **BADA**

THE POWERPLANT, 66 Upper North Street, Brighton BN1 3FL. (0273) 775978. Roksan, Musical Fidelity, Marantz, Rotel, Yamaha, Tannoy, Audioblab, B&W, Micromega, Epos. JPW, etc. Comfortable single speaker demonstration rooms. No appts. nec. Home trial facilities, free install. Service dept. Credit facilities available on request. Mon-Sat 10-1.00, 2.00-6pm.

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AUDIO DESIGNS, 26 High Street, East Grinstead, W. Sussex RH19 3AS. 0342 314569. Linn, Naim, Alphason, Arcam, Rotel, NAD, B&W, Quad, Tannoy, Thorens, TEAC, etc. Very comfortable listening room. No appts nec., Home trial facilities, free installation, service dept. Access/Visa. 9.30-6:00 Mon-Sat, late Tue till 8pm.

BOWERS & WILKINS LTD, 1 Becket Buildings, Little Hampton Rd, Worthing. (0903) 2 64141. B&W, Nakamichi, Castle, Denon, Dual, JVC, Mordaunt Short, Philips, Quad, Sony, Technics. 3 dem rooms. Mon-Sat 9-5.30, Wed 9-1pm. Home trial facilities, free install Credit to £1000, Access, Visa. Service dept.\*

# The Choice Dealer Directory

CHICHESTER HI FI, 7 St. Pancras, Chichester, W Sussex PO19 1SJ. Tel: (0243) 776402. Linn, Naim, Rega, Creek, Nakamichi, A&R, Denon, Roksan etc. Tues-Sat, 10-1, 2-5.15 (closed Mon).

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RED RADIO SHOP AND HI-FI CENTRE, 11 Olive Street, (Off Park Lane), Sunderland. Tyne & Wear SR1 3PE (091)5672087. Castle, Carver, Denon, JVC, Kenwood, Mordaunt-Short, Michell, Teac, Tannoy, Monitor Audio etc. Dem room, large with comparator facility. No appts nec, free install. Service dept. Interest free credit and no deposit 9am-5.30pm daily.

## WARWICKSHIRE

CASTLE HIFI, 59 Smith Street, Warwick. CV34 4HCE. Tel (0926) 499963. A.R. B&W, LPW, Jenson in car, Marantz,

usical Fidelity, NAD, Pioneer, Rogers, TDL, Yamaha, Dolby Pro Logic. Dem Room. No apt nec, Home trial facilities, Free Installation, Service Department. Interest free credit, Access, Visa, Chartered Trust Open 10-6 6days a week.

FRANK HARVEY HIFI, 163 Spon Street, Coventry, Warwickshire, CV1 3BD. Tel 0203 525200. Arcam, Mission, Cyrus, Musical Fidelity, Marantz, Rotel, NAD, Tannoy, Yamaha, KEF. Open 9:30-5:30 closed Thursday.

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## YORKSHIRE (NORTH)

THE AUDIO CLINIC, 22 Lord Mayors Walk, York, Yorkshire, Y3 7HA. Tel: 0904 646309. Mission, Revox, Yamaha, JVC, Audio Inovations, Celestion, NAD, Musical Fidelity, Allison, Thorens. No appts nec, Home trial facilities, Free Installation. Service Department. Access/Visa, Credit. Open 10-5:30 Mon-Sat.

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HG1 1UB. (0423) 504274. Aura, B&W, Mission, Quad, NAD, Oxford, Alphason, Rogers, Nakamichi, Ruark, Voyd. Dem room, appointment preferred. Home trial facilities. Free installation. Service Department. Access/Visa/Creditcharge/£1,000 instant credit/Amex/Diners. 10-6 Tuesday to Saturday. SOUND ORGANISATION YORK, 2b Gillygate, York YO3 7EQ. Tel: (0904) 627108. Linn, Meridian, Micromega, Naim, Rega, Roksan, Arcam, Mission, Denon, Epos, Rotel. 3 single speaker dem rooms. Appts. preferred. Home trial. Free installation. Service dept. Credit facilities on request. Access, Visa. 10am-5:30pm Tues-Sat. Sony Dealer Award nominated '86,' '87,' '88.

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HI-FI STUDIO, Sunnyfields, Doncaster. (0302) 781387. Heybrook, Monitor audio, Art Audio, TDL, Michell, Sugden, Ruark, Albarr, Alphason, Teac, Dual. Listening room demos. Home trial. Free installation. Licensed credit broker, 2 yr guarantee on all equipment. Service available. Access, Visa. 10-8pm 6 days. Phone for further info. & FREE fact pack.

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AUDIO PROJECTS, 45 Headingley Lane, Leeds. (0532) 304565. A&R, Audiolab, Creek, Heybrook, Linn, Musical Fidelity, Naim, Quad, Rega, etc. Tues-Fri 9.30-6. Sat 2.30-5.30

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## Northern Ireland

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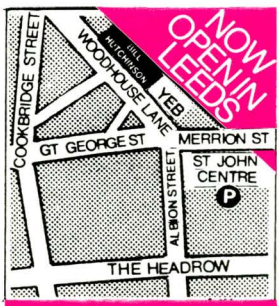


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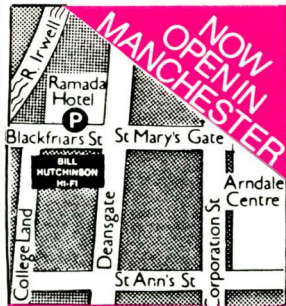
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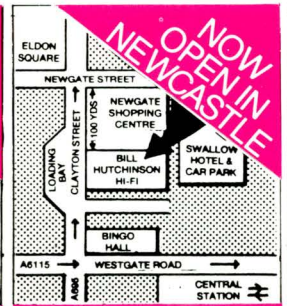
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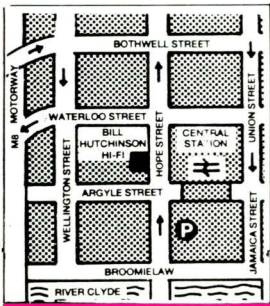
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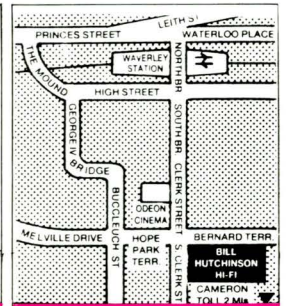
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# The Directory

The ultimate buyer's guide with comprehensive information on every currently available product tested by *Hi-Fi Choice*.

Including test summaries covering

**Amplifiers**

**Cables**

**Cassette decks**

**CD players**

**DACs**

**Equipment supports**

**Loudspeakers**

**Personal stereos**

**Tuners**

**Turntables**

And much, much more

# 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 suitable 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 rating are based on the product's price at the time of review.

The next column contains the ratings for the standard achieved in laboratory and listening tests, with the exception of certain product groups where lab tests were not carried out. One important point to remember is that they 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 (unless you can get hold of first generation copies of the master tape!).

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 in the 20 or so words we have attempted to put across the essence of the review, in some cases using quotes from the review itself. 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, of which more later. Please note that these comments are those of the reviewer and not, as is the case with some magazines, those of the manufacturer.

The next column varies from category to category but is usually either features or specifications, the former being facilities available on a cassette deck or amplifier or the type of drive system on a turntable.

Specifications vary with product type but usually relate to suitability or capability. For instance, in the case of arm matching, figures are given with the cartridges, which tie in with the mass figures for the tonearms themselves, making it easier to avoid compliance/mass mismatches.

Perhaps the most influential letters in the *Directory* are those found in the Value column, the Rs and BBs denoting the Recommended and Best Buy ratings that are appended to products we consider meritworthy. The Best Buy tag

means that a product not only offers good sound quality, but is reasonably priced as well. With source components a price limit of approximately £300 is usually used as a guide.

Recommended means that either the performance of a product is particularly good irrespective of price or, alternatively, that a good value standard is achieved but overall attainment falls short of Best Buy classification. Please note that an expensive Recommended product will nearly always sound better than a cheap Best Buy. An ideal situation would be to choose suitably priced Best Buy or Recommended products from relevant categories and create a Best Buy system, but, due to the variety in tonal balance that exists in much audio equipment, system building is unfortunately not quite 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.

The final column contains a reference to the issue of *Hi-Fi Choice* which featured the complete review. If you wish to get a better idea of a product by reading the complete review it is possible to order a copy (if still in print) through our back issues department. Every *Choice* issue contains a Back Issues page for this purpose.

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## SYSTEM BUILDING

Pre-packaged one-make systems have been commercially very successful, with advantages like cosmetic consistency, competitive pricing, and (assumed) technical compatibility. However, despite the mass market clout of the consumer electronics giants, the hi-fi tradition of specialised separate components seems to be as strong as ever, and certainly represents the route taken by those who place sound quality first.

The first step in putting together a system is to decide which sources you require. There are now three different prerecorded music media competing for the affection of the hi-fi user, and to go for all three will either cost a lot of money or involve substantial compromises in the sound quality of each. For this reason many separate purchasers may start with just one source, adding others or a tuner when funds permit.

Cassette has never really challenged vinyl's superior quality,

but it's a multiple role format, offering 'go anywhere' flexibility, a useful recording capability, plus a broad catalogue of prerecorded music cassette material. As a hi-fi medium cassette suffers from prerecorded material which has been improving but is still patchy in quality and can usually be bettered by a home recording. There is also the worry that a tape made on a specific machine usually plays best on that machine, which may cause aggravation when upgrading a few years hence.

CD is the relative newcomer but in the last decade it has come to dominate the market. The sound quality remains controversial, hailed as near perfect by its fans but derided by vinyl freaks. It is probably fairest to say that CD is fine for the majority of listeners, but may not suit everyone. Certainly the lack of background noise and deterioration are major strengths.

The advent of two box audiophile players has certainly

helped to gain better acceptance for the format and unless you are prepared to spend a substantial sum, CD arguably offers the best performance in terms of sound per pound. Players are now exceptionally cheap, having been reduced dramatically since the format was launched, however, the prices of the discs remains extortionate.

Choosing the components of a system is only part of the task of getting the system as a whole working as well as possible. Both components and loudspeakers benefit to a surprising degree from proper support in the form of stands that enable them to give their best performance, whether floor-standing or wall mounted.

The loudspeakers are most critical of placement, because it is their job to create the stereo image, and it will be impossible to do this if the sound from each is not roughly similar at the listening position. Each loudspeaker should operate in a simi-

lar immediate acoustic environment, unencumbered by other furnishings and structure, and a similar distance from listeners, nearby walls, and corners. Some loudspeakers are designed to operate close to a rear wall, others a metre or so out into the room, but all loudspeakers benefit from rigid support

The key to getting the best results from a separate system lies in finding an experienced and skilled dealer in the first place, one who takes the trouble to find out what you really want and then demonstrates some likely alternatives.

The *Directory* has been compiled as a guide in the sense that you should use the information in it to make a shortlist of equipment and then audition it before taking the plunge. Tastes inevitably differ and it's unwise to buy purely on the basis of our recommendation, as dealers are the most experienced people around when it comes to making systems work as a whole.



## AMPLIFIERS

The amplifier sits at the heart of the system, processing the outputs from all the various music sources as necessary and then driving the loudspeakers. These two (quite separate) functions are integrated into a single box at the low-to-middle price points; separated pre- and power amplifiers 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.

Lab measurement provides some useful data, particularly in regard to an amplifier's ability to drive a wide range of different types of loudspeakers, but this is only obliquely related to sound quality. We also include our measured power output (RMS, 8ohm load, 1 channel

driven) – but again, paradoxically, this doesn't necessarily correspond to the loudness capability of the amplifier, which has as much to do with the elegance of the overload characteristics within a given system (valve amplifiers invariably sound more powerful than their rating would suggest). The listing of features provides some indication to the complexity of an amplifier: many users prefer to retain the option of tone controls to 'shape' the overall sound according to taste; many others have found living without tone controls surprisingly easy, with additional benefits in terms of transparency.

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Acoustic Research A05</b> £200	Good + Good +	Capitalises on the strengths of the A-03 and A-07 but escapes the ignominy of their deficiencies. The amp for all AR-based systems	67W, 2 tape, 3 line and both MM/MC inputs. Tone defeat	R	97
<b>Acoustic Research A07</b> £300	Very Good Average +	Relatively smooth but ineffectual sound quality that lacks some weight and impetus at very low frequencies	75W, 4 line, 2AV and MM/MC inputs		68
<b>Aiwa XA-006</b> £135	Good Average	Competent enough performer with plenty of facilities. A gutsy sound though one that's rougher via CD than MM.	67W, MM and 5 line i/p's plus independent rec out.		92
<b>Akai AM-47</b> £200	Very Good Good +	Something of a surprise from Akai: a made-for-Germany amp with plenty of widgets and an unexpectedly sharp, open and detailed sound. Looks ghastly but sounds strainfree.	104W, 3 tape, 4 line and MM disc inputs. 4mm speaker outlets.	R	104
<b>Akai AM-52</b> £230	Average + Average -	Basically equipped, this amplifier offers a comfortable but hardly over-detailed sound	95W, MM/MC disc, 5 line inputs, loudness		74
<b>Akai AM-65B</b> £299	Good Average	On-board 18-Bit DAC's actually give better sound than standard CD inputs! Punchy via MM disc	101W, MM, 6 line, digital inputs		80
<b>Akai AM-93</b> £550	Average Average -	Unfortunately Akai's on-board D/A convertors were less successful than its conventional analogue CD input.	112W, coax and optical dig inputs. MM/MC		68
<b>Akai AM-95</b> £620	Average Average -	A revamped version of the older AM-93 with newer onboard bitstream DACs. Its sound is just too eager, however	110W, 3 tape, 3 line, MM/MC plus coax/opt digital inputs		109
<b>Albarré PP1</b> £400-£500	Average Good +	Available with or without various MM/MC disc options, the 'basic' PP1 has an attractively warm, earthy sound. The budget MM stage needs some further work, however.	48W, 4 inputs with extra gain available for low-level sources	R	104
<b>Alphason Apollo</b> £295	Average - Average +	A year and a half later and Alphason's Apollo is still beset with technical problems. This sample buzzed like a distant bandsaw	38W, 5 line, tape and MM/MC inputs. Solid wood fascia		109
<b>Amadeus Gold</b> £360	Average - Good	There is some indication of instability but otherwise sounds very rich, warm and musical. High-ish IMD	56W, MM/MC plug-in cards, 3 line R inputs	R	74
<b>Amadeus Silver</b> £270	Average - Good	Limited headroom via disc but still offers a sweet, lush sound. Limited current delivery	37W, MM/MC, 3 line inputs	R	80
<b>Aragon 4004</b> £1795	Good Good	Despite its imposing bulk, the Aragon is something of a softy at heart. It can deliver oodles of power but its musical presentation is more laid-back	231W power amp		72
<b>Arcam Alpha 3</b> £200	Good Average	After the enthusiastic reception earned by the older Alpha 2 the generally lacklustre and bland sound offered on this occasion met with (unexpected) disapproval.	53W, 3 line, tape and MM disc inputs. Direct option.		104
<b>Arcam Delta 110/120</b> £720/£520	Good+ Good	Overall performance is limited by the power amp - in isolation the PDM-preamp offers a remarkably open and detailed sound, particularly in 'digital' mode.	112W power amp, MM/MC + four line inputs + coax/opt digital inp	R/-	92
<b>Arcam Delta 60</b> £300	Good Good +	Very refined and highly detailed sound via MM and CD without any of the hardness noted via the MC stage	59W, 4 line, MM/MC inputs, no tone controls	R	68
<b>Arcam Delta 90.2</b> £410	Average + Average +	Dark but slightly dead or conservative sounding version of the original Delta 90. Improved disc stage	73W, MM/MC, 4 line inputs, tone bypass, bi-wire	R	74
<b>Art Audio Quintet</b> £725	Average Very Good	Switchable triode/ultralinear output stage. There's 15W and 15W, but in triode mode these are 15 of the sweetest watts around. Surprisingly gutsy	15/25W, variable feedback	R	100
<b>Audio Innovations 1000/2nd AA</b> £1499/£2999	Poor Excellent	This valve combination offers awesome dynamic range with superb transparency and power to match. Compatibility with other brands is unpredictable	15W, MM, 6 inputs, monobloks	R	63
<b>Audio Innovations Series 200</b> £349/£499	Poor + Good	Recently updated, this pre/power combo turns-in a fuller and more substantial performance via MM rather than CD. Otherwise its sound can seem slightly bleached and lacking expression.	10W, 3 line, 1 tape and MM or MC inputs. 'Isolate' switch		109
<b>Audio Innovations Series 300II</b> £500	Poor Good +	Under-powered and over-distorted yet capable of realising an open and captivatingly expressive sound. Sensitive speakers are a must	9W(!) integrated valve amp with tape, 3 line and MM disc inputs	R	97
<b>Audio Note Ongaku</b> £34,000	n/a Excellent	An out and out audiophile product, a single ended, zero negative feedback, triode, line level integrated amp. Probably the best amplifier in the world!	6 line inputs, 27W	R	Coll '90
<b>Audiolab 8000A</b> £410	Very Good Very Good	Recent mods have cured the slightly glassy treble, replacing it with a smoother but richer and more solid style of music making	81W, 3 tape, 4 line and both MM/MC inputs. Tone defeat	R	97
<b>Audiolab 8000C/8000P</b> £375/£545	Very Good Good	Audiolab has revamped its pre/power combo though the very distinctive almost stark neutrality that results will not appeal to all listeners. Good value engineering, nevertheless	157W pow amp + bi-wire outputs. 3 Tape, 4 line + MM/MC on preamp		97
<b>Audion CD-1</b> £399	Average + Very Good	Nicely presented valve (line-only) preamplifier with fine bandwidth and enjoyable, musical sound. Great if you can justify the cost. Well worth hearing	5 line inputs		77
<b>Aura VA-100 Evolution</b> £270 and £300	Average - Good +	This beefed-up VA50 might overheat when driving insensitive, low-impedance speakers but was applauded for its sense of scale and daram via CD	81W, 4 line, 1 tape and MM inputs. Bi-wire outputs	R	109
<b>Aura VA-40</b> £190	Average Average +	Based on ITL's earlier MA80, this amp sounded slightly withdrawn or 'dead' if inoffensive	55W, MM 4 line inputs, MOSFET output		80
<b>Aura VA-50</b> £200	Good Very Good	Superficially similar to the cheaper VA-40 but with much more of the old MA-80's magic! Great sound from a slimline package	65W, one tape, 4 line and MM only. New tape monitor switch	BB	97
<b>Beard 506</b> £1195	Good + Good +	A versatile valve preamp - the bass sounded lively if a touch softened, while the treble was detailed but lacked a little sparkle and air.	4 inputs MM/MC		50
<b>Beard Audio CA35/P35mkII</b> £695/£895	Average + Very Good	Good build quality and a very smart finish combine with a characteristic valve sound to make a first class amplifier capable of giving hours of musical enjoyment	35W, MM/MC, 4 inputs	R	63
<b>Beard M70</b> £1995 pair	Good Good +	A substantial British monoblok power amplifier, but not a great deal more impressive than the P35 at half the price	70W		50
<b>Bryston 0.5B/2B</b> £695/£695	Very Good Good	Very rugged Canadian pre/power combo that sounds cool, confident and punchy. Headamp available to suit MC cartridges	65W, MM and 4 line sources, overload LEDs on power amp	R	74
<b>Bryston 12B/4B</b> £1295/£1395	Good + Good	Bryston's massive 4B power amp stood out as the backbone of this combo, the preamp sounding a trifle unbalanced between MM and MC inputs	272W, bridgeable to 800W, 6 line, 2 disc inputs, subsonic filter		68

## AMPLIFIERS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Carver CM-1090</b> £595	Average	Looks very professional with its meters and handles but suffers from a loose and dirty sound that shies away from busy tracks	141W, 2 tape, 4 line and MM disc. Sonic Holography feature		97
<b>Cello Audio Suite</b> £1200	Excellent	Cello's preamp represents a whole new ball game in flexibility and sound quality (or war of attrition on your wallet)	Optional inputs MC etc	R	50
<b>Chord SPM-900</b> £1850	Average + Good +	Technically very interesting, this mini-powerhouse uses a switched-mode supply to deliver a crisp and refined sound	236W with protection into lower loads	R	85
<b>Concordant Excelsior</b> £856	Very Good Excellent	Cottage industry styling might not inspire confidence, but sonically this preamp is tremendously vivid and detailed. Real high-end performance. We loved it!	MM plus 3 line inputs. External power supply	R	77
<b>Concordant Exultant</b> £700	Average+ Very Good	Individual appearance of this valve pre contrasts with sonic invisibility. An extremely dynamic performer. Recommendation withheld pending more appropriate p.s. plug	3 line, MM, variable gain		100
<b>Conrad-Johnson PV-10</b> £1100	Excellent Excellent	Pricey, yes, but a fabulous preamplifier which confirms C-J's high reputation in the States. Beautiful imaging, superb detail, plenty of gain on the phono stage - classy build quality too.	MM plus 4 line inputs	R	78
<b>Conrad-Johnson Premier 7A</b> £8995	n/a Excellent	Price has increased since we tested it - but at this price who cares? The 'Seven' is designed without compromise, and it's clearly one of the finest (valve) preamplifiers money can buy.	MM, 4 line inputs, sep. Rec Out, versatile cartridge matching	R	Coll '90
<b>Creek CAS 4040s3</b> £200	Good Good	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.	41W, 3 line and one MM disc i/p. Tone controls.	R	92
<b>Creek CAS 4140 S2</b> £230	Average Average +	Running production changes inspired us to re-review this amp which now sounds thicker and 'blurred' compared to the original	41W, 3 line and MM/MC inputs, mono and mute facilities		109
<b>Creek CAS 6060</b> £470	Good Good	An amp that looks like the '5050 but employs the sort of big, confident and meaty-sounding electronics used in the earlier '4040. Dynamic and impressive.	81W, 3 line, 2 tape and MM/MC disc inputs. Bridge-mono facility		104
<b>Croft Series 4S</b> £850	Good Good	The original IV is still available now supplemented by the higher price and power (S); both are fine performers	40(60)W channel	R	57
<b>Croft Series 4SA</b> £1000	Good Very Good	Featuring tuned components chosen for their sound quality, the 'A' variant is an impressive example of Croft's technique in valve design	60W special supply regulation	R	57
<b>Croft Super Micro A</b> £549	Average + Very Good	The looks are somewhat improved, while this 'hot rod' version with tuned components performed very well indeed. There is still no gain on the line inputs. Now in mk.II form	4 inputs, MM, straight line	R	57
<b>Croft Super Micro A OT/Series V</b> £689/£555	Average+ Good	Micro is still unashamedly "cottage" but offers good performance. Combo is let down by the very low powered Series V	15W, valve, dual vol. control, 2 line, MM, tape out		100
<b>Cyclone Catalyst</b> £1995	Good + Very Good	Exceptionally load tolerant and very refined in delivery. Extra options available in future	74W, external MM or MC stages, 3 R line inputs	R	80
<b>Cyrus I</b> £230	Very Good Very Good	Crisp, meaty and exquisitely detailed, this latest Cyrus amp had us enthralled via CD. MM/MC enjoyed a lesser clarity	34W, 4 line + MM/MC i/p's with dual-conc vol.	R	85
<b>Cyrus II</b> £350	Very Good Very Good	Recently updated this popular favourite captured our attention, once again, with its robust and very convincing sound.	60W, 4 line and both MM/MC disc. R No tone controls	R	92
<b>Cyrus PSX</b> £250	Very Good Very Good	The PSX does make the Cyrus Two sound better, and also improves the PCM II CD player giving more wallop and clarity	Auxiliary power supply	R	62
<b>DNM 3A</b> £1590	Good + Very Good	The DNM3 in its acrylic case is a remarkably revealing and neutral state of the art preamp	5 inputs MM/MC twin vol controls	R	44
<b>Deftec DPA 100S</b> £2200	Very Good Very Good	A top-quality transistor power amp, sounding fast, articulate and well controlled, though maybe a touch clinical for some tastes	80W	R	50
<b>Deftec DSP-50S/DPA-50S</b> £725/£925	Excellent Excellent	Remarkable pre/power combo based around the highly linear DH-OA32 hybrid op-amp Unmatched detail resolution, control and transparency	63W, external feedback wiring, 3 line, MM/MC no tone controls	R	68
<b>Denon DAP-2500/POA-4400A</b> £550/£600 pr.	Very Good Good	Denon's fully-fledged preamp also incorporates D/A converters that did not improve the sound of our £299 CD player. The power amps are brilliant!	172W, monoblocks Opt/Coax dig + 2 tape, 4 line and MM/MC inputs		68
<b>Denon PMA-250II</b> £140	Good Good +	Spacious yet tactile and gutsy sound via all inputs. Worthwhile upgrade over original PMA-250	53W, MM 3 line inputs, source-direct	R	80
<b>Denon PMA-350</b> £170	Average+ Good	Bold claims were made at its launch but the sweet and inoffensive sound, though very pleasant, is not mould-breaking at the price.	88W, 5 line and MM disc inputs + source direct.	R	92
<b>Denon POA-6600</b> £1000 p	Excellent Very Good	Delivers abundant high quality sound, solid engineering expertise and content clearly compensating for any compromising of purist audiophile principles - now in revised A form	250W monoblok, remote power	R	60
<b>Dual CV600RC</b> £150	Good + Good	The heart of Dual's latest budget range enjoys a very lively, open and vibrant sound. Slightly sanitised via CD perhaps, but still damn good for a features-first integrated amp!	63W, 3 line, 2 tape and MM inputs. Remote control	R	104
<b>E. A. R. 549</b> £3628 pair	Very Good Very Good	A valve monoblok that measures like a solid state amp is itself an achievement, but exceptional power delivery and bass 'slam' is not fully matched by delicacy and transparency elsewhere	200W monoblok, bias setting		60
<b>E. A. R. 802/509mkII</b> £1098/£1868	Average Very Good	Extremely well made and combining the sonic strengths of both transistors and valves this EAR combo warrants attention	100W, MM, 6 inputs, monoblocks	R	63
<b>EMF Audio Sequel</b> £349	Good - Good +	A fresh start for Mike Creek has resulted in the Sequel, a minimalist amp with a very refined but mildly restrained sound	47W, 3 line, 1 tape, MM or MC inputs.		109
<b>Entire Sound EX50</b> £500	Average- Average+	A new and fairly costly Mosfet power amp of limited output. Resolution of detail is pretty good but sound is cold-hearted.	40W Power amp. Internal P/S included for ES preamp.		92
<b>Exposure VI/VII*/VIII</b> £1580	Good Very Good	An established company like Exposure could do more to improve the 'look' of these amps which, nevertheless, sounded confident, dry and musical. Dual version no longer available	63W, Super mod. 4 line and 2 disc inputs with full rec-out switching	R	68
<b>Exposure VII/VIII</b> £530/£580	Very Good Good	Supplied as a combination without the separate preamp power supply, this pre power combination performed satisfactorily especially on the moving coil input	50W, MM/MC, 3 inputs, straight line		62
<b>Exposure XI/XII/VIII Super</b> £1900	Good Very Good	New preamp and improved power amp led to a smooth and refined sound, MM/MC less transparent than CD	61W, MM/MC, 5 line inputs	R	80
<b>Goodmans GSA-600</b> £140	Good Poor	Designed to form the heart of a Goodmans separates system, the wishy-washy and faceless sound of this amp fails to stack up	76W, tape, 3 line and MM inputs. Remote control		97
<b>Grant G60AMS</b> £948 pr	Good Very Good	This neat and compact 60W valve monoblok gave good sound on the Bohm tap, better still on 4ohms. The midrange was particularly natural	60W monoblocks 8ohms	R	57
<b>Hafner DH120 assembled</b> £365	Very Good Average	Sound quality results were decent enough, but this power amp won't set the world on fire at this price	60W		44
<b>Hafner SE-100/SE-120</b> £370/£380	Good + Good +	The smallest of Hafner's pre/power range but still imbued with the open, sparkling quality of their bigger models. Preamp sounds significantly better via CD than MM or MC	96W, bridging option, 2 Tape, 3 line + Aux or MM/MC	R	97
<b>Hafner XL-600</b> £1200	Very Good Very Good	Sounds remarkably open, transparent and inherently 'musical'. XL-600 is tremendously powerful and very compatible	426W in stereo mode, 1.5kW in bridge	R	74
<b>Harman Kardon Citation 25/22</b> £699/£899	Good Average +	Not as outrageous as previous Citation amplifiers but neither as punchy nor exciting in the sonic stakes. A good all-rounder but lacks sparkle	138W, MM/MC full range of input and record out		74
<b>Harman Kardon HK6150</b> £160	Good Good +	Based on the older HK6100 but with a more solid, punchy and expressive performance that attracted considerable praise from our listeners	44W, 3 line, 2 tape and MM inputs, loudness, tone controls	BB	109
<b>Harman Kardon HK6850</b> £700	Good + Good	This monster is derived from the HK6800 with a similarly deep and powerful sound but a rather steep price tag	101W, 4 line, 2 tape and MM/MC inputs. Preamp direct		109

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MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Heybrook C3/P3</b> £479/£660	Average + Average -	There's a chance our power amp was a dud for the combo sounded very disappointing on the whole - glassy and uncouth	138W with plenty of current. Passive line inputs	85	
<b>Heybrook C3/P3</b> £479/£660	Average + Average	Since we last looked at this combo Heybrook has improved the manufacture of its power amp though flaws in the preamp's disc input remain unchecked	146W, oodles of current, passive line inputs	104	
<b>Heybrook Signature</b> £649+£150/£92	Good + Very Good	Heybrook have re-boxed the best facets of the old C3/P3 to produce a stunningly powerful and vivid-sounding combination which is equally impressive via vinyl or CD	148W, 3 line, tape and MM/MC inputs. Outboard transformer	R	109
<b>JVC AX-A342</b> £169	Very Good Average	A value-conscious budget amp offering plenty of power but a slightly untidy and inconsistent sound	77W, 3 line, 2 tape and MM inputs, tone, loudness controls		109
<b>JVC AX-A3TN</b> £140	Very Good Good	A true minimalist amp from the masters of mass-production! Offers a very comfortable, accessible sound yet with some loss of deep bass and extreme treble.	50W, 3 line, 1 tape and MM i/ps. CD DiRt and 'Bass Compensator'	R	92
<b>JVC AX-A441</b> £210	Good+ Average	A return to the traditional style of mass-market design brought an inconclusive reaction from our panel. Blowing 'hot and cold', our listeners ultimately found its music uninteresting.	93W, 3 line, 3 tape, MM/MC inputs. CD direct facility		104
<b>JVC AX-Z1010</b> £650	Very good Good+	JVC's flagship amplifier also houses a couple of ancient 16-bit DACs for good measure! One of the best behemoths: a big amp with a big, boppy and unmuddled sound	124W, 6 line and MM/MC inputs plus opt/coax digital inputs	R	109
<b>Jadis JP30/JA30</b> £4990/£4900	Average Excellent	Two-box preamp plus monoblok power amps, classic valve design gives stereotype valve sound. Beautiful build, nostalgic styling and delightful sounding midrange transcend limitations at	30W 2-box pre-, monoblok power, MM-only, 4 line inputs	R	60
<b>Jeff Rowland Coherence One/Mod</b>	Very Good Very Good	The technical design of these amps is very elaborate but ensures they achieve an extraordinarily transparent and potent sound. However, the CD i/p is clearly superior to the disc inputs	448W monoblok MM/MC with loading options. Balanced topology	R	72
<b>Kelvin Digital Integrated</b> £550	Good + Very Good	Not so Class A as before but now fitted with a PDM DAC which offers a smooth, detailed and naturally 'musical' sound	34W, digital, line and MM i/p's only	R	85
<b>Kelvin Integrated</b> £449	Good Good	Recent mods have reversed the Integrated's previous good fortune, this unit was just too syrupy.	21W with 10-12W in Class A. Four line + MM/MC.		92
<b>Kelvin Labs Absolute Zero/M30</b> £395/295/595	Good + Average +	Latest versions of the M30 offers a true 30W Class A and a slightly muddled but very comfortable sound. MC preamp is a very linear design	33W monoblok MC only + 4 line inputs. Separate L/R balance	R	74
<b>Kenwood KA-3020</b> £140	Good + Good +	An unassuming little amplifier that turns in a remarkably balanced and entertaining sound. Lively, detailed and engaging	66W, 2 tape, 3 line + MM disc. Source direct	BB	97
<b>Kenwood KA-4020</b> £170	Good + Average +	On paper this is a beefier version of the '3020 yet our listeners thought it sounded weaker, lacking richness and detail	103W, 2 tape, 3 line + MM/MC Source direct		97
<b>Kenwood KA-4040R</b> £220	Good + Average +	In many respects this sophisticated amp is a 'digitised' version of the KA-4020 with relay-switched inputs and full remote control. Unusual looks but can seem insubstantial via CD.	82W, 3 line, 2 tape, MM/MC inputs. Full remote control		104
<b>Kenwood KA-5020</b> £220	Very Good Good+	Something of a powerhouse on the cheap this amp can keep pace with the most challenging of dynamics. Its sound is vibrant but some fine detail is lost.	115W, 3 line, 3 tape and MM/MC. Source direct.	R	92
<b>Kenwood KA-5040R</b> £270	Good + Average	A flexible, remote-controlled amp that uses the old KA-5020 as a building-block. Unfortunately it lacks dynamics, sounding stifled and uninteresting	100W, 3 line, 2 tape and MM/MC inputs. Source Direct		109
<b>Klyne SK5a</b> £2590	Very Good Very Good	Beautifully made and presented, this American thoroughbred has a good lab performance, but although versatile, is rather expensive for the quality of sound offered	Balanced output, versatile cartridge loading		72
<b>Lecson Quattra</b> £350	Average+ Good	Underpowered but with the flexibility of four independent power amps. Very deep, captivating sound with 3D soundstaging.	19W via all 4 channels. 5 line and MM/MC inputs.	R	92
<b>Lecson Stereo</b> £200	Poor Very Good	Can reflect the full weight and ambience of a tense, classical performance. A genuinely deep, detailed and enthralling sound marred by unreliability of our sample. New stock will be cured.	76W, 4 line, 2 tape, MM/MC inputs.		104
<b>Lectron JH50</b> £2300	Average Very Good	Sexily presented valve power amplifier from France. Lovely valve sound too, with delicate and airy top end. Not especially powerful and rather expensive but very desirable!	50W		78
<b>Linn Intek</b> £398	Good - Average +	Linn have slashed its price and made various internal revisions, but their no-nonsense Intek still lacks the authority and confidence to support its forward balance.	55W, 3 line, 2 tape, MM/MC inputs, rec-out, mono + mute		104
<b>Linn LK1/LK280</b> £598/£763	Good Good -	A very modern, logic-controlled amp with distinctive and inoffensive sound quality. Its restrained sound could do with extra insight and zip.	84W, compact amp CMOS sw. for 2 tape, 2 line and MM/MC. xlr sockets		68
<b>Linx Nebula</b> £500	Average + Average +	Ambitious both in style and design this amp was less impressive in the sonic arena — positive but two-dimensional	88W, logic-controlled i/p switching		85
<b>MFA Magus</b> £1147	Good Very Good	Versatile valve preamp from USA, genuine MC compatibility and high class construction make the Magus a bargain	3 line, MC, tape out, variable gain	R	100
<b>Magnum MP150/MF150</b> £320/£320	Average + Good	This is no technical masterpiece but the strain-free, fluid sound augers well for CD-based systems. Excellent value	89W, 3 line + MM/MC i/p's. No tone cont.	R	85
<b>Marantz PM-30</b> £130	Good + Good +	The building-block for Marantz's popular budget 'SE' amplifier is no slouch, providing a lively and very expressive sound with plenty of strong bass. A good 'un.	49W, 3 line, 2 tape and MM inputs, source-direct	BB	104
<b>Marantz PM-30SE</b> £150	Very Good Good+	The breathed-on version of Marantz' PM-30 offers an engagingly detailed and spacious sound though one that's warmer via MM disc than CD.	50W, 3 line, 2 tape and MM disc. Source direct	R	92
<b>Marantz PM-40SE</b> £240	Very Good Good +	The improved version of their basic PM-40 model has itself been updated to provide a bigger and more exciting sound. A good 'un	61W, tape, 3 line + MM/MC disc. Source Direct	R	97
<b>Marantz PM-50</b> £260	Good + Average +	One of Marantz's new breed, the PM-50 has a big and beefy sound yet one that lacks refinement	92W, MM/MC, 4 line inputs, source- direct		80
<b>Marantz PM-72</b> £300	Good + Average	This is a very neutral, pleasantly detailed and even-handed performer but one that lacks a sense of emotion or expression	155W, 3 line, 2 tape and MM/MC inputs		109
<b>Marantz PM-75</b> £500	Good Average	More successful than most amps with on-board DACs but still not as balanced as other Marantz products	136W, opt/coax dig inputs, 6 line + MM/MC		68
<b>Marantz PM-80</b> £400	Very Good Good +	Technically robust with an equally beefy and tactile sound. Great sense of power and control but spatially a little flat	133W, 3 tape, 4 line + MM/MC. Class A option	R	85
<b>Meridian 201/205</b> £760/£525each	Very Good Good +	A fine preamp with additional luxury option of full system remote, plus competent and attractive monoblok power amplifiers with generally good performance	100W MM/MC 6 line inputs remote capable straight line	R/-	62
<b>Moth Series 30</b> £132/ £203 (£254)	Good Very Good	A modular system capable of cracking results. The passive preamp and power amp combination is especially good value and warrant a Best Buy in their own right.	35W, 4 line inputs on passive pre, MM/MC on phono eq unit	R/BB	109
<b>NAD 3020i</b> £150	Very Good Good +	The most balanced and communicative of NAD's 3020 series. Great at revealing subtle musical clues without aggression	31W with tone controls, 3 line + MM inputs	BB	85
<b>NAD 3225PE</b> £160	Average + Average +	Light and detailed if not as rich or weighty sounding as others. MM input sounds warmer than CD	42W + 70W dyn. headroom; soft-clipping, MM only	R	68
<b>NVA AP20</b> £260 or £290	Average - Good +	Available with or without a disc stage this utilitarian amplifier sounds gentle and restrained but is euphonic and utterly engaging	35W, 2 line, tape and either MM or MC inputs	R	109
<b>NVA P70MC/A60</b> £830	Average Average +	NVA's speaker cables are a must, the amp offering well-integrated but not particularly crisp sound	68W, MC, 3 passive line inputs		80
<b>Naim Separates</b> £750 pl	Very Good Good	A consistent and coherent series of 'building blocks' for conventional passive or active operation. Sound quality ignores conventional audiophile standards of presentation, but	40-70W, MM/MC etc	R	60
<b>Onix OA-21s/SOAP</b> £350/£180	Average + Good -	Via MM disc this amp comes alive with a fresh and vibrant sound though its CD input sounds utterly dead by comparison.	60W, 1 tape, 3 line and either MM or MC. Outboard PSU option		97
<b>Orell SA-040</b> £359	Good Good +	This promising newcomer from a brand new company sounded pretty good and should improve as production settles	45W MM/MC, 4 line inputs, straight line	R	56

# The Directory

## AMPLIFIERS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Orell SA-040SE</b> £400	Average Average +	Very natural, relaxing if not overly exciting via CD, the sound closed-in to become 'pinched' or fettered via disc	64W, 5 line + MM/MC i/p's Tweak components.		71
<b>Philips DFA-888</b> £300	Good Average	As above but including a modified disc input and onboard DAC. Sounds tight but also slightly thin	107W, as above + opt and coax digital inputs		74
<b>Philips FA-880</b> £200	Good Average	A new and cheaper design from Philips that sounds best via MM disc. Can appear soft and unbalanced via CD	108W, MM/MC source-direct tone		74
<b>Philips FA-930</b> £200	Average Average +	Radical styling hides a digital switching facility plus full remote control over what is Philips' best effort to date	99W, tape, analogue and digital inputs with ESI BUS	R	109
<b>Philips FA-890</b> £230	Good + Good -	Based on their FA880 model but tarted-up with a remote control facility. Inoffensive, civilised but unexciting sound is retained	120W, 6 line + MM/MC logic-controlled input switching		97
<b>Philips FA-960 MkII</b> £300	Good + Average	The MkII '960 still failed to grasp our listeners' attention, but it remains a competent amp nonetheless	122W, 6 line & 2 disc inputs + tone controls		68
<b>Pioneer A-229</b> £130	Average + Average	An unambitious amplifier that fights shy of tricky speakers with a sound that's equally unadventurous. Slightly soft and comfortably even-handed presentation	60W, 2 line, 2 tape and MM inputs, loudness and direct		104
<b>Pioneer A-300</b> £160	Very Good Good	The cheapest of Pioneer's dynamic duo gives off its best with CD rather than MM disc which failed to shine quite so brightly.	55W, 3 line, 2 tape and MM Independent rec out facility.	R	92
<b>Pioneer A-400</b> £250	Very Good Very Good	Pioneer's design concept snaps into focus with the A-400, an amp that seems to bubble with musical detail. A bench-mark that other manufacturers should strive for.	71W, 3 line, 2 tape, MM/MC. Independent R-out switching.	BB	92
<b>Pioneer A-676</b> £280	Good + Average -	A lusty amplifier at a modest price yet one that failed to inspire our listeners with its bland, indifferent sound	98W, 4 line, 3 tape and MM/MC inputs + subsonic filter		109
<b>Pioneer A-777</b> £400	Very Good Average -	A larger version (!) of the A-676 that offers more power but an equally sluggish and uninspiring sound	121W, 4 line, 3 tape and MM/MC inputs + muting facility		109
<b>Proton 520</b> £115	Average Average	Very well equipped budget amp with a slightly flat and undynamic sound - acceptable at the price though	31W, MM/MC with variable MC gain, 4 line inputs	R	74
<b>Proton AP-1000/AA-1150</b> £250/£395	Good + Average +	Bags of headroom available from this pre/power combo, but can seem bloated or unrefined via MM	67W, MM/MC, adjustable MC gain, 5 line inputs		80
<b>QED A240 CD II</b> £249	Good + Good	Latest 240CD is fine value for CD and has competent MM disc input as well	45W MM 5 line inputs straight line	BB	62
<b>QED A270CD/PA</b> £369/£429	Good Good +	Recent updates have bolstered the output of the A270 without adding to its colourations. The PA option is a touch expensive	61W, 2 tape, 3 line + MM or MM/MC from PA board	R/-	97
<b>QED C300/P300</b> £329/£370	Good Good	A cost-effective combo, limited in its resolution but no less beguiling as a result. Disc stage is sweeter but samey	58W, 2 tape, 3 line, MM/MC + mono/biamp opt.	R	85
<b>Quad 34</b> £366	Very Good Average	This well-built durable preamp has useful filtering and above average tone controls but was found lacking in sound quality (viz: detail/dynamics)	4 inputs MM/MC tone controls		44
<b>Rational Audio</b> £175	Average- Average+	This wacky newcomer from Czechoslovakia offers a very open and fluid sound via CD but its performance via MM depends very much on the cartridge's load impedance	129W, caters for line and MM disc sources but has no i/p selector.		92
<b>Ray Lumley Model 75</b> £1995 p	Average Good +	Monstrous valve monoblocks which represent good value. What they lack in musical subtlety they make up for in sheer muscle. And these are Lumley's small monoblocks!	75W monoblok		78
<b>Revox B150</b> £1047	Very Good Average +	Beautifully constructed but hampered by Revox's convoluted logic control. Open and smooth sound. Still costly.	117W, CMOS sw. for 3 line, 2 tape and MM		68
<b>Revox B250</b> £1467	Very Good Good	With much improved sound over its predecessors plus amazing remote control facilities, this could form the heart of a round-the-dream-house system	150W MM/MC system/house remote tone controls		56
<b>Rose RV-23</b> £395	Good Very Good	Beautifully built classy British 'hybrid' preamplifier. You can spend more to get a more transparent sound but it's hard to criticise given the competitive price	MM plus 3 line inputs	R	77
<b>Rotel RA-930AX</b> £160	Good - Very Good	Based on the original RA-820AX but featuring a new look and a tweaked circuit design, this budget wonder captivated our listeners with its clean, vibrant and thoroughly involving sound	53W, 3 line, tape and MM inputs, tone bypass	BB	104
<b>Rotel RA-940BX</b> £200	Good Good	Rotel's cheapest 'BX' amplifier prompted a mixed reaction, some finding it muddled while others thought it 'exceedingly musical'	53W, 3 line, 2 tape plus MM/MC inputs. Tone defeat	R	109
<b>Rotel RC-960BX/RB-960BX</b> £150/£180	Very Good Good -	With excellent standards of construction, flexibility and plenty of power under the bonnet, this duo represents an ideal choice for the first-time buyer.	80W, bridge-mono facility. 3 line, 2 tape and MM/MC on preamp	R	104
<b>Rotel RC-980BX/RB-980BX</b> £275/£350	Excellent Average	Plenty of watts per pound sterling from a technically flawless combination. Its sound is equally expansive but lacks a sense of poise, of control and fine detail - a disappointment	143W (33A!), 3 line, 2 tape and MM/MC inputs + headphone socket		109
<b>SAE P102/A202</b> £499/£599	Average + Average +	Microprocessor-controlled pre and power amp that sounds much better at low rather than high volume levels. Pro-oriented aesthetics	151W, MM/MC + 2 liner and 2 tape, tone memory, spk switching		74
<b>Sansui AU-X111</b> £100	Good Average	Sansui has engineered an amp that's both solid and flexible for the price, but its sound is rather bland compared to competition in the £110 sector	5 line inputs, MM, 52W		92
<b>Sansui AU-X911DG</b> £700	Very Good Good +	At its best when used with the on-board MASH/PWM DAC where it sounds technically neutral but still emotionally charged	112W, 4 dig, 3 line and MM/MC i/p's. Rec-out	R	85
<b>Sony TA-F440E</b> £180	Very Good Good	A new budget amp based on tried-and-tested circuits but free of spurious widgets like tone controls. It has a fresh and up-beat sound with plenty of detail, can sound smeared via CD	109W, 3 line, 2 tape and MM + rec out	R	104
<b>Sony TA-F540E</b> £230	Very Good Good -	An extra £50 buys you an MC input but little else over and above the TA-F440E. This version sounds more consistent from input to input but is still rather superficial or unconvincing	108W, 3 line, 2 tape, MM/MC + rec out		104
<b>Sony TA-F670ES</b> £400	Very Good Good	Nothing fancy, just a heavyweight amplifier that puts up 'a damn fine show'. Fresh and sharp-sounding but a little too expensive	133W, 3 line, 2 tape, direct and MM/MC inputs. Pre-out facility		109
<b>Sony TA-F730ES</b> £450	Very Good Good	A very stable and coherent amp but one that lacks a crucial sense of involvement	133W, MM/MC, 3 tape, 2 line, full rec-out		80
<b>Sony TA-F770ES</b> £600	Good + Average -	Another monster amp offering full remote control and buckets of power. It's also another monster amp that sounds boring	125W, 3 line, 3 tape, direct and MM/MC inputs. Remote operation		109
<b>Sound Audio VP3a/HBP60a</b> £599/£599	Good Average ++	Hybrid power amp and valve line stage. Big 'n' beefy power amp is the stronger partner	4 line, 1tape 60W	R	100
<b>Sugden A21a</b> £395	Average+ Good	The modern-day relative of Sugden's original Class A amp and one that offers a smooth, easy-going sound. Best partnered with sensitive speakers.	25W power amp with a good 16W inPure Class A		92
<b>TEAC A-X400</b> £115	Average Average	Sibilance and a lack of crisp vitality hamper the performance of this amp, as does the stringent protection circuitry	59W, 4 line + MM + tone + mic i/p level control		85
<b>TEAC A-X5000</b> £229	Good Average -	This amplifier is compromised by a grey and muddled sound that taxed the concentration of our listeners. Better via MM disc	107W, 3 tape, 3 line + MM/MC. Source Direct		97
<b>Technics SU-810</b> £130	Average + Average	Our sample started off sounding fast, taut and well-integrated yet eventually failed on the MM disc input	66W, 2 tape + 3 line + MM. Tone + loudness		85
<b>Technics SU-VX600</b> £200	Good + Good	What looks like a fairly ordinary mass-market offering is actually the first 'tweaked' amp from Technics, its solid and sharply focussed sound a taste of things to come.	90W, 3 line, 2 tape, MM/MC + power-amp inputs	R	104
<b>Technics SU-VX800</b> £450	Very Good Average	On the other hand, this is a mass-market amp still hampered by over-enthusiastic protection circuits! It sounds raw and congested when the going gets tough - positive but raucous	148W, 3 line, 3 tape, balanced input + MM/MC		104
<b>Technics SU-VZ220</b> £100	Good Average -	Cheap, cheerful and pretty flexible to boot yet the SU-VZ220 quickly sounds thin, splashy and relentless when the going gets tough	50W, 3 line, tape and MM inputs plus tone and loudness controls		109

## AMPLIFIERS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Threshold FET 10e</b> system/ £2995	n/a Very Good	Almost valve-like limpidity and excellent soundstaging are star qualities of the Threshold amps. Line input resistive loading is too low	Component FET phono stage, line pre, FET power amp 100w		Coll. '9
<b>Woodside SC26/STA35</b> Renaiss	Good Good+	Synergistic pairing with a cool, controlled sound, good focus and transparency. More about poise than grunt	35W, valve, 3 line, optional MM or MC, 2 tape outs		100
<b>YBA 1 power amp</b> £2995	Good Excellent	This equally well finished power amp offers front rank stereo staging and transparency, and is capable of driving the most difficult loads	85W	R	62
<b>YBA 1 preamp</b> £2895	Very Good Excellent	A front line French audiophile product. Great stereo and a fine Krell style finish	MM/MC, 3 inputs, straight line	R	62
<b>YBA 2 pre &amp; pwr</b> £1395/£1695	Very Good Very Good	Superbly finished French separates, with very good space and transparency, slightly softened bass. Needs extra transformer ( £300) for MC cartridges	70W MM (MC extra) straight line	R	56
<b>YBA Model 3</b> £995/£995	Good Good	Suited to highish sens. loudspeakers this duo produced see-through, ethereal stereo images that were more convincing towards the centre of the soundstage than at the edges	56W stereo amp MM only with 3 line i/ p's.		72
<b>Yamaha AX-330e</b> £100	Average + Average +	An improvement on earlier efforts but still a little bland or lack-lustre. Very compatible though	48W, MM, 3 line inputs, source-direct option		80
<b>Yamaha AX-550</b> £240	Very Good Good	neutral yet lacks the ability to involve on an emotional level	131W, 5 line + MM/MC. Pure Direct + remote control		97
<b>Yamaha AX-750</b> £399	Very Good Average	Big and bulky with remotely-controlled input and volume. Impressive handling, but two samples split the opinion of our listeners, one sounded squashed the other fast and articulate	149W, 3 line, 2 tape, MM/MC inputs + remote control		104

## CABLES AND CONNECTIONS

Although cables and connections are sometimes thought to be the least important items in an audio system there has been a growing awareness in recent years that they have a significant effect on sound quality. To this end there is now a vast array of exotic cables and interconnects available to those interested in experimentation. The key observation on cables is that they are much more than mere accessories. Carrying the audio signal, just as any amplifier does, it's really not too surprising that they can influence sound quality

The characteristics of any cable are determined by the materials and topologies utilised in its construction. The purity of the conductor, nature of the insulator dielectric, mechanical construction, physical geometry, RF characteristics, efficiency of screening and finally the connectors themselves, all play vital roles in the sonic character. These factors tend to vary more with interconnect cables which are used to carry the signal between active components like pre and power amplifiers. The interconnects summarised here were tested in 1m terminated lengths and therefore the results and prices relate

to that length - some cables may well perform differently when used in longer lengths. What's more, most cables are significantly cheaper if you are prepared to fit the plugs yourself. The features column contains information on the material makeup of the different cables with the following abbreviations: OFC - oxygen free copper, OFHC - oxygen free high conductivity (Audionote defines HC as high crystal), PC-OCC - pure copper by ohno continuous casting, LC-OFC - linear crystal oxygen free copper.

## CABLES - INTERCONNECT

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Audio Note Copper ANA</b> £44	Average Good	ANC sounded punchy with a faintly lean but tightly-focused bass character. This crystalline precision waned slightly at higher frequencies	OFHC copper twin-axial	R	59
<b>Audio Note Flexible Silver ANS</b> £99	Average Very Good	ANS scored a hit with its transparent midband and revealing but quite unforced treble quality. Bass transients were slightly softened	Silver signal & Copper screen	R	59
<b>Audio Note Silver ANV</b> £154	Poor Excellent	Far weightier-sounding than the flexible ANS, ANV interconnect also possesses a fair degree of treble clarity and sparkle	21 strand silver Litz		59
<b>Audio-Technica AT-6115</b> £40	Very Good Average	This cable sounds somewhat 'quieter' than the original LC-OFC interconnect, but is also less transparent and three dimensional	PC-OCC copper coaxial		59
<b>Audioquest Livewire Ruby</b> £49	Average Good	Smoother sounding than the Topaz, the extended crystal Ruby is less grainy and coarse, better able to resolve complex passages	FCL copper twin axial	R	59
<b>Audioquest Livewire Topaz</b> £35	Good Average	Sounding 'bigger' and faintly richer than Reference 2, Topaz was also slightly grainy at the top end	Gold-plated plugs, OFHC copper		59
<b>Chord Mono-t</b> £27/1.2m	Average + Average +	Offers a slightly rolled-off treble but its rich sound is an upgrade from patch-cords	Unsymmetrical 4-conductor cable	R	83 Supp.
<b>Deltec Gortex Black Slink</b> £152	Very Good Excellent	A true reference quality cable providing an exceptionally detailed and transparent sound	Symmetrical, 8-conductors, Gore-tex ins.	R	83 Supp.
<b>Deltec Slink</b> £32	Good Very Good	Ideally used in lengths of under 4 metres, it errs on the lean side of neutral but has an uncommon transparency in the midrange	4 silver plated OFC strands PTFE dielectric	BB	59
<b>Kimber Kable KC-1</b> £65.55	Very Good Average	Tonally faintly leaner and brighter than the more open-weave PSB, KC-1's treble detail was just too sharp and grainy	Multi-gauge PTFE dielectric		59
<b>Kimber Kable PSB</b> £41.40	Very Good Very Good	An exceedingly transparent midband but slightly 'clanky' treble. It always managed to sound remarkably uncluttered and open	OFC, PTFE dielectric	BB	59
<b>Monster Interlink 300</b> £30	Average + Average	A big, larger-than-life sound but with some emphasis of midband detail and loss of bass	Screened, symmetrical cable		83 Supp.
<b>Monster Interlink 400</b> £50	Good Good	Bass is solid and punchy, counterpointed by a slightly overblown midband which tends to make vocalists sound larger-than-life	Multi-gauge	R	59
<b>Origin Live Soli-Core Super</b> £60	Good Average	Improves over previous Soli-core samples in stereo depth and bass weight, but a 'loud' treble presentation remains	Solid-core gold-plated AT plugs		59
<b>QED Incon Graphite P1G Gold</b> £19.95	Average Average	A shielded version of Incon P1, it sounded thicker at the frequency extremes, the top end being coarser and more out of focus. Good for long runs though	OFHC Graphite shielding	R	59
<b>QED Incon P1-Gold</b> £16.95	Good Good	A lively open presentation that just borders on the lean side of neutral, the quick and lucid delivery affording considerable musical insight	OFHC, gold plated Deltron plugs	BB	59
<b>Supra EFF-1</b> £60/0.75m	Average Average	A new, costly and mildly disappointing addition to the range. Edgy, smeared sound plugs	Screened, symmetrical dir. cable		83 Supp.
<b>van den Hul MC-Gold</b> £230	Average Good	It possesses a rich and beguiling treble balance that matches a weighty, slightly warm bass character. Seductive balance may prove worthwhile in some circumstances	Silver & gold plated copper		59
<b>van den Hul MC-Silver</b> £750	Good Good	Although remarkably transparent for an asymmetric design this costly cable was not considered to be of 'state-of-the-art' standard, and is bettered by cheaper models	19 silver plated copper strands		59
<b>van den Hul MCD-102 III</b> £61.50	Good Good	Possessing the same endearing qualities as the D300, it presented open and transparent soundstages and improved timbral resolution	Twin axial silver plated copper	R	59
<b>van den Hul Thunderline</b> £92	Good Average	Thunderline essentially parallels the sonic performance of the cheaper D102. HF is occasionally tainted by a 'tizzy' coarseness, bass is tight and dryscreening	Silver plated 'matched copper'		59

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## CABLES - LOUDSPEAKER

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Absolute Wire Force 4</b> £4.75 per metre	Good Average +	By current standards there was a loss of fine, sharp detail at the frequency extremes, but it has a big, friendly sound	744 OFC strands, PVC dielectric		64
<b>Audio Innovations OR-200</b> £16 per metre	Average + Average +	Open and detailed throughout the midband but a grainy coloration tended to corrupt subtle timbral information at very high frequencies	200 LC strands, polyurethane and cotton dielectric		64
<b>Audio Note AN-SP</b> £100 per metre	Average - Excellent	A clean and open sounding cable that offered a deep and pleasantly detailed perspective. Bass was slightly restricted, but seemed tight and coherent	15 silver strands, polyethylene dielectric		64
<b>Audio-Technica AT-6120</b> £10 per metre	Average + Average	Compared to earlier LC-OFC cables, this PC-OCC derivative sounded smoother and less aggressive	PC-OCC, PVC dielectric		64
<b>Audioquest Livewire Black</b> £15 per metre	Good Good	It proved clear and punchy but with some grain across the treble. Nevertheless Black remains an interesting concept and proved better than Livewire Green	OFHC, surface only - foam core construction	R	64
<b>Cyrus</b> £2.50 per metre	Average + Good	Because of its impedance characteristic this cable will deliver a smooth and unfatiguing treble balance with loudspeakers offering an easy load	0.8mm single strand, PVC dielectric	BB	64
<b>Deltec 8S</b> £144 - 5m pair	Good Good +	The unerring transparency and detail resolution of 8S throughout the midband makes it a cleaner and more spacious sounding cable than others at the price	4 silver plated OF copper strands, PTFE	R	64
<b>Deltec Gortex Black 16</b> £528 - 4.5m pair	Very Good Excellent	Improvements in bass resolution, transparency and treble poise maintains status of this cable	Silver-plated OF copper with Gore-tex ins.	R	83 Supp.
<b>Exposure</b> £2.50 per metre	Good Good	It could sound a trifle matter of fact but this emotive flattening was also somewhat dependent on the music program. It is also highly suited to long runs	56 OFC strands, webbed PVC dielectric	R	64
<b>Furukawa FS-2F09</b> £3.50 per metre	Good Average +	Some loss of bass weight but otherwise offers a fresh and open sound. Good value	Multi PC-OCC stranding, PVC dielectric	R	83 Supp.
<b>Furukawa FS-2T15S</b> £50 per metre	Good + Very Good	An advanced solid-core cable with a highly fluid, detailed and inherently musical sound	Single 1.5mm Super PC-OCC	R	83 Supp.
<b>Kimber 4VS</b> £7.15 per metre	Average + Average	Similar construction to 4TC but dissimilar materials infer a slightly tizzy sound	Open-weave, multistrand, PVC ins.		83 Supp.
<b>Kimber Kable 4PR</b> £54 - 5m pair	Average Average +	This directionally marked cable benefited from an open and airy treble quality but seemed notably leaner than 4TC. Bass was well round and satisfyingly taut	4 x 7 copper strands per conductor, PVC diel.		64
<b>Kimber Kable 4TC</b> £17.65 per metre	Good Good +	4TC made a great impression in the listening tests with an open midband, a smooth and unatiguing treble with slightly rich but suitably weighty bass	OF copper, PTFE dielectric	R	64
<b>Linn K20</b> £2.95 per metre	Good Average	Subjectively, it erred on the forward and bright side of neutral but enjoyed an essentially clear and punchy delivery	56 OFC strands, webbed PVC dielectric		64
<b>Monitor PC Silverline PC4</b> £5.75 per metre	Good Average	Sonically, it laboured under a heavy and claustrophobic balance, lacking the see through transparency and lucidity of the better solid core cables	2072 x 0.07mm silver plated copper strands		64
<b>Monster Original</b> £3.49 per metre	Good Average +	Original sounded relatively congested and murky at higher frequencies but possessed weight and conviction in the bass	Multistrand		64
<b>Monster SCI 16-4</b> £3 per metre	Average Average	Not as thick-sounding as early Monster cables but still slightly unbalanced. Versatile construction	4 x 16-gauge conductors, OFC strands		83 Supp.
<b>NVA LS1</b> £6 per metre	Average + Good	A light and breezy sounding cable best suited to short lengths, NVA benefited from a clear and transparent outlook	7 x 0.25mm silver alloy strands, PTFE	R	64
<b>QED 79-Strand</b> £1 per metre	Good Average	For much of the last decade QED 79-Strand has been the first port of call for enthusiasts on the upgrading ladder, a tradition that should still hold true today	79 strand, PVC dielectric	R	64
<b>QED Flat 200</b> £2.20 per metre	Good Good	I detected a degree of confusion at low frequencies but this did not stifle the acoustic atmosphere which remained open and positive	200 strands, flat webbed PVC dielectric	R	64
<b>QED Incon Graphite</b> £2 per metre	Average + Average +	This graphite version of Incon sounded cruder and generally more heavy handed than the cheaper unshielded type. Overall presentation was mildly restricted and cloaked in a faint aural fog	OFHC, polymeric screen		64
<b>Rotel Supra 10</b> £8.95 per metre	Good + Good	Supra 10 provided a very free and open sound that was unhindered by any excess at low frequencies. Worth its weight in scrap copper!	2,562 OFC strands, webbed PVC dielectric	R	64
<b>Rotel Supra 4</b> £3 per metre	Good + Good	Ideal for both long and short runs, it furnishes a big sound that benefits further from a smooth, unatiguing treble	1,036 OFC strands, webbed PVC dielectric	R	64
<b>van den Hul CS-122</b> £6.50 per metre	Average + Good -	Characterised by a driving and powerful bass, CS-122 is a heavy sounding cable. Mid treble detail was refreshingly clear but there was a slightly muted air about the extreme treble	19 x 0.45mm silver plated strands, rubberised dielectric	R	64
<b>van den Hul D-352</b> £12 per metre	Good Average +	Subjectively it sounded like CS-122 only more so, the deep rumbling bass tending to overwhelm subtle musical details. It also appeared a trifle peaky in the treble	7 x 0.76mm + 168 x 0.125mm silver plated strands, rubberised diel.		64
<b>van den Hul SCS-12</b> £10 per linear metre	Good + Good +	SCS-12 set a high standard with a tight and well focused soundstage populated with tactile stereo images. Bass wasn't as extended or resolved as some other cables	19 silver plated strands of 12 different gauges, PTFE dielectric	R	64
<b>van den Hul SCS-2</b> £99.95 per linear metre	Good + Good +	Overall it was commendably neutral and transparent but nothing less would be acceptable bearing in mind the tremendous cost of a stereo pair	665 silver plated matched crystal copper strands, PTFE dielectric	R	64

*Connections*



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# The Directory

## CASSETTE DECKS

The bad odour of copyright theft hangs around the compact cassette, but there is no doubt it is the world's most versatile and ubiquitous music storage medium. Hi-fi buffs may wrinkle their noses pointedly, but are still happy to use cassette decks to make up tapes for the car or personal – at the same time complaining loudly about the quality of pre-recorded material. (In fact the very best decks can do a surprisingly good job with musicassettes.)

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 itself is another crucial factor, that is often reflected in the asking price.

All modern hi-fi decks have Dolby B and the majority have Dolby C besides; the very worthwhile HX Pro system is becoming steadily

more widespread. Remote control remains rare, though sometimes it is available as a system option.

Three-head recorders allow simultaneous checking of the recording being made. Auto-reverse is a useful convenience feature, but usually with some mechanical compromise, while double-mechanism 'dubbing' decks of dubious quality are fashionable at the bottom end of the market. The welter of different 'music search' systems available is some indication of their frequent ineffectiveness.

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Acoustic Research RD-06</b> £300	Average Average	Acceptable middle market player with very simple facilities and cramped control section, but unusually good looks	Dolby B/C/HX Pro, fine bias, counter memory, repeat		69
<b>Aiwa AD-F410</b> £100	Average Average	Comparable to AD-F500 but cheaper: Good all round performance, well adjusted, useful basic and not so basic features	2 head, Dolby B/C/HX Pro, bias adjust	BB	99
<b>Aiwa AD-F500</b> £160	Average Good	Noise levels are a little higher than usual, but sound quality is otherwise very good - open, explicit and very neutral tonally.	Dolby B/C/HX Pro, cue/review, fine bias, record sensitivity adjust	R	93
<b>Aiwa AD-F810</b> £200	Good Good	First class budget 3-head machine with a dual capstan transport that really works at reducing the 'fudge' factor	Dolby B, C, HX Pro, bias adjust, track search, variable hdpd	BB	99
<b>Aiwa AD-WX616</b> £160	Poor Poor	Sonically sub-standard twin transport deck which has sensible range of well implemented features, yet which sounds compressed and uneven.	Twin full logic, 1 records, Dolby B/C track search	R	93
<b>Aiwa XK-S9000</b> £700	Good + Good +	Genuine state of the art in battleship pale gold/wood gloss clothes. Fabulous build, clunky transport and sharp, refined sound quality with Dolby S or B and metal tapes	Dolby B/C/S/HX Pro, built in DAC, tape alignment	R	105
<b>Akai DX-57</b> £200	Good Good	Confident sounding price deck which eschews fancy gadgets for a good transport and decent electronics. Sound quality is firm and tidy under most conditions of use; avoid Dolby C.	3 heads, dual capstans, Dolby B/C/HX Pro, variable bias		105
<b>Akai GX-32</b> £170	Average Poor	Constrained and smeared sum up this deck well. It has poor bass and treble definition alike, though it proved well aligned for prerecorded cassettes	Dolby B/C, variable bias, headphone out, track search		69
<b>Akai GX-52</b> £250	Very Good Very Good	Well finished and a pleasure to use, this well specified deck sounds clean and defined with all tape groups, with or without Dolby	Dolby B, C, HX Pro, track locate features	BB	57
<b>Akai GX-65</b> £300	Average Average	Fine ungimmicky middle ranking deck with simple, purposeful controls, works best with metal tapes. Performance standards fair to good	3-head, dual capstan, Dolby C/HX Pro		87
<b>Akai GX-95</b> £400	Good Very Good	Well designed and finished cassette deck with features well judged to please the audiophile. The calibration system is simple and effective, and the deck sounds great	Dolby B/C/HX Pro, 3 head, manual tape set-up	R	69
<b>Akai GX-95II</b> £400	Good Very Good	Sharp, clear and articulate sounding deck, with superb performance extending to frequency extremes	3 heads, dual capstans, tape calibration, Dolby B/C/HX Pro	R	99
<b>Akai GX-R35</b> £200	Average Average	Middling sound quality at best with Dolby B; deteriorates with Dolby C and unsatisfactory anyway with testing material due to loss of low level information	Auto-reverse (optically triggered), Dolby B/C/HX Pro, bias adjust		99
<b>Akai GX-W45</b> £299	Average Average	Costly but musical high-spec dual deck, doesn't like modern high energy Type IIs and IVs, but with careful tape matching it has all the key attributes, including stability and clarity	Dual auto reverse, record/play transports, Dolby B/C/HX Pro	R	111
<b>Arcam Delta 100</b> £850	Excellent Excellent	Ambitious first cassette deck from Arcam has a superb transport and a ripe, spacious sound. The Dolby S installation more successful than most. Some replay incompatibility	3 heads, dual capstans, Dolby B/C/S, tape calibration	R	111
<b>Denon DR-750A</b> £250	Average Average	Workmanlike and simply equipped dual deck which is more appealing on audio grounds than most of its type	Dual transport, Dolby B, C & HX Pro	R	99
<b>Denon DRM-510</b> £140	Good Average+	An amnesic Dolby switch and lack of timer standby detract from an otherwise strikingly successful deck with a consistently good performance	2 heads, Dolby B/C/HX Pro	R	99
<b>Denon DRM-710</b> £230	Average Average	Although this is a fair performing model, the design has lost some of the competitive edge of its predecessor, the DRM-700. Memo: must try harder - and where's the timer standby?	Dolby B/C/HX Pro, fine bias adjust, record return		105
<b>Denon DRS-610</b> £200	Average+ Good	Unique loading mechanism provides stability, and the deck has a crisp, clean quality. But has occasionally anaemic bass and a channel mismatch with metals	Drawer loading, Dolby B/C/HX Pro, R fine bias, track search,		111
<b>Denon DRS-810</b> £300	Poor Average	Basically good deck with non-stressful material let down by an inability to deal with high energy tapes properly. The horizontal loading mechanism is a success.	CD style loading drawer, real time remaining display, Dolby B/C/		105
<b>Denon DRW-650</b> £200	Average Average	This simply equipped model is a little fiddly to operate at time, partly because of the way the single set of transport keys is assigned. But sound quality is generally workmanlike - good value	Twin transport, Dolby B/C/HX Pro	R	93
<b>Dual CC800RS</b> £150	Average - Average -	Low(ish) cost auto-reverse deck has mic input but lacks some niceties. Delivers a punchy but ultimately rather crude impersonation of source material, and a thin, lightweight bass.	Auto reverse, Dolby B, C, HX Pro, microphone input.		105
<b>JVC TD-R441</b> £170	Average - Poor	This deck would make a good choice for those who need the unattended recording time to deal with absentee recording off air, but is a less than wholly convincing musical advocate.	Auto reverse transport, Dolby B/C/HX Pro, CD direct input		105
<b>JVC TD-V1010</b> £400	Good+ Excellent	Very high grade enthusiasts deck with almost-CD like resolution and stability, especially with Type IV tapes	3 heads, Dolby B/C/HX Pro, variable bias, sens, 3 line,	R	111
<b>JVC TD-V541</b> £280	Very Good Very Good	Crisp, lively sounding deck with excellent timing and occasionally slightly thin tonal quality. Best with metals and Dolby B	Dolby B/C/HX Pro, 3 heads, fine bias, display off	BB	105
<b>Kenwood KX-5030</b> £200	Good Average	confusing mishmash of listening impressions caused by poor set-up afflicting metal tapes and Dolby C in particular. Promising otherwise	2 head, Dolby B/C/HX Pro, auto-bias, track search		99
<b>Kenwood KX-5530</b> £190	Average - Average -	Neat looking and well equipped deck, adequately engineered but somewhat lacking musically. Worth considering if auto-reverse is the key to your happiness.	Dolby B/C/HX Pro, auto reverse, auto biasing, auto fader		105
<b>Kenwood KX-7030</b> £260	Good Good	Fine, articulate middle price cassette deck whose only (mild) failing with some programme material is a just perceptibly synthetic glaze	3 heads, dual capstans, Dolby B/C/HX Pro, auto bias	R	99
<b>Marantz CP230</b> £330	Average Average	This is a competitively priced portable recorder though not suited to replay of musicassettes	Dolby B, bias adjust	R	52
<b>Marantz CP430</b> £400	Average Average	Uniquely flexible and compact package for outside work which at a pinch can double as a domestic cassette deck. dbx is useful for location work; results with Dolby B are acceptable	Portable 3 head, dbx, fine bias, charger/adaptor	R	87
<b>Marantz SD315</b> £180	Average Average	Sound quality is promising, but somewhat offset by 'shut in' top end. Pitch integrity suspect. Dolby C sound quality and dubbing performance poor	Dolby B/C/HX Pro, twin transports, one rec/play, one play only. Mic i		93
<b>Marantz SD40</b> £150	Average Very poor	Obstructive aesthetics are offset by apparently good build and sensible features, but sound quality is uneven or worse.	Dolby B/C/HX Pro, fine bias	R	93
<b>Marantz SD50</b> £230	Good Very Good	Fine, exacting all-rounder offering good stereo, precision and focus. Good with prerecorded tapes too.	Dolby B/C/HX Pro, track & intro search, variable bias etc	R	81
<b>Marantz SD515</b> £350	Poor Poor +	Good electronic design is let down by mediocre alignment and poor transport stability. Disappointing at the price.	Twin auto-reverse, both transports record, HX Pro, parallel recording		93

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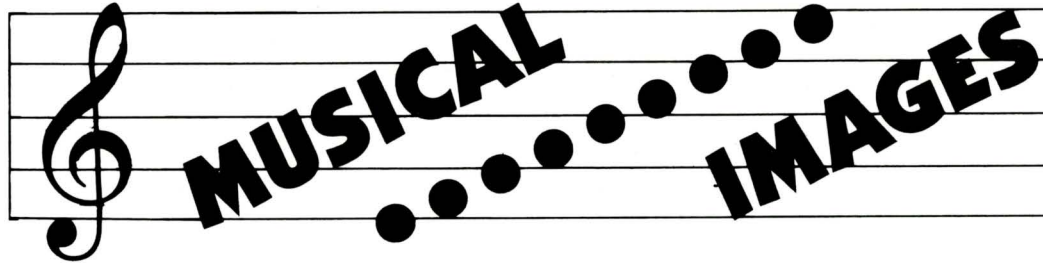
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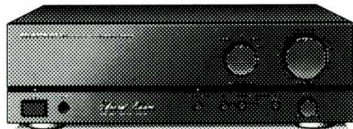
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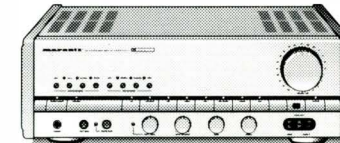
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# The Directory

## CASSETTE DECKS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Marantz SD60</b> £350	Good Very Good	A first rate, highly capable deck offering energetic yet refined sound largely due to good electronic design	3-head, Dolby B/C/HX Pro, variable bias & sensitivity	R	81
<b>Memorex SCT-5</b> £150	Poor Poor	Poor example of a twin cassette deck where everything has been sacrificed on the altar of flexibility	1 rec/play, 1 play only transport, Dolby B/C		87
<b>Nakamichi Cassette Deck 1</b> £ 700	Good Good	New modernised Nakamichi is still curiously old fashioned in many ways, but offers unusually articulate sound of great insight	Dolby B/C, 3 heads, dual capstans, var azimuth	R	99
<b>Nakamichi Cassette Deck 1.5</b> £500	Good Very Good	High grade 3 head deck with minimal features but fine engineering and sweet, open though slightly coloured sound quality.	Dolby B/C 3 heads, bias adjust	R	105
<b>Nakamichi Cassette Deck Two</b> £350	Very Good Very Good	Not completely neutral, this deck is assured, dynamic and quick, with abundant detail and some coarseness. Stable transport but rudimentary features accompany fine under the skin engineering	Dolby B/C, manual tape type selection, bias adjust	R	93
<b>Nakamichi RX-202E</b> £600	Good Very Good	Fine, clear and articulate sounding player. Excellent with prerecorded material, but idiosyncratic and sometimes obstructive control	Auto reverse, Dolby B, C, 2 head	R	63
<b>Philips DCC900</b> £500	Average Good-	Intriguingly uneven performer, ranges from grim with prerecorded material to erratically excellent when recording. Analogue cassette replay satisfactory	DCC deck with analogue playback compatibility, Dolby B/C.		111
<b>Philips FC870</b> £250	Average Average	Disappointing at the price, this is a well equipped deck with off-tape monitoring, but a somewhat listless, smeared musical style	Dolby B/C/HX Pro, 3-heads, track/intro search etc		81
<b>Pioneer CT-91a</b> £550	Very Good Very Good	Superb, near state of the art recorder with an excellent dual capstan transport and very capable electronics. At the price, this one is a mould breaker	3-head, tape calibration, Dolby B/C/HX Pro	R	75
<b>Pioneer CT-93</b> £800	Excellent Excellent	State of the art deck, built like something out of NASA's shuttle, with superb all round performance. Dolby S can muddle ambient information, but increases effective dynamic range	Dolby B/C/S/HX Pro, auto tape align, 3 heads, dual capstans	R	99
<b>Pioneer CT-S410</b> £200	Average+ Average+	Powerful selection of features, excellent ergonomics and the fine, explicit sound with metals, though some instability was noted and the first test sample was faulty	3 heads, Dolby B/C/HX Pro, automatic tape alignment	BB	111
<b>Pioneer CT-S610</b> £270	Good Very Good	Exactly engineered and highly articulate up-market cassette deck. Electronics are slightly coloured, but imagery and dynamics are finely resolved	3 heads, Dolby B/C/HX Pro, Super Auto BLE, CD Sync	R	111
<b>Pioneer CT-W601R</b> £200	Average- Average-	Mediocre performance attributable to flimsy build and less than stable transport. Frequency responses not wholly accurate even with Auto BLE. Not ideal ergonomics	Dual auto reverse, one records, Dolby B/C/HX Pro, Auto BLE		111
<b>Pioneer CT-W650R</b> £200	Average Average	There were some intermittent problems with the tape alignment system on the test sample, but the deck was otherwise good, despite a coloured bass and inability to exploit Type IV tape	Twin deck, both reverse, one records, auto align, B/C/HX Pro	R	105
<b>Revox B215</b> £1727	Very Good Very Good	Fine, consistent and solid sound quality, with excellent under the skin engineering and many useful features — but you're also paying for the same	Dolby C/HX Pro, 3 heads, dual capstans, auto tape align	R	87
<b>Revox B215-S</b> £1826	Very Good Very Good	This is a superbly engineered deck with a classically fine performance that almost transcends the stereotypes. Ergonomics are flawed but the user interface is both powerful and flexible	3-head, dual capstan, Dolby B/C/HX Pro, auto calibration	R	75
<b>Revox H1</b> £1,145	Very good Very good	Bare bones version of B215 is still a sophisticated piece of kit, and lacks for none of the 215's engineering prowess	3 heads, Dolby B/C, auto tape align, semi-auto record level set.		99
<b>Revox H11</b> £938	Average + Average +	Costly and well engineered deck which boasts the bare minimum of facilities and which is primarily designed for the Revox multi-room H-Line system. Moderate performance	3 head, Dolby B/C/HX Pro, manual tape alignment		105
<b>Revox Pro Series C115</b> £843	Good Good	Not for the numbers freaks, it's unobtrusively musical, with a slightly wayward top and a very clean, extended bass	Professional 3 head, Dolby B/C/HX Pro, variable bias & sensitivity.		111
<b>SAE C102</b> £549	Average Good	Looking most unlike a cassette deck designed in the States and proving competitive in its price group. Not sonically that outstanding, however	Real-time counter, track search, Dolby B & C		52
<b>Sansui D-X111E</b> £120	Poor Poor-	Very high levels of flutter, and a shabby, hollow sound with metallic colorations and a severe loss of detail - is it necessary to go on?	Dolby B/C/HX Pro, fine bias adjust		105
<b>Sansui D-X117WR</b> £220	Poor Poor	Bass is thin and coloured, and the sound lacks dynamics, pitch accuracy and overall stability - the sound is neither stable nor solid. Prerecorded cassette quality is also poor	Dual, one transport records, both auto reverse, Dolby B/C/HX Pro.		111
<b>Sansui D-X211HXR</b> £170	Good Good+	Clean, stable and open sounding recording quality distinguishes this player, - and auto-reverse too. A great improvement on earlier mid price Sansui models, and excellent value.	Auto reverse, Dolby B/C/HX Pro, bias adjust	BB	93
<b>Sansui D-X311WR</b> £250	Poor Poor+	Not wholly successful auto-reverse deck which suffers because it has tried to be all things to all people. Lack of clarity is the main limitation	Twin optically triggered auto-reverse, Dolby B, C & HX Pro		99
<b>Sherwood DS-1135C</b> £100	Average Average	Excellent value. There is a low level constant background drone, and Dolby C recordings sound flat and coloured. Elsewhere sound quality exceeds expectations	Dolby B/C/HX Pro	R	87
<b>Sherwood DS-7000R</b> £230	Average Poor	Rough and ready cassette deck in which sound engineering has been sacrificed on the altar of extra selling features, namely three heads for real time off-tape monitoring	3-head Dolby B/C/HX Pro		87
<b>Sony (WMD6C) Pro Walkman</b> £249	Good Very Good	One of the finest sounding cassette decks on the market today. A mandatory Best Buy, which also fits in your pocket	Dolby B, & C	BB	60
<b>Sony K870ES</b> £350	Average+ Average+	Good but not outstanding deck which proved slightly disappointing on audition. This model is no standard setter	3 heads, dual capstan transport, Dolby B/C/HX Pro, tape calibration		99
<b>Sony TC-K520</b> £170	Average Good	Fine, assured and detailed performer with a very well designed and straightforward user interface	Dolby C/HX Pro, variable bias, display on/off	BB	87
<b>Sony TC-K570</b> £200	Good Average+	Good if slightly untransparent sounding recorder, comfortable with all noise reduction circuits and all tape groups	3 heads, Dolby B/C/HX Pro, bias adjust	R	99
<b>TEAC V-5000</b> £300	Average+ Good-	Fine middle ranking heavyweight with blemish free overall performance, beaten only on subtleties by the best at the price	3 heads, dual capstans, bias/sensitivity adjust, Dolby B/C/HX Pr		99
<b>TEAC V-7000</b> £400	Good Good	Intrinsically sharp, clear and solid sound spoiled by exaggerated detail with prerecorded material and losses imposed by Dolby circuits	3 heads, quartz locked dual capstans, tape align, Dolby B/C/HX		99
<b>Teac R-9000</b> £450	Good + Good	Much better than average auto-reverse deck, well worth considering, though short of the special qualities required for formal endorsement at this price. Nicely engineered too.	Auto-reverse, 3-head, tape calibration, Dolby B, C, HX Pro		105
<b>Teac V-8000S</b> £700	Good + Good	Superb stability and real subtlety from a cassette deck, this must be the best Teac yet. The only disappointment was the Dolby C circuit which was coloured and lacking in transparency.	3 heads, dual capstans, Dolby B/C/S/HX Pro, tape calibration	R	105
<b>Technics RS-BX626 II</b> £180	Good Good	First rate deck at a bargain price. Losses when recording are low and mostly benign, and dynamic range with high energy tapes is excellent. An all-round achiever	3-heads, Dolby B/C/HX Pro, optional remote control	BB	111
<b>Technics RS-BX707</b> £220	Average Average -	Uneven but ultimately messy sounding deck with a number of oddities, including a tape calibration system lacking in accuracy and poor Dolby alignment	3 heads, Dolby B/C/HX Pro, bias & level calibration		105
<b>Technics RS-BX828 II</b> £300	Good + Good	Fine middle ranking deck, with explicit detail and stability, but which in the final analysis doesn't go much further musically than the cheaper RS-BX626	3 heads, Dolby B/C/HX Pro, tape bias/sensitivity lineup,		111
<b>Yamaha KX-260</b> £150	Average Average	Lively, entertaining deck that trades gadgets for a convincing performance at an attractive price point	Dolby B/C/HX Pro, Play Trim, bias adjust	BB	111
<b>Yamaha KX-360</b> £179	Average Average	Updated KX330, performance has a very KX-260 like dryness and precision. Good - but doesn't 'breathe,' and occasionally sounds unstable	2 heads, Dolby B/C/HX Pro, bias, Play Trim, intro scan,		111
<b>Yamaha KX-650</b> £300	Average+ Good	Fine audio manners, especially in the midband and treble, mark this high class deck out from the crowd	3 heads, dual capstans, Dolby B/C/HX Pro, play trim, bias adjust	R	99
<b>Yamaha KX-W362</b> £250	Average- Average-	Almost a good deck, it is let down by audible levels of wow & flutter, apparent even with prerecorded material. The audio circuits are good	Two auto reverse, 1 records. Dolby B/C/HX, Play Trim		111

# The Directory

## CD PLAYERS

Now nearly a decade old, this all digital music source is well established despite high disc prices and the opposition of many hi-fi enthusiasts. Compact Disc's strengths over conventional vinyl are complete freedom from surface noise, ease of use, and more robust software. Remote control is just about standard on all new players.

However, many vinyl enthusiasts find CDs

sound less involving than top quality vinyl.

Prices average out at a little over £200, although entry level models are now available for little more than £100. Even the most basic models can sound very good indeed and employ state of the art decoding chips and the most useful play features. Extra money can buy remote volume control, audio 'tweaks', plus improved build and component quality control.

Digital outputs facilitate an easy upgrade path

Machines can be split into bitstream and multi-bit with each school having its adherents. Bitstream is the newer technology and will probably win in the end, although the development time spent on multi-bit systems means that excellent results can still be obtained.

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Acoustic Research CD-06SE</b> £450	Average- Average-	Basic Philips machine with beefed-up chassis and a revised analogue board. Distortion is higher than normal while the sound lacks both immediacy and clarity.	Remote control, programming but no direct track access, 16bit 4x		95
<b>Acoustic Research CD-07</b> £300	Good Good	AR's first Bit Stream CD player relies heavily on Rotel know-how to produce a smooth, detailed but undemanding sound	Few features on player, remote, dig o/p. SAA7321 PDM DAC	R	100
<b>Aiwa XC-300</b> £130	Average + Average +	Cheap, cheerful and gratifyingly free of digital 'nasties', this new bitstreamer is well-equipped but safe rather than thrilling on the sonic front.	Remote control, optical output, Toshiba bitstream DAC.	R	107
<b>Aiwa XC-700</b> £180	Good+ Very Good	Generously equipped player that harbours a top Philips' Bit Stream DAC. Offers a characteristically smooth and effortless 'bitstream sound'. Exceptional value	Remote control plus index skip, midship transport and 7350 PDM DAC	BB	95
<b>Aiwa XC-900</b> £210	Good + Good -	The loss of transparency and general awkwardness of this player comes as a surprise after the XC-700. Extra features have taken their toll	Remote control with variable o/p, midship transport, 7350 PDM DAC	R	100
<b>Akai CD-52</b> £249	Good Good	A nice surprise from Akai, genuinely good sound from this mid-priced model. Better linearity will help further	Remote, digital output, headphone socket	BB	64
<b>Akai CD-55</b> £230	Good Average -	Budget model which fails to compare with the CD52	Remote, hdph, Good programming		83
<b>Akai CD-57</b> £180	Average + Average +	A very flexible machine with a slightly lumpy but fullsome bass, no model of clarity but very entertaining!	Remote control, motorised volume, hybrid PWM DAC.	R	107
<b>Akai CD-62</b> £330	Average Very Good	Looks, build quality and the technical specification are right up to date. As it stands it sounds ve good but if the indifferent lab performance is improved, it would probably sound even better	Remote, programme, hdph, comprehensive display etc	BB	70
<b>Akai CD-73</b> £450	Good Average	A little uneven musically, the Akai tends to smother fine detail, but has first class dynamics and stereo imagery. Worth auditioning	Track entry keypad remote, menu display (switchable)		62
<b>Akai CD-93</b> £700	Good Very Good	Undoubtedly a CD player of real class in build, presentation, lab performance and sound quality, but also a shade expensive for formal Recommendation though that's not to dissuade lovers of	Track entry remote, menu display etc.		58
<b>Arcam Alpha Plus</b> £420	Good - Good +	As its name suggests, this is the 1992-version of a classic 16-bit player with an all-round smoother sound!	Remote control, 20-track memory, digital o/p, 16-bit DAC	R	112
<b>Arcam Delta 70.3</b> £650	Good Good+	Latest in a line of Delta 70 CD players and one that offers a distinctly rugged, beety sound. Plenty of power behind individual instruments but lacks a feeling of involvement	Remote control, display dimmer, variable and dig outputs. 7350 PDM		95
<b>CEC 880CD</b> £230	Poor Average	The dynamic and spritely sound of this machine is gratifying in the light of its primitive design but is otherwise poor value	Remote control, direct track access, dig o/p, hybrid PWM DAC		100
<b>Carver TL-3220</b> £495	Good Average	A lightweight player with primitive display. We thought it sounded rather sparse and dry, and though Carver's DTL feature certainly fleshed-out the bass it also softened the stereo focus	Remote control with volume keys, 'Digital Time Lens', 18bit 8x		95
<b>Carver TL-3300</b> £595	Good + Poor	Carver needs to listen critically to CD sounds; in our opinion, DTL does not improve the recipe	DTL, remote, programming, digital output		83
<b>Cary Audio Design CAD-955</b> £899	Average Average +	Rotel's latest 16-bit wonder with an add-on valve processor to filter-out any residual RF garbage. Nice idea but the player sounds very dry and taut, lacking warmth and body.	Remote control, triode-output stage, Philips 16-bit chipset.		107
<b>Creek CD60</b> £500	Good + Good	A big and confident sound from a player that's stuck with a green display, green lettering and green-fronted drawer. So it looks ghastrly even if the internal design is very thoughtful.	Remote, spring-loaded buttons, coaxial digital output, 16-bit.		107
<b>Denon DCD-1290</b> £319	Good Good -	This player certainly looks the business but its sound is a real five-minute wonder. Its compelling fizz lasts about as long as your average firework.	Remote, pitch control, index skip, variable output, 18-bit		107
<b>Denon DCD-1460</b> £400	Good+ Average+	Here's a player that benefits from solid casework and decent features yet the overly complex electronics knock the stuffing from its sound	Remote control, volume, index search. 18+2-bit DACs		100
<b>Denon DCD-2560</b> £570	Very Good Good	Beautifully built and generously equipped yet with a sound that's decidedly sluggish, particularly through the bass. Vocals are more forward but can sound a little glassy	Remote, pitch, tape edit features, opt/coax digital output, 20bit 16		95
<b>Denon DCD-860</b> £250	Average+ Good+	This is a well designed and generously equipped budget player that offers a very spacious and appealing sound. There's a hint of treble emphasis but it still sounds great at high volumes!	Remote, pitch and full tape edit facilities. 18bit 8x.	R	95

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# The Directory

## CD PLAYERS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Denon DCD-890</b> £270	Good + Good -	Similar to the DCD-1290 in its execution though manages a better technical performance. Sounds lively and powerful but lacks subtlety.	Remote control, 20-track memory, tape edit, 18-bit DACs		112
<b>Dual CD1080RC</b> £200	Very Good Average -	A rather strange-sounding player with a top-heavy treble that does little to redress its lack of vibrancy and emotion. The back-lit LC display and clean digital output are plus points.	Remote, coaxial digital output, digital volume, MASH/PWM DAC.		107
<b>Ferguson CD008</b> £150	Average Average	Not as strong as its relatives, sample fault perhaps? Though performance is fair enough overall	Remote, midi digital output, 2x O/s, timeshare 16 bit		64
<b>Goodmans GCD-435</b> £140	Poor Average -	Goodmans has the power to source with more care than this, music centre quality!	multibit, remote, basic facilities		88
<b>Harman Kardon HD7450</b> £260	Poor Average +	This player looks little different to other HKs but its performance is dominated by a budget decoder/oversampling IC. Good bass nonetheless but pop tracks can sound fizzy and tiring	Remote control, display-off, timed-shared mono 18-bit DAC		107
<b>Harman Kardon HD7500II</b> £300	Good+ Good+	An update of the original HD7500 but featuring superior analogue electronics to the HD7450. Tonal integration is much improved, packed with detail that's expressed with enthusiasm.	Remote, variable, digital and headphone outputs. MASH/PWM	R	95
<b>Harman Kardon HD7600II</b> £400	Good+ Average+	Based on the HD7500II but with a motorised volume control and extra-heavy casework. Either way it lacks the transparency and sparkle of the cheaper machine	Remote, variable and digital outputs. MASH/PWM DAC		100
<b>Harman Kardon HK7300</b> £200	Average Average -	Budget low bit technology, does not deliver enough for a recommendation	No remote, no digital out; basic control features		83
<b>JVC XL-V152</b> £130	Very Good Average	Based on earlier budget designs but minus a remote control. The voluminous but vague sound is equally familiar.	Tape edit, DDRP, PEM bitstream DAC		112
<b>JVC XL-V241</b> £160	Good Average	Even with its mkII PEM DAC this new machine sounds pleasant but not especially interesting. Stereo imaging is a trifle suspect	Remote control, slim centralised drawer, PEM bitstream DAC		100
<b>JVC XL-Z1011</b> £520	Very Good Good+	JVC's current flagship combines old K2 technology with PEM bitstream to deliver a full, beefy and engagingly dynamic sound	Remote control, variable and digital outputs, PEM bitstream	R	100
<b>JVC XL-Z431</b> £200	Very Good Average-	This is a player that started life off the back of the successful XL-V231 but whose performance fails to come up to scratch. The sound is weak and uninspiring - poor use of JVC's PEM DAC.	Remote operation, motorised volume + tape edit. PEM bitstream		95
<b>JVC XL-Z441</b> £200	Very Good Good	The smoothest-sounding of JVC's budget machines - clear and bold but also very even-handed. One if not their best sub-£500 players to date and strongly recommended.	Remote control, tape edit, index skip, PEM bitstream DAC	R	107
<b>JVC XL-Z452</b> £180	Very Good Good +	Another lightweight player but graced with a surprisingly bold and detailed sound. Impressive stuff for the money.	Remote control, 32-track memory, volume control, PEM DAC	R	112
<b>Kenwood DP-3040</b> £180	Good + Good +	The sophisticated sound of this budget player could teach Kenwood's costlier offerings a thing or two!	Remote control, 20-track memory, volume, NPC bitstream DAC	R	112
<b>Kenwood DP-4030</b> £180	Good+ Good+	Kenwood's first and cheapest bitstream player enjoys a deceptively detailed and refined sound but one that is mildly veiled right across the spectrum. Excellent value nonetheless.	Remote, variable and opt digital outputs. NPC bitstream DAC	R	95
<b>Kenwood DP-5030</b> £200	Good+ Good+	This looks like the DP-4030 but has more in common with the DP-7030 inside. Either way its neutral, uncluttered and intimately detailed sound is better than both	Remote control, motorised volume, disc file. Sony PLM DAC.	R	100
<b>Kenwood DP-5040</b> £200	Very Good Average	Better built and technically superior to the older DP-5030 but its untidy, detached treble quality proved a real disappointment in our listening tests.	Remote, display control, tape edit, peak search, Sony PLM DAC.		107
<b>Kenwood DP-7030</b> £300	Good+ Good+	By adapting established Sony bitstream technology Kenwood has moulded its own exceptionally smooth and polite sound. Very nicely built machine with midship transport mechanism.	Remote, index scan, variable and optical outputs. Sony PLM bitstream	R	95
<b>Kenwood DP-7040</b> £300	Very Good Good	A classy, polished sound from a decidedly refined piece of engineering. Close to the older DP-7030 in terms of performance but better value in construction and technology.	Remote control, Disc File memory, display control, Sony PLM DAC.	R	107
<b>Kenwood L-1000D</b> £830	Very Good Good	A beautifully constructed and very stylish player that really only gives off its best when teamed-up in balanced-mode with Kenwood's matching pre/power combination	Remote control, balanced XLR's, 16-bit integrating DACs		100
<b>Luxman D105u</b> £699	Average Average	Visible valves are essentially for show in this rather ordinary player - both sound and lab	"valves", remote inc vol, hdph, well equipped		88
<b>Marantz CD-42</b> £180	Average + Good +	Not as warm or rugged-sounding as the CD-52 but still wonderfully spacious and intimately detailed. Currently the best player under £200, plus it's got a decent coaxial digital output.	Remote control with direct track access, SAA7350 Bit Stream DAC	BB	107
<b>Marantz CD-52</b> £200	Average+ Good+	Hardly the most neutral player on the planet but its rich, full and very generous sound cannot fail but warm the coldest of hearts	Remote control, FTS and dig outputs. SAA7350 PDM DAC	BB	100
<b>Marantz CD-52SE</b> £280	Average + Very Good	A similarly dramatic yet far more neutral sound than the basic CD-52. Either way, its engaging and believable performance was a real hit with our listeners.	Remote, FTS memory, switchable digital output, Bit Stream DAC	BB	107
<b>Marantz CD-62</b> £300	Good Good-	Basically this is a Philips CD850II with Signetics op-amps all plonked into an old CD-50 chassis. Something of a range-filler	Remote control, index, 8-step volume and FTS. SAA7350 PDM	R	100
<b>Marantz CD-72</b> £400	Good - Good +	A heavily-constructed player based on the same digital electronics as the CD-42 and CD-52. This implementation sounds astonishingly solid and immediate but also rather too 'clean'.	Remote, variable and digital outputs, FTS, Bit Stream		107
<b>Marantz CD-72SE</b> £500	Good Good +	A recommendation just eluded the grasp of this superbly built player thanks to its very polished but restrained sound.	Remote control, 20-track memory, FTS, volume, BS DAC		112
<b>Marantz CD-80</b> £560	Very Good Good	A dynamic and bold sound from a machine that is equally bold in appearance. It betrays no fear of the most thundering crescendos yet can sound a little hard or glassy with pop CD's.	Remote, motorised volume + FTS programming, 16bit 4x		95
<b>Memorex CD1650</b> £200	Poor Poor	An overpriced music entre player. Surely the giant Tandy corp. can get a better standard than this?	remote, keypad, multi bit, midi		88
<b>Meridian 206B (DAC7)</b> £971	Good + Very Good	Plenty of tight, strong bass but a little mechanical or even sparse at times. Its technical presentation of music is spot-on, only the sense of drama or anticipation needs working on.	Remote control, novel direct-loading transport, DAC7		107
<b>Meridian 208</b> £1,550	Excellent Excellent	State of the art CD sound combined with a decent preamp and full remote control	Hdph + remote level. Programming, R phase invert, various outputs	R	83
<b>Micro Seiki CD-M100</b> £5541	Very Good Good	One of the hernia inducing bricks of hi-fi, the Micro is extravagantly styled, finished and built. The good lab performance led to an 'only good' sonic display when the price demanded excellent	Balanced output, remote, display blanking		72
<b>Micromega Logic</b> £500	Good- Good	A rather expensive version of Philips CD624 with new op-amps and CD tray. Still, it does sound rather meatier, better integrated and more purposeful	Remote control, no FTS but switchable digital output, SAA7321		100
<b>Mission DAD5</b> £300	Good Average +	Similar-sounding to Philips' 600-series players: lively, plenty of space and full of 'bounce' but a little too eager to impress in the short term.	Stylised remote, no 'stop' key on player, digital out, Bit Stream		107
<b>Musical Fidelity CD1</b> £400	Average + Good -	Put together in Taiwan to MF's specifications, the main PCB and digital electronics are also used by Rotel's RCD-965BX! This version lacks the creamy, engaging quality of the latter.	Simple remote, index and track skip, digital out, SAA7323 DAC		107
<b>Musical Fidelity CDT</b> £500	Poor - Good +	An oddball player equipped with a cheap top-loading transport and appalling digital gubbins yet saved by the euphony of its valves!	No remote, no memory, hybrid DACR with valve output stage		112
<b>NAD 5425</b> £200	Very Good Very Good	Not much in the way of facilities on offer but a sound that is both wonderfully open, detailed and appealing. This is a very communicative player that sounds positive without being brash	Worthless remote control, track skip/scan. MASH/PWM bitstream DAC	BB	95
<b>NAD 5440</b> £300	Very Good Good+	The 'no compromise' version of NAD's 5425 but still rather lacking in facilities. Its sound is smoother and richer than the 5425, preferring to seduce with subtlety rather than have	Remote with direct track access, variable output, MASH/PWM	R	95
<b>Nakamichi CD Player 2</b> £625	Average+ Average+	This may look like a CD Player 4 but features a special transport able to store 7 CD's with one in play. Nevertheless its digital electronics are flawed and its sound powerful but blunt	Music bank, remote, volume control, digital o/p, 18 bit DACs		100
<b>Nakamichi CD Player 4</b> £300	Average+ Good-	Attractively styled but suffers high-ish distortion for a modern CD player. Best suited to up-beat pop rather than complex classical works which seem to lack focus and secure soundstaging	Remote with track access, coax dig. output. 18bit 8x		95
<b>Nakamichi OMS-5EII</b> £1500	Good + Very Good	"... delivers near state of the art performance and build quality in a deliberately starkly functional package, but at a very high price..."	Skip and scan, simple track programming, I		51



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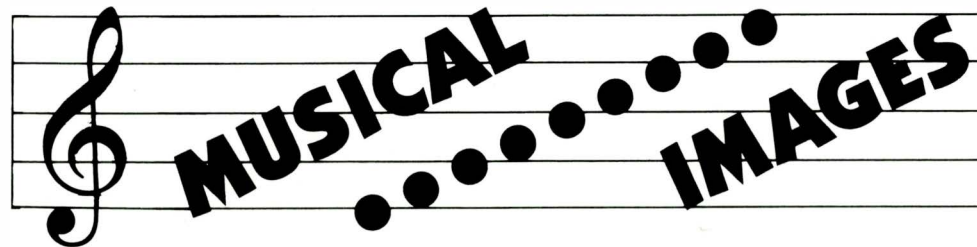
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# The Directory

## CD PLAYERS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Nakamichi OMS-7EII</b> £2000	Good + Good	The only serious criticism here is of the price. And in our opinion you can get better sound quality for less elsewhere in Nakamichi's range	10 digit track entry programming, hdph		51
<b>Philips CD930</b> £180	Good + Good -	Featuring new 900-series livery and digital circuitry similar to Marantz's players but a sound that's a little too ripe and soft	Remote control, Personal Presets, FTS, 30-trk memory, BS DAC		112
<b>Philips CD950</b> £350	Very Good Good +	Philips' top 900-series player is the first to employ its advanced DAC7 chipset. Sounds very crisp, clear and confident.	Remote control, FTS, volume, display off, DAC7 Bit Stream	R	112
<b>Pioneer PD-201</b> £150	Good + Good	A budget player with a genuinely fizzy and exciting sound. Hardly neutral but audacious and entertaining nonetheless	Remote control, 24-track memory, volume, PFM Bit Stream DAC	R	112
<b>Pioneer PD-75</b> £800	Very Good Very Good	A confident yet beautifully poised and relaxing sound from an equally luxurious package. Oodles of refinement plus Pioneer's hi-tech Stable Platter transport, but still expensive.	Remote, index and track skip, display off, PDM Bit Stream DACs		107
<b>Pioneer PD-7700</b> £250	Good+ Good+	A busy-looking player with an upside-down transport yet one that offers a very tight, confident and dynamic sound. Bubbly and entertaining but still very refined	Remote control, turntable drive mechanism, 1-bit PDM DAC	R	100
<b>Pioneer PD-8700</b> £300	Good+ Very Good	A pair of PDM DACs builds upon the sound of the 7700, crafting a generous soundstage populated with big-hearted and thoroughly captivating musical images	As 7700 plus index skip, display off and motorised volume, 1-bit	BB	100
<b>Pioneer PD-91</b> £900	Excellent Excellent	Close to state of the art in nearly all areas - soundstaging, clarity and simple lack of artificiality. A well made and sophisticated player	Track entry remote, calendar display	R	64
<b>Pioneer PD-93</b> £1430	Very Good Good+	The extremely civil, understated feel of its music contrasts markedly with the over-engineered construction of this unit. It will not offend anyone but then neither will it spark much excitement	Remote with fader and index facilities. Two dig o/p's. 20bit 8x		95
<b>Pioneer PD-S501</b> £190	Good + Average +	This is the cheapest player thus far to be equipped with a Stable Platter mech, but compromises elsewhere have suffocated its flair	Remote control, 24-track memory, hi-lite scanning, Bit Stream DAC		112
<b>Pioneer PD-S801</b> £300	Unusual! Good	Pioneer's version of Wadia's Digimaster digital filtering provides odd technical results with an equally unpredictable sound. Capable of poor or superb results, depending on system.	Remote control, stable platter mech, Legato Link + bitstream DAC		112
<b>Proton AC-120</b> £180	Average Average -	Fine styling, low price but barely average performance	15 track memory, simple design, remote, hdph		76
<b>Revox B126</b> £649	Very Good Good	Made in Switzerland so the build quality and technical performance is high, but then so is the price and the sound quality is only good	Programming, Revox system compatible		70
<b>Revox B226S</b> £840	Good Average	Top quality build and finish for the Revox system enthusiast. For high value sound look elsewhere	Remote vol, hdph, 19 track memory, digital op		76
<b>Rotel RCD-955AX</b> £260	Good + Average	Touted as a repackaged version of the evergreen RCD-855. In practice, however, our sample disappointed on several visits lacking the clean, cohesive quality of the original.	Remote control, digital output, repeat, scan, Philips 16-bit		107
<b>Rotel RCD-965BX</b> £320	Average+ Excellent	Two years on and the 865's replacement turns out to be an exceptionally refined bitstreamer: transparent, exquisitely detailed and powerfully emotive. A landmark player	Remote control, index skip, digital out. SAA7323 PDM DAC	BB	100
<b>SAE D102</b> £700	Good Good	Considering the high price of this player, most of the innards seem fairly prosaic. Sound quality and lab performance are both respectable enough, but hardly justify the price premium involved	Remote (inc volume), skip, scan etc.		58
<b>Sansui CD-X311mkII</b> £250	Good+ Good	Sansui's mid-ranked player uses Technics' technology but provides a warm and cuddly sound that's atypical of the breed	Remote control, variable and digital out, MASH/PWM DAC	R	100
<b>Sansui CD-X317</b> £300	Good + Average	Not in the same class as Sansui's older CD-X311mkII. Same technology and a similar appearance but the sound is neither as responsive or engaging.	Remote, fixed, variable and digital outputs, MASH/PWM DAC		107
<b>Sansui CD-X617</b> £300	Good + Average	This 'double-DAC' version of the CD-X317 is no more impressive, sounding light and tizzy with pop but dull with classical CD's	Remote control, 24-track memory, display dim, MASH/PWM DACs		112
<b>Sansui CD-X711</b> £600	Excellent Very Good	Luxury features, finish and sound from this classy Sansui; no excuses required here	Hdph + vol, remote full programming	R	83
<b>Sharp DX150</b> £129	Average Average	This is one oversampled player which is rather outclassed for technical and sonic merit by the vast majority of the competition. Pretty enough but would you want to put discs in it?	Programmable, skip, search, repeat		70
<b>Sharp DX750</b> £179	Average Average	It has a remote control but it's too like the 150 which is rather outclassed for technical and sonic merit by the vast majority of the competition	Remote, programmable, skip, search, repeat		70
<b>Sony CDP-397</b> £140	Very Good Good	The first CD player to be almost entirely composed of miniature surface-mount components. Unsophisticated but enthusiastic sound	Remote control, 24-track memory, fade, tape edit, PLM DAC	BB	112
<b>Sony CDP-591</b> £160	Good+ Average+	Tons of features at a highly affordable price but let down by its lacklustre if inoffensive sound quality. The sound of these new Sony players lacks the grip and purpose of the last generation	Remote control, variable and optical digital out. PLM bitstream		100
<b>Sony CDP-797</b> £200	Good + Good -	Another day, another DAC. This new budget player succeeds with its taut imaging, clean and impressive soundstaging. Can seem a little too lean or dry, however.	Remote, motorised volume, edit and scan facilities, PLM DAC	R	107
<b>Sony CDP-991</b> £230	Good+ Average+	Another well-equipped and well-specified machine and one that can sound very up-beat and detailed with simple material. Tends to loose its way with complex stuff, however	Remote control, Custom File programming, variable out. PLM DAC		100
<b>Sony CDP-X229ES</b> £300	Excellent Good -	Built to the same standards as the CDP-X339ES but with a colder and less forgiving sound. Lacks a sense of integration and warmth	Remote control, Custom Edit and Custom File, PLM bitstream		112

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## CD PLAYERS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Sony CDP-X333ES</b> £400	Very Good Good-	This beautifully built player has a very tidy and well-ordered style of music-making, but in the long run it lacks the ability both to excite and involve	Remote control, Custom File programming, Complementary PLM		100
<b>Sony CDP-X339ES</b> £430	Excellent Very Good	Superbly constructed, this tour-de-force of features and technology offers a tightly detailed almost cavernous sense of acoustic. The mid and treble can sound positively magnetic.	Comprehensive remote, Custom/Edit Navigation System, new PLM DAC	R	107
<b>Sony CDP-X77ES</b> £1000	Excellent Good+	Rather like Pioneer's PD-93 this flagship player is beautifully put together but simply lacks the thrill or conviction of cheaper and perhaps more ragged-sounding machines. Still,	Remote, everything but Custom File titling, Complementary PLM		95
<b>Stax Quattro</b> £2995	Very Good Very Good	Now in mkII guise this substantial player recreated exceptionally strong and convincing bass lines together with a beguilingly musical midband	18-bit DACs, 20-track memory, full IR remote, variable o/p	R	72
<b>TEAC CD-P3500</b> £170	Good + Average	A well-meaning attempt to pare-down the CD-P4500 results in a similar looking player with a thoroughly uninspiring sound	Remote control, volume, cue-lock, index skip, Philips BS DAC		112
<b>TEAC CD-P4500</b> £250	Good + Good	TEAC's first genuine 1-bit player uses Philips BS DAC to great effect, its sound described as having a certain 'organic warmth', very composed and easy-going.	Remote, pitch control, variable out, SAA7350 Bistream	R	107
<b>Technics SL-PG200A</b> £160	Good+ Good+	This season's version of last season's favourite (the SL-P277A) offers extra features and a similarly punchy, dynamic and up-beat sound. All this plus an uncommon poise - Best Buy	Remote control, random play, variable out, MASH/PWM bitstream	BB	100
<b>Technics SL-PG320A</b> £140	Good + Good +	A cheaper and remote-less version of the '420A with an equally dry but vivid, spacious and astringent sound. A good 'un	No remote, synchro-edit, auto-cue, 20-track memory, MASM	R	112
<b>Technics SL-PG420A</b> £160	Good + Good +	No repackaged version of the SL-PG200A but a new player in familiar clothes. Still offers an open, transparent and uncommonly fresh sound but a little of the 'magic' is missing.	Remote, digital volume, synchro edit, auto cue, MASH/PWM DAC	R	107
<b>Technics SL-PG520A</b> £200	Good + Very Good	A cracking player that builds upon the astonishing out-of-the-box sound of earlier budget players. Superb clarity and dynamics, thrilling but musically involving too.	Remote, shuttle search dial, edit mode, peak search, MASH/PWM DAC	BB	107
<b>Technics SL-PS620A</b> £230	Good + Very Good	A costlier, tarted-up version of the SL-PG520A that loses very little in the way of clarity, sparkle or in compelling dynamics	Remote control, synchro-edit, 20-trk memory, MASH/PWM DAC	BB	112
<b>Technics SL-PS900</b> £350	Very Good Good-	Just about the quietest transport in existence and a sound that is equally unobtrusive, polite and refined. There's plenty of detail too but the overall result won't set your pulse racing	Huge remote control, function manager MASH/PWM DAC		100
<b>Wadia WT-2000/Digimaster</b> 2000 £	n/a Very Good	Very high grade player which provides state of the art in believable music making from CD, and promises a degree of upgradeability	Transport/multi bit DAC - 32, 44.1, 48kHz o/s		Coll. '9
<b>Woodside WS2</b> £1095	Good Good+	Prompted a mixed reaction on audition, responding well to our jazz and classical selection but sounding bright and grainy with the pop CD's. RF emission is very high	Remote control, display defeat, variable and digital outputs, 16bit		95
<b>Yamaha CDX-450</b> £170	Average+ Good	A contentious player this and one that prompted a range of reactions from enthusiasm to disinterest among our listeners. It could prove too safe-sounding but worth a try at the price.	Remote control, track access, variable out. 18-bit hybrid DAC	R	100
<b>Yamaha CDX-560</b> £180	Good Good	A real advance on the old CDX-450 though the light, up-front if not entirely welcoming sound of this newcomer could shock the timid listener	Remote control, volume, tape edit, 18-bit hybrid DAC		112
<b>Yamaha CDX-750</b> £250	Good Average+	A sleek machine that can sound rich and vibrant with simple material but seems to lack expressiveness and subtlety when dealing with more complex passages	Remote control, variable and digital out, LC display. PDM DAC		100
<b>Yamaha CDX-860</b> £280	Very Good Good +	A strong recommendation for what is probably Yamaha's best CD player to date: powerful and confident yet delicate and nimble when the occasion demands.	Remote control, variable o/p, dimmer, 25-trk memory, PDM DAC	R	112

## CD TRANSPORTS AND DACS

A CD player can be split into two basic components, the mechanism which reads the information from the disc, known as the transport, and the device which turns the digital numbers contained on the disc into the music that comes out of your speakers, this device being referred to as a digital to analogue convertor or DAC. Although at the lower end of the market both of these are contained in a single box, at the top end of the market two box machines consisting of a CD transport and a separate DAC become more common.

Although many of these units will be purchased as two box machines, which are generally considered to sound better than a one box equivalent, a DAC can also be used to upgrade an existing CD player. A good example is where an early machine with a satisfactory drive unit but a rather dated DAC can be brought up to the latest spec by the addition of a new DAC.

When upgrading an existing player best results are usually obtained using the electrical digital output rather than optical, and obviously

to be upgradeable your CD player must have a digital output in the first place.

The choice of interconnect is crucial in linking drives and DACs and conventional interconnects used for analogue signals should be avoided, a dedicated 75ohm digital cable will give far better results.

Mixing and matching transports and DACs from different manufacturers can be a bit of a lottery and readers are referred to the full reviews where this subject is discussed in more detail.

## CD TRANSPORTS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Arcam Delta 170.2</b> £620	Very Good Good	An upgraded Delta transport, it sounds different but not really better. More research is required here	Transport only, display off, usual programming		88
<b>Kenwood DP-X9010</b> £500	Average Average +	Compromised by jitter, RF noise and poor clock selection this transport generally encourages a dynamic but bright and edgy sound with most DACs	CD transport, optical + coax outputs, Class 2		96
<b>Marantz CD-95DR</b> £1500	Very Good Good	At its best with Philips-based DACs, this transport sounds confident if not totally pure, sparkling or fresh	CD transport, optical + coax digital, Class 1		96
<b>Meridian 200</b> £895	Very Good Very Good	Broadly compatible with most DACs and offering a light, fresh and very bubbly sound that is both natural, engaging and unfatiguing	CD transport, optical + coax outputs, Class 1	R	96
<b>Meridian 602</b> £1,750	Very Good Good	This dedicated CD transport teams-up most successfully with the 606 DAC. Otherwise it lacks the life and pizzaz of the 200	CD transport, optical + coax outputs, Class 1		96
<b>Philips CDD882</b> £500	Good Good	A butchered CD880 CD player-cum-CD transport that pairs up well with most Philips-based DACs. Dynamic and lively but can also sound a little mechanical	CD transport, optical + coax outputs, Class 1		96
<b>TEAC P-10</b> £1499	Good Very Good	A chunkier and altogether more successful transport than the P-500 with an especially beefy and compelling sound. TEAC's best	CD transport, coax + optical outputs, Class 1	R	96
<b>TEAC P-2</b> £2849	Very Good Good	TEAC's flagship CD transport is beautifully styled and constructed but its sound is bleached and generally less inspiring than that of the P-10	CD transport, coax + optical outputs, Class 1		96
<b>TEAC P-500</b> £649	Good Good +	Provides a smooth and very sympathetic sound with most DACs yet is also rather vague, lacking the crispness and resolution of its peers	CD transport, coaxial and optical outputs, Class 2	R	96
<b>Technics SL-PA10</b> £470	Good + Good	Built to partner the SU-MA10 upmarket integrated amp/DAC, this transport has the unusual limitation of only optical output. Reassuringly solid and more immune to vibration than most	CD transport, optical output only, remote		88
<b>Wadia WT2000</b> £5614	Very Good Good +	Based on TEAC's P-2 with outboard mains transformers, active digital output and solid alloy casework. Dynamic and crisp sound best realised with Wadia DACs, otherwise less impressive	CD transport, AT&T opt +direct -coupled coax outputs, Class 1		96
<b>Wadia WT3200</b> £1800	Excellent Very Good	Based on Marantz's CD-95DR with new casework, active digital output and revised grounding. Very clean, clear and authoritative sound with Wadia and Philips-based DACs	CD transport, AT&T opt + direct -coupled coax outputs, Class 1	R	96

## DIGITAL TO ANALOGUE CONVERTORS (DACs)

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Arcam Black Box 2</b> £260	Very Good	An upgraded version of the old BB1 with more inputs and improved sound quality	Optical and wired inputs	BB	76
<b>Arcam Black Box 3</b> £360	Good + Very Good	Top of a series of three decoders it can offer a high sonic standard with top class transports	Bitsream, auto input switching,	R	88
<b>Audio Alchemy Digital Decoding Engine V1.0</b> £376	Good Very Good	A very sweet and seductive sounding unit that gives good results with a wide range of CD players/transports	Coaxial and optical inputs, phase invert, Bit Stream DAC	BB	101
<b>Audio Research DAC1-20</b> £3898	Very Good Good	This expensive DAC works surprisingly well with Meridian's cheaper 200 transport, an impressively weighty and engaging combo that proved entertaining on audition.	BNC, Toslink and AT&T optical inputs, phase invert, 20-bit DACs		103
<b>Audiolab 8000DAC</b> £695	Very Good Good	Needs to be used with a genuine Class 1 digital drive. At its best with the Wadia WT3200 where it sounds vivid and alive. Otherwise can sound a little antiseptic.	Coax and opt inputs, phase invert, crystal lock, Bit Stream		103
<b>Deltec Bigger Bit</b> £650 + £98	Good Very Good	Partnered with either TEAC P-10 or Meridian 200 transports, the Bigger Bit delivers a very taut and dynamic sound, bathed in an open acoustic. Deltec's RF mains filter is a must.	Coax and opt. inputs, Deltran sync facility, DAC7 Bit Stream	R	103
<b>Deltec Little Bit (Optical)</b> £400	Very Good Good	Our sample suffered from radiated RF interference but new LB's are now cured. Works especially well with Meridian's 200 transport but does require the services of Deltec's 'Power' mains filter.	Coaxial and optical inputs, SAA7350 Bit Stream DAC		101
<b>Deltec PDM1</b> £500	Average Very Good	A no frills audiophile bitstream converter at an affordable price	Coax-in, special cable and mains filter options	R	83
<b>Deltec PDM1 Series 3</b> £1195 + £196	Very Good Good +	Hailed as a budget version of the PDM2, it bears technical comparison with both the PDM2 and Bigger Bit but - in terms of sound quality - is no great advance on its cheaper relative.	Coax and opt inputs, two-box construction, DAC7 Bit Stream		103
<b>Deltec PDM2</b> £2000	Excellent Excellent	State-of-the-art technical performance with a pristine sound to match. Repertoire includes a solid, invert, two-box DAC7	Coaxial and optical inputs, phase	R	101
<b>Forte Audio Model 50</b> £950	Good Very Good	The first American DAC7 design and one that offers a typically big and full-blooded sound, infiltrated by a slightly euphonic quality but never hard or gritty.	2 Coax and 2 optical inputs, DAC7 Bit Stream technology	R	103
<b>Kelvin PDM DAC</b> £200	Average + Average +	Don't disregard this DAC-in-a-matchbox for though it can sound a little unconvincing it is capable of developing a surprisingly lyrical and natural sound with the right transport	Single coaxial input, low analogue outputs, SAA7320	R	103
<b>Meridian 203 DAC7</b> £510	Good Very Good	This is another broadly compatible DAC that's free of fatiguing nasties yet remains bubbly and exciting. If you find the 606 too sober then the 203 will undoubtedly suit	Coaxial and optical inputs, single-box DAC7 Bit Stream	R	101
<b>Meridian 606 DAC7</b> £1220	Very Good Good	Extra cash buys you a better standard of construction and finish over the 203 yet by refining its sound further Meridian have also tempered its vibrancy and 'life'. Fickle with other transports	Two coaxial and optical inputs, phase invert, DAC7 chipset		101
<b>Micromega Duo BSII</b> £500	Average Good	This DAC has a tendency to sound light, airy and 'fast' but it can also become a little hard or fatiguing with some digital outputs. At its best with Meridian's 200	Coaxial and optical inputs, phase invert, SAA7321 Bit Stream		101
<b>PS Audio Superlink</b> £1498	Average Good -	Another transport-fussy DAC that, once again, does the business with Meridian's 200 but can sound bloated, smeared and even vaguely electronic with standard 75ohm digital outputs.	Touch-sensitive coax and optical inputs, phase invert, 18-bit		103
<b>Proceed PDP2</b> £1595	Average Good -	The PDP2 has a wobbly input impedance that's suited to specific drives, ie Meridian 200, or Proceed's own. At its best expressive and enticing, otherwise it can seem gutless and smeared.	Coax and XLR inputs, balanced outputs, 18-bit DACs		103
<b>Stax DAC-Talent</b> £1400	Excellent Good +	Natural, refined and never over-zealous, the DAC Talent is also capable of sounding very spicy and dynamic. Capable of wielding a maturing influence over a light or bright-sounding system	Coaxial and optical inputs, phase invert, mute, 20-bit DACs		101
<b>TEAC D-500</b> £399	Good + Good +	An unusual combination of NPC oversampling filter and no less than two Philips' DACs. Its reliable 75ohm input infers broad compatibility. A dynamic and 'interesting' sound	Coax and optical inputs, complementary 16-bit DACs.	R	103
<b>Threshold DAC 1/e</b> £3150	Very Good Very Good	The DAC 1/e can sound beautifully detailed with a marvellous sense of scale and sharp, solid images. Its unpredictable behaviour with unknown transports precludes recommendation.	Coax and opt inputs, balanced outputs, phase invert, MASH/PWM DA		103
<b>Wadia DigiMaster X-32</b> £2000	Average - Good -	Wadia's freaky input circuit gives unpredictable results with non-Wadia transports. Otherwise it can sound bold, dynamic and crisp but lacks the warmth to bind its music together	BNC and optical(TosLink and HP) inputs, 18-bit 32x		101
<b>Wadia DigiMaster X-64.4</b> £5000	Average Good*	The X-64.4 positively buzzed with vibrant, sharply-etched detail. An exciting sound	BNC + Toslink/AT&T optical inputs, phase invert, 18-bit 64x		101
<b>Woodside DAC 1</b> £895	Good Good	Fine but slightly dated and costly package in performance terms - but flexible, musical and t well built	2 electrical + optical i/p. tape ou		87
<b>Woodside DAC2</b> £510	Good Good +	Based on Woodside's earlier 16-bit CD player and offering a similarly sharp and dynamic sound, all the more captivating for its lack of graininess and 'tizz'. Should be a reliable upgrade	BNC coaxial input (no optical), 16-bit 4x	R	101

## DIGITAL AUDIO TAPE

DAT, or digital audio tape, has been on the market for quite some time now but has never really 'made it' as a consumer medium, probably due to the fact that very little prerecorded software has been made available.

In the last year or so it has begun to carve itself a niche at the top end of the market replacing reel to reel tape recorders as the audiophile's tape based medium.

The DAT standard specifies a 48kHz sampling rate, which is higher than CD, so direct copying in the digital domain is only possible on those machines with dual sampling frequencies, ie 48kHz and 44.1kHz. Some machines also record at 32kHz to give a longer recording time for a given length of tape.

To try and get around the copying problem many machines incorporate SCMS, the Serial

Copy Management System, a device which enables you to record from a CD but not to 'clone' one digital tape from another.

Portable machines are now entering the market but make sure the price you are quoted includes an analogue to digital converter, with some portables these have to be purchased separately and increase the price considerably.

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Aiwa HD-S100</b> £450	Average - Average -	Largely bulletproof in non-critical and semi-critical applications. Despite the usual limitations of DAT as a hi-fi medium, the HD-S100 is a practical and well built tool.	Portable, ADC, mic in, phone/line sockets (3.5mm), 70 min battery	R	105
<b>Aiwa XD-S1100</b> £550	Poor Average -	A muddled fascia detracts from the appeal of this inexpensive deck, but the real no is a significant loss of the finer virtues: detail, imagery etc	SCMS, analogue, coaxial & optical in/outputs, full subcode editing		99
<b>Aiwa XD-S260</b> £500	Poor Poor	Unlovely sounding deck lacks weight, clarity and presence. Low pricing and mini dimensions excuse many sins however	SCMS, optical/coaxial and analogue in, optical/analogue out		99
<b>Casio DA-7</b> £400	Average Poor	Below average notebook size portable, and in some ways inferior to Casio's own DA-R100 pocketable due to high noise floor, flat dynamics and poor soundstaging	Portable DAT with case. SP record mode, basic editing		111
<b>Casio DA-R100</b> £410	Average Average-	Somewhat flat sounding and lacking differentiation through the analogue inputs but good via the digital ones, a masterpiece of miniaturisation, wonderful tool where size is important	SP/LP record, optical/electrical in/out, 2.5hr battery life	R	111
<b>Denon DTR-2000</b> £700	Good Very Good	Not cheap, but first rate DAT recorder, good to excellent fidelity in all modes, with a slightly cool detached quality when differences are detectable.	Digital LP/digital & analogue SP rec/play, LP analogue play only	R	93
<b>JVC XD-Z1010TN</b> £1050	Good Average-	Ambitious but ultimately disappointing deck which marries poor ergonomics and an opaque musical delivery to a feature roll call longer than the weekly shopping list	SP/LP record, mic input, remote control, display off, auto fade		111
<b>JVC XD-Z505</b> £620	Good Good	Competent middle market DAT with uncomplicated (but still flawed) user interface, but good basic sound quality. A fine CD dubbing machine.	DAT SP/LP en/decode, low bit conversion, remote control	R	105
<b>Kenwood DX-7</b> £500	n/a Average	Sound quality is pretty fair, but a little rougher than the best of the breed. Controls are good, the display however is poor - and most users will require the accessory pack	Mains recorder, LP mode. Optional accessory packs adds battery/ADC		94 Supp.

## DIGITAL AUDIO TAPE

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Kenwood OX-7030</b> £700	Average	Bland sounding deck that lacks low level clarity and imaging. No analogue LP mode. Build quality is good however and ease of use ranks highly	Remote control, stand-alone DAC facility, optical/coaxial in/out		99
<b>Panasonic SV-3700</b> £1111	Good	Slick, powerfully equipped and reasonably priced, this pro DAT has a clear, quick and colourful sound somewhat lacking in weight and substance	Professional DAT, infra-red remote, S/PDIF & AES/EBU I/O		111
<b>Pioneer D-500</b> £600	Good - Average	Looks extremely good. Fascia design is complex yet accomplished, and offers very slick tape handling. Musically however it is on the messy side compared to others in this price area.	SP/LP en/decode 1-bit converters, many search/display aids		105
<b>Sony DTC-750</b> £450	Good	Superb value for money: the lowest price full size DAT on the market, fine features, build, measurements and sound approaching the best DAT has to offer at any price.	SP/LP record, real time/date recording	BB	105
<b>Sony DTC-77ES</b> £1000	Excellent	Superb engineering, many well implemented features (including off tape monitoring) and technical near perfection (!) don't offset perceptibly slowed., thickened sound	4-head, tape monitor, many search/display options, SP/LP		105
<b>Sony DTC-M100</b> £799	Very Good	Only available from professional outlets. Clean clear sounding second generation model with most of the features and sound of the DTC-1000ES	Midi-width, alpha-numeric display, remote, optical interfaces	R	63
<b>Sony TCD-D3</b> £500	n/a	At the time of writing, this model represents the state of the art, and beats all comers.	DAT recorder, detachable rechargeable power pack, LP/SP	BB	94 Supp.
<b>Tascam DA-30</b> £1199	Good	Interesting pro DAT deck with solid, tangible sound quality which is nevertheless lacking in analysis	Wired remote control, S/PDIF, AES/EBU and standard analogue I/O		111

## EQUIPMENT SUPPORTS

It's becoming more and more apparent that all the components in a hi-fi system benefit from being placed on the right kind of support. It is already acknowledged that performance of electro-mechanical transducers, such as turntables and loudspeakers, can be greatly improved by using highly rigid supports. This notion has been expanded to include electronics such as amplifiers and compact disc players, and inevitably a broad range of stands and supports have been produced to cater for this requirement.

With loudspeaker stands there seems to be two broad schools of design. The most common

is the open frame type which uses square section steel tubing (usually less than an inch square) made up to form a tripod or quadropod stand usually fitted with spikes top and bottom to ensure good coupling to both floor and cabinet. However, for reasons of domestic harmony this latter option is often not pursued as eagerly as perhaps it should be.

The alternative approach is to use mass. Larger section (approximately 3 inch x 2 inch) tubing is welded between square top and bottom plates and filled with sand and/or lead shot. Again, this type uses spikes at the base but Blu-

tack or the like for coupling with the cabinet.

Equipment supports generally place isolation quite high on the list of priorities and usually use a lightweight steel frame to support an MDF platform. Once again spikes are used to minimise contact with the platform and ensure good coupling to the floor. Minimising weight without compromising rigidity seems to be the aim with turntable supports but those designed for electronics often employ some form of damping to kill vibration, sometimes in the form of mass.

## EQUIPMENT SUPPORTS - COMPONENTS

MODEL PRICE	LAB SOUND	COMMENTS	SIZE (H x W x D)	VALUE	ISSUE
<b>Alphason R444</b> £120	Rack Good	A heavyweight structure with stressed MDF shelves, ideally suited to the Sonata turntable	82 x 60 x 39.5cm	R	83
<b>Audioquest Sorbothane Feet</b> £40 for four	Feet Good	These large gumdrops are very useful for damping vibrations in amplifiers and especially CD players.	6.5 x 2.5cm (circular)	R	57
<b>Cornflake TCS6</b> £60	Shelf Good	A squat and rigid frame supports a Medite top board with four adjustable spikes, better suited to suspended sub-chassis turntables.	43 x 23 x 33cm		83 Supp
<b>Foundation Stable Table</b> £100 (with Supe)	Table Good	Similar to Stand Design's table though less well finished and certainly less stable	64 x 46.5 x 36cm		58
<b>Origin Live Skyline Super</b> £100	Table Good	An asymmetric table that helps provide a quick, lucid and solid sound with most decks	41 x 50 x 40cm	R	83
<b>Roksan Equipment Table</b> £169	Rack Good	An upgradable/expandable system suited to Roksan's Xerxes if not other competing turntables	65 x 52 x 38cm		58
<b>Sound Organisation Table</b> £55	Table Very Good	A deceptively simple structure that just happens to be engineered in a thoughtful, and ultimately successful manner.	37 x 45 x 35cm	BB	57
<b>Sound Organisation Wall Stand</b> £40	Shelf Very Good	The first of its ilk and still amongst the best, this simple framework represents a vast improvement over standard furniture shelves.	27.5 x 43 x 35cm	BB	57
<b>Sound Organisation Z022</b> £97	Table Excellent	A small but costly table made from thin steel tubing. Suited to the LP12 but not other decks	49 x 45.5 x 36cm		58
<b>Stand Design Duplex</b> £75	Table Very Good	Well made and nicely finished, this table is broadly compatible with most heavy turntables	63.5 x 46.5 x 36cm	R	83
<b>Target TT2</b> £64	Table Very Good	Standing up to the best in most areas, the TT2's only real foible concerns a slight loss of bass 'slam'. Design was updated in 1990	52 x 46.5 x 35.5cm	BB	57

## EQUIPMENT SUPPORTS - LOUDSPEAKERS

MODEL PRICE	LAB SOUND	COMMENTS	SIZE (H x W x D)	VALUE	ISSUE
<b>Appolo A10</b> £52.50	4 leg Average	A robust and lightweight model, it would make an ideal upgrade for those still happy with the big boxes of old.	19 x 19cm 44cm	R	58
<b>Appolo A820</b> £44	4 leg Average	A light open-framed budget design slightly lacking in rigidity and subjectively superceded by other stands costing £10 more.	19 x 19cm 53cm		58
<b>Foundation Fred</b> £70	2 leg Average	With sand filling the Freds made speakers sound tight and coherent with a more even balance.	19 x 19cm 36/43/59cm		58
<b>Foundation Maggi</b> £159 to order	Plinth Very Good	Made for Magneplanar and other similar panel speakers they seem to have a healthy effect on the sound quality thereof.	50 x 2cm 2cm	R	58
<b>Foundation Pi</b> £269 to order	2 leg Very Good	Overpriced in material terms the Pi nevertheless has a very positive effect on the low frequency performance of conventional speakers.	20 x 20cm 25/38/46/5	R	58
<b>Foundation Sir Fred</b> £80	2 leg Good	Upgraded 'Fred' with special in-fills. Sweet sound but one that also lacks bite and edge	19 x 19 x 46.5cm		83 Supp.
<b>Goldring Black Satin</b> £65	1 leg Very Good	Screw together stand tastefully hewn from medite. Some loss of bass but still pleasantly rhythmic	18 x 20 46cm	R	83 Supp.
<b>Heybrook HBS1</b> £109	4 leg Very Good	With its new aluminium base frame the HBS1 fared very well in the listening tests. It allowed much of the speakers own 'sound' to remain intact.	23 x 21cm 47cm	R	58



## EQUIPMENT SUPPORTS - LOUDSPEAKERS

MODEL PRICE	LAB SOUND	COMMENTS	SIZE (H x W x D)	VALUE	ISSUE
<b>Heybrook P5S</b> £69	3 leg Very Good	An unusual triangulated open frame stand that can help certain speakers sound more transparent and fluent - a good value stand	23 x 21.5cm 47cm	BB	58
<b>Linn Kan II</b> £101	4 leg Very Good	Built to support Linn's Kan speaker this stand is well suited to the task, but is less successful with other loudspeakers.	19 x 16cm 59cm		58
<b>Linn Sara</b> £112	4 leg Very Good	The Sara exhibits some odd properties so its use other than with the Sara loudspeaker should be viewed with caution.	25 x 21cm 53cm		58
<b>Origin Live Three Leg</b> £89	3 leg Good	An unusual tripod stand devoid of top plate and taking up more floor space than normal, subjective and technical performance was exemplary.	(support area) 22 x 17.5cm 52cm	R	58
<b>QED TS22 Tristand</b> £60	3 leg Very Good	Most tracks sounded uplifted or buoyant, never thick nor coloured. It worked well with most of the speakers tried and encouraged a fluid and revealing midband.	19 x 17cm 45/50/58cm	BB	58
<b>Standesign Z20</b> £75	1 leg Excellent	Well built and finished with optional sand in-fill. Ideally suited to Wharfedale 505.2's	16.5 x 19 50cm	R	83 Supp.
<b>Target HJ15/3</b> £107	3 leg Very Good	Sound quality was basically very good though without the sand in-fill some loudspeakers may sound a little unbalanced as both bass and treble regions are subjectively exaggerated.	28 x 28cm 40cm	R	58
<b>Target HS20</b> £64	1 leg Excellent	This monopod stand can be used either filled or unfilled and encourages different characteristics in the speakers sound accordingly	19 x 16.5cm 53cm		58
<b>Target T-40</b> £51	2 leg Very Good	Not very stable, tends to infer a slightly forward, ragged sound with diluted pitch	19 x 19 40cm		83 Supp.

## HEADPHONES

There are a variety of different approaches to headphone design, and examples of each turn up in this group. Amongst the more expensive esoteric models, electrostatic drivers are used in square open-backed phones such as the Jecklin and Stax models.

The majority of these come with some form of transformer which takes the signal initially from the speaker terminals on the amplifier. The actual speaker cables then travel from this unit

bypass switch to the loudspeakers.

The more down to earth models feature dynamic drivers in circular open-backed designs. The advantage of open backs seems to be a correspondingly open sound and a less claustrophobic feel to the music.

One can also of course hear external noises, as well as irritating the hell out of people on public transport

The third category are closed-back designs,

which are useful in situations where it is necessary to block out background noise. 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 press on the outer ear (pinna); and intra-aural types rest inside the ear and are popular amongst users of personal stereos.

## HEADPHONES

MODEL PRICE	FIT SOUND	COMMENTS	TYPE	VALUE	ISSUE
<b>AKG K1000</b> £500	Very Good Excellent	One of the best moving coil headphones on the market, hooks directly to speaker outputs and makes much of the competition sound lame. Looks a tad weird	Extra-aural, open-back, dynamic	R	99
<b>AKG K135</b> £33	Poor Average	Despite a very appealing design the K135s don't live up to the usual AKG standards, though they do have the ability to reproduce rhythm well	Supra-aural, semi-open, dynamic		63
<b>AKG K145/S</b> £60	Good + Good +	Electrostatic tweeters combine with a dynamic mid/bass unit to create very confident sounds in a comfortable headphone. Balance is on the bright side	Supra-aural, semi-open, electrostatic/ dynamic	R	75
<b>AKG K240 Monitor</b> £60	Very Good Good	Something of a classic, these AKGs are very user friendly in all respects; sonically on the warm side of neutral	Circumaural, semi-open, dynamic	R	63
<b>AKG K280 Parabolic</b> £90	Good Very Good	A very revealing and unusual twin driver design that uses the same principle as a satellite dish to beam sound into the ear	Circumaural, open-backed, dynamic	R	63
<b>AKG K340</b> £140	Good Excellent	Heavyweight cans in most respects, the K340 with its electrostatic tweeter is a very revealing headphone. Gives the total electrostatics a good run for their money	Circumaural, closed-back, electrostatic/dynamic	R	75
<b>AKG K44</b> £40	Good+ Average	Good quality personal oriented phone, could have a better sense of space but is musically quite communicative	Supra-aural, open-back, dynamic		99
<b>AKG K500</b> £119	Good Very Good	Distinctively open and clear, they reproduced music with impressive definition, balance is on the light side but transparency is high for the price	Circumaural, open-back, dynamic	R	111
<b>Aiwa HP-X30</b> £31	Good Good -	A flashy personal stereo phone which alternatively could be used at home. A slight LF tonal preference slightly colours the response, but it ain't a bad can	Supra-aural, closed-back, dynamic		75
<b>Audio-Technica ATH-308</b> £26	Good- Average-	These small cans have a fairly forward balance which helps perceived clarity but they can become wearing over time, good for personals	Supra-aural, semi-open, dynamic	R	111
<b>Audio-Technica ATH-609</b> £31	Average Average-	Warm feeling and sounding with impressive physical substance for the price, could be more relaxed and open	Circumaural, open-back, dynamic	R	99
<b>Audio-Technica ATH-611</b> £51	Average Good	Same basic design as 609 but bigger thinner diaphragm makes this a more relaxed and informative headphone	Circumaural, open-back, dynamic		99
<b>Audio-Technica ATH-9000</b> £246	Very Good Good	These electret cans connect up to the amps speaker outputs via an adaptor, it sounds a little too smooth and relaxed but would suit aggressive amps	Circumaural, open-back, electret		111
<b>Audio-Technica ATH-909</b> £60	Average Average	Quite impressive in the treble though a bit bass shy, the 909s worked well at highish levels	Circumaural, semi-open, dynamic		55
<b>Audio-Technica ATH-910</b> £70	Average Good	The closed-back 910s are an improvement on the 909s with a nice rhythmic quality rarely found with headphones	Circumaural, closed-back, dynamic	R	55
<b>Audio-Technica ATH-911</b> £80	Very Good Very Good	Nicely finished dynamic headphones with all the trimmings, plus a very clean and subtle sound	Circumaural, open-backed, dynamic	R	63
<b>Beyer DT 325</b> £32	Very Good Average	Lightweight in more ways than one, the 325s may be a little bright for some systems and tastes but will suit duller sources	Supra-aural, open-back, dynamic	R	63
<b>Beyer DT330 Mk II</b> £50	Good Poor	Not the most revealing 'phones encountered, the 330s were nevertheless enjoyable and rarely offended	Circumaural, semi-open, dynamic		55
<b>Beyer DT411</b> £49	Good Good	A reasonable but not very thrilling headphone that doesn't really offer enough at the price	Supra-aural, open-back, dynamic		111
<b>Beyer DT550</b> £61	Good Good	On their own the 550s sound articulate with a slightly 'gritty' treble and 'keen' midrange; not suitable for headbangers!	Circumaural, semi-open, dynamic		55
<b>Beyer DT880</b> £80	Good Good	Well made cans with a warmish sound but fairly solid midrange, though they're not that informative for the price	Circumaural, semi-open, dynamic		63
<b>Beyer DT911</b> £179	Good Very Good	Probably too revealing for many headphone amps these are very subtle and fine if expensive cans	Circumaural, open-back, dynamic	R	111

## HEADPHONES

MODEL PRICE	FIT SOUND	COMMENTS	TYPE	VALUE	ISSUE
<b>Beyer DT990</b> £102	Very Good Very Good	The 990s are definitely a significant pair of dynamic headphones; they have a smooth and yet revealing neutral sound that is hard to criticise	Circumaural, open-back, dynamic	R	55
<b>Beyer IRS690</b> £203	Good + Very Good	High quality infra-red headphones with soft comfy earpads and mellow but informative sound quality which is hard to dislike	Circumaural, open-back, dynamic	R	75
<b>JVC HA-D690</b> £40	Average Average	Competent but rather undistinctive cans, a bit middle of the road and well suited to aggressive sources	Supra-aural, closed-back, dynamic		111
<b>JVC HA-D990</b> £65	Good + Good +	Good looking well made cans that offer good sound quality for the money. Sonic nature is of the easy-going, laid-back variety	Supra-aural, closed-back, dynamic	R	75
<b>Jecklin Float Electrostatic</b> £399	Good Excellent	One version of the state-of-the-art, these electrostatics have an openness of sound rarely found in the breed, with good dynamic range to boot	Circumaural-ish, open-back, electrostatic	R	55
<b>Jecklin Float Model One</b> £79	Good Very Good	Whilst very unusual in appearance, the Floats give remarkable sound quality and openness at a reasonable price	Circumaural-ish, open-back, dynamic	BB	55
<b>Jecklin Float Model Two</b> £99	Good Very Good	Helmet shaped and pretty unflattering but open sounding and comfortable in the long term. Note lack of adjustment means you should try before you buy	Circumaural-ish, open-backed, dynamic	R	63
<b>Koss TD/60</b> £20	Good Average	Although they're devoid of channel identification and have a decidedly Stateside approach to sound, these are very listenable phones for the price	Supra-aural, closed-back, dynamic		75
<b>Pioneer SE-72</b> £30	Good + Average -	Neat, very nicely made personal stereo phones along the lines of Sony V3s. Sound is on the veiled side, good for aggressive sources	Supra-aural, closed-back dynamic		75
<b>Quart Phone 30 X</b> £40	Good Average	Slightly dark character makes these more suitable for some sources/material than others, specifically music that needs bass weight	Supra-aural, open-back, dynamic		99
<b>Quart Phone 70</b> £70	Good Good	Competent performers that were hard to criticise but lacked the life and sparkle of which some of the competition are capable	Circumaural, closed-back, dynamic		63
<b>Quart Phone 95 X</b> £100	Good+ Good+	Can sound even handed, relaxed and open with a good drive system but may be a bit too transparent for lesser headphone outputs	Circumaural, open back, dynamic	R	99
<b>Realistic Pro-X</b> £25	Poor Average -	Robust, unanimously uncomfortable and heavily veiled in sonic terms not a great success	Supra-aural, closed-back, dynamic		75
<b>Ross RE2530 CD</b> £20	Average Average	Rather an 'average' £20 phone that some found uncomfortable due to high pressure on the ears. Sonic balance is on the bright side	Supra-aural, closed-back, dynamic		75
<b>Ross RE2560 CD</b> £25	Good Average +	If you're not too fussy about quality of finish and don't have an elfin head then these British phones warrant attention. Sound could be smoother	Supra-aural, semi-open, dynamic		75
<b>Sennheiser HD 480II</b> £50	Good+ Good	Not the most accurate cans on the market but amongst the most enjoyable	supra-aural, open-back, dynamic	BB	111
<b>Sennheiser HD 540II</b> £100	Good+ Good+	A good but not great headphone that due to its high impedance and efficiency should work well with most sources	circumaural, open-back, dynamic		111
<b>Sennheiser HD40</b> £20	Very Good Good -	Very light and comfortable headphones with an even sonic balance that will suit most sources, but jack is 6.3mm and not suited to personals	Supra-aural, semi-open, dynamic	BB	75
<b>Sennheiser HD450II</b> £40	Good+ Good-	A neat looking supra that makes quite acceptable noises with a variety of outputs, could sound more spacious but is pleasantly relaxed	Supra-aural, open-back, dynamic		99
<b>Sennheiser HD480 Classic II</b> £60	Good+ Good	The same basic design as the 450 but improved sound quality as a result of aluminium coil and extra damping, natural with good bass	Supra-aural, open-back, dynamic	R	99
<b>Sennheiser HD520</b> £65	Good + Good +	A very comfortable and musically capable headphone. If you've got this sort of bread to blow on cans, give 'em a blast	Circumaural, semi-open, dynamic	R	75
<b>Sennheiser HD530</b> £75	Very Good Good +	One of the better dynamics in its group, the 530s create a sense of space that eludes most sub £100 cans, and they're dead comfy to boot	Circumaural, semi-open, dynamic	R	75
<b>Sennheiser HD540 Ref Gold</b> £160	Good Very Good	The 540 Golds prove that dynamic headphones can be subtle, informative and capable of creating a remarkable sense of space	Circumaural, open-back, dynamic	R	55
<b>Sennheiser HD560 Ovation II</b> £120	Very Good Good+	A comfortable and nicely styled headphone that could be more natural sounding at HF, but is detailed and open with good power	Circumaural, open-back, dynamic		99
<b>Sony A21EX</b> £20	Good - Good -	Forward facing in-ear drivers on a folding plastic band provide exceptional clarity for such an inexpensive phone. However, no bass, and fit isn't to everyone's taste	Intra-aural, semi-open, dynamic	BB	75
<b>Sony MDR-CD1000</b> £150	Very Good Very Good	A fine sounding and comfortable headphone that's likely to work well with most sources	circumaural, closed back, dynamic	R	111
<b>Sony MDR-CD3000</b> £300	Very Good Very Good	Better than most of the headphone outputs around so hard to make the most of, potentially up there with the electrostatics	Circumaural, closed-back, dynamic	R	99
<b>Sony MDR-CD350</b> £32	Good+ Good	Very impressive for the price the 350 is possibly the most open sounding cheap closed back can around, lightweight in balance but transparent	Circumaural, closed-back, dynamic	BB	99
<b>Sony MDR-CD550</b> £50	Good+ Good+	A very competent headphone for the price, creates a remarkable sense of space for a closed back design and sounds natural to boot	Circumaural, closed-back, dynamic	BB	99
<b>Sony MDR-CD750</b> £73	Good+ Good+	Reasonably comfortable and eminently listenable these Sonys have characteristically good bass power and relaxed hf	Circumaural, closed-back, dynamic	R	111
<b>Sony MDR-R10</b> £2500	Excellent Excellent	Costly state of the art sealed moving coil design built to the highest standards using the finest materials. Sound quality reflects this care, being big, clear, sweet and refined	Circumaural, closed-back, dynamic	R	72
<b>Stax Gamma pro/SRD-X pro</b> £296/£2	Very Good Excellent	The Gamma pros are like a stethoscope for your hi-fi, revealing subtleties that many loudspeakers fail to resolve	Circumaural, open-backed, electrostatic	R	63
<b>Stax Lambda Signature/SRM-T1</b> £470/£8	Very Good Excellent	The Signature when combined with the SRM-T1 valve driver must be the most transparent headphone available	Circumaural, open-backed, electrostatic	R	72
<b>Stax SR Gamma</b> £299 (i)	Very Good Very Good	The next model down the Stax range from the Lambda, the Gamma is an excellent headphone with little to criticise but the price	Circumaural, open back, electrostatic	R	55
<b>Stax SR Lambda Pro/SRD-7SB</b>	Very Good Very Good	A bit of an industry reference, the Pros are frighteningly revealing, bringing across more information than loudspeakers costing twice as much	Circumaural, open-back, electrostatic	R	55
<b>Stax SR Lambda Pro/SRM-1</b> Energis	Very Good Excellent	This combination extracts layers of information that other headphones only hint at. The SRM-1 has more edge than the SRM-T1, but it's good	Circumaural, open-back, electrostatic	R	75
<b>Stax SR34</b> £140	Average Very Good	The least expensive Stax headphones around, the SR34s are lively and rhythmic with good tight bass and a sweet midrange	Supra-aural, open-back, electret		55
<b>Stax SR84</b> £210	Very Good Very Good	The stepping stone between dynamics and full electrostatics, these electret phones are revealing, open and highly enjoyable	Supra-aural, open-backed, electret	R	63
<b>Technics RP-F3</b> £100	Poor Average	Robocop styling coupled with a turbo bass switch and an uncomfortable fit, rhythmically OK but not up to the price	Supra-aural, closed back, dynamic		111
<b>Yamaha YHD-1</b> £46	Good+ Good	Stylish semi-folding design with a slightly forward balance that very nearly scraped a recommendation	supra-aural, open-back, dynamic		111
<b>Yamaha YHL-006</b> £30	Average Average	Unusual personal stereo oriented phones that curl up when not in use. Earphones are like golf balls and balance is well suited to Walkmans	Supra-aural, open-back, dynamic		75

## LOUDSPEAKERS

Last item in the hi-fi chain, to some extent the loudspeaker is merely the slave of what has gone before, capable only of reproducing a signal as good as it is fed. Nevertheless the distortions (colorations and stereo effects) introduced by loudspeakers (and rooms) tend to be more immediately obvious than those anywhere else in the chain, so careful choosing according to taste is very important.

The average loudspeaker consists of a smallish 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) for the given box size. After that such subtleties as coloration and dispersion come into the equation.

Careful placement of the loudspeakers within the room is as important as the initial choice of model.

For good stereo they need to be more or less the same distance from nearby walls, and preferably on rigid stands. The listener should be about the same distance from and listening angle to each loudspeaker. The ideal placement depends on the way a particular model has been balanced (not to mention a number of other factors), and our recommendation is given in the entries.

MODEL PRICE	LAB SOUND	COMMENTS	SIZE PLACEMENT	SENSITIVITY BASS FROM	VALUE	ISSUE
<b>ATC SCM20</b> £1419	Very Good Good +	Massively built to no-compromise Pro monitoring standards, the SCM20 is invariably informative but the rather forward presentation can be uncomfortable	44 x 24 x 31cm stands close to rear wall	82dB 28Hz (in room)		86
<b>Acoustic Energy AE1</b> £767	Good Good	Amongst the best miniatures around, this metal driver pioneer shows exceptional mid focus and coherence, but is pricey and could be faster and more agile.	29.5x18x25cm stands clear of wall	84dB 48Hz (in room)		102
<b>Acoustic Energy AE2</b> £950	Good Very Good	Dynamic, solid and lively, a great allrounder if a bit small considering the price. AE proves that metal cone/dome drivers really work	39 x 23.5 x 29.5cm heavy stands, free	88dB 45Hz	R	66
<b>Acoustic Energy AE3</b> £1650	Very Good Very Good	Solid, authoritative and impressively accurate – if a shade ponderous and slow – AE's latest 'big one' is a much better bet than the earlier '4, combining	63 x 26.5 x 37cm low stands in free space	85dB 23Hz (in room)	R	86
<b>Acoustic Research Pi 3</b> £219	Average- Average	Lively good value box has extra bass driver to give plenty of thump, but lacks refinement and extension	51.5 x 21 x 23cm close to wall	88dB 50Hz (in room)		110
<b>Acoustic Research AR M1</b> £199	Good Good	Cute shaped miniature delivers splendidly unboxy bass and midrange, but is a little marred by a rather bright treble	27 x 20 x 26cm close to wall	85dB 30Hz (in room)	BB	110
<b>Acoustic Research AR-112</b> £125	Average Average -	Nicely presented and engineered, but sounds a bit small and boxy without true coherence	36 x 19 x 18.5cm stands near rear wall	87dB 75Hz		66
<b>Acoustic Research AR-122</b> £150	Average Average	Despite a promising enough list of ingredients, the 122 failed to excite real enthusiasm amongst the listening panel	38.5 x 19 x 22cm stands near rear wal	87dB 68Hz		68
<b>Acoustic Research AR-132</b> £200	Average + Average -	Good presentation and detail engineering was not sufficient to counter bass heavy balance problems on auditioning	44.5 x 23 x 25.5cm stands 1ft from rear	87dB 50Hz		66
<b>Acoustic Research AR-152</b> £373	Good Good-	Large bookshelf size model with luxury finish has a slightly thin overall balance, but fine coherence and agility makes it well worth considering	44 x 23.5 x 28cm stand 1-2ft wall	87dB 25Hz in room		98
<b>Alexander SE11</b> £299	Good Good	Clearly better than its cheaper stablemates, the metal jacket delivers a different – and in some respects superior – sound than the wood-based	52 x 14 x 17.5cm stands close to wall	86dB 25Hz (in room)	R	82
<b>Alexander SE5</b> £199	Average Average	Particularly well suited to surround sound A/V applications, the SE5 can give any miniature a run for its money on bass performance, hardness and coloration	40.5 x 12 x 15cm ALS stands near wall	82dB 50Hz (in room)		78
<b>Allison AL100</b> £120	Average- Average	Loud and lively budget wall-mount is bigger and beefier than most of the competition, if lacking some subtlety and refinement	33.5 x 24 x 21.5cm stands against wall	87dB 30Hz (in room)	BB	94
<b>Allison AL105</b> £150	Average Average -	Pretty enough in appearance, sonically the AL105 doesn't really make the grade at the £150 asking price	37 x 24 x 21cm high stands against wall	87dB 45Hz (in room)		78
<b>Allison AL110</b> £220	Good+ Good-	Compact bookshelf model is a little dry and mid forward, but bass is extended and solid. Free space balance is good, though build quality could be improved.	40x24.5x22.5cm stands 1-2ft from wa	86dB 28Hz (in room)	R	102
<b>Allison AL120</b> £429	Good Average	Cleverly engineered compact floorstander is pretty well balanced if slightly mid forward, but sound quality is a little disappointing for the price	63 x 28 x 27cm floor, clear of walls	88dB 30Hz (in room)		98
<b>Allison CD6</b> £290	Average Good -	An unusual cube-shaped model designed for wall mounting gives exceptional bass extension from a small box, though it's also a bit heavy, coloured and slow	28.5 x 28.5 x 28.5cm stands against rear	88dB 45Hz	R	71
<b>Allison MS 200</b> £220	Average- Average-	Built as small and solid as a brick, this micro-miniature has limited bass and bright balance, but sounds agile and communicative	25.5 x 14.5 x 15cm close to wall	85dB 50Hz (in room)		106
<b>Alphason Amphion</b> £695	Good Good	This fine-sounding, nicely finished compact wall-mount is just a little too expensive for formal Recommendation, but is a good performer for all that	44 x 23 x 27.5cm high stands against wall	88dB 47Hz (in room)		78
<b>Alphason Artemis</b> £299	Average Average+	Pretty little miniature sounds nicely unboxy but is also a bit short of punch and balanced rather too bright.	27 x 17.5 x 22cm stands 1ft from wall	86dB 50Hz (in room)		94
<b>Alphason Orpheus</b> £1070	Good Good +	Large hi-tech two-way features unusual, sweet-sounding isodynamic tweeter; well engineered and balanced if a shade odd in appearance	65.5 x 28 x 34cm stands near rear wal	87dB 43Hz	R	71

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## LOUDSPEAKERS

MODEL PRICE	LAB SOUND	COMMENTS	SIZE PLACEMENT	SENSITIVITY BASS FROM	VALUE	ISSUE
<b>Apogee Caliper Signature</b> £3998	Good + Very Good	Pretty but power hungry full range panels have remarkable transparency and delicacy, though loudness and bass 'grunt' are both a bit lacking	122 x 59-70 x 6.5-28cm floor, free space	81dB 30Hz (in room)	R	81
<b>Arcam Alpha</b> £200	Good Good	It has its own colorations to be sure, but delivers a fine room balance with unusually good dynamics, timing and 'life', and is fine material value	46 x 26.5 x 26cm stands close to wall	89dB 30Hz (in room)	BB	82
<b>Arcam Delta Two</b> £340	Average+ Good	Pretty luxury compact sounds a shade forward and coloured but has dynamic and lively bass for its size	37.5 x 22.5 x 27.5cm stands 1-2ft from wa	87dB 40Hz (in room)	R	94
<b>Audio Note AN-E</b> £1300	Very Good Very Good	Lovely coherence, great midband dynamics and transparency, extended bass and high sensitivity — pity it's so darn ugly!	80 x 36 x 28cm low stands, free space	91dB 20Hz (in room)	R	106
<b>Audio Note AN-J</b> £799	Very Good Very Good	Light damping and local unevenness adds some coloration, but doesn't spoil the very lively, dynamic and coherent sound. Fine sensitivity and balance.	58.5 x 33 x 24.5cm heavy stands, free s	90dB 25Hz (in room)	R	110
<b>Audioplan Kontrapunkt</b> £799	Good Good +	Cute little German miniature sounds as sweet as it looks, dressed expensively in real wood with matching stands. Not for bass or loudness freaks	31 x 24 x 13cm free space, matching stan	83dB 48Hz (in room)	R	86
<b>B&amp;W 610</b> £200	Good Average	Fine presentation and good perceived value, with good in-room bass extension and impressive loudness credentials too, but rather indifferent integration and coherence.	49x23.5x30cm stands clear o	89dB 25Hz(in room)		102
<b>B&amp;W 620</b> £320	Good Good	Good value floorstander has well balanced, laid back and slightly lazy sound that is pleasantly easy on the ears; could do with its own spikes	74 x 23.5 x 30cm floor, free space	89dB 25Hz (in room)	BB	94
<b>B&amp;W DM600</b> £160	Good+ Average+	Attractive hi-tech appearance and clever engineering makes for an impressively smooth overall balance, but sound is a touch bland with it	35 x 20.5 x 25cm stands 1-2ft from wa	85dB 30Hz (in room)	R	98
<b>B&amp;W Matrix 801</b> £3295	Good + Good +	Lacks the transparency of the best panels, and the drama of the best dynamics, but is something of an acoustic tour de force, with low coloration and fine imaging	77/99 x 56 x 43cm floor or stands, fre	86dB <20Hz (in room)	R	81
<b>B&amp;W Matrix 805</b> £795	Very Good Good	A genuine compact monitor, stylish, with remarkable imaging properties, good balance and low coloration, though less successful at communicating musical	42(max) x 26 x 22.5cm Slate stands in free	87dB 30Hz (in room)		98
<b>Bose 305</b> £360	Average Good -	A bit of an oddball, fine dynamic liveliness and a good room match more than make up for the strange stereo imaging and treble	28 x 45 x 23cm high stands near wall	88dB 40Hz (in room)	R	78
<b>Bose 401</b> £430	Average - Average	Cheaply built but distinctively styled semi-omni floorstander suffers from heavy midbass but still manages to sound lively and open	78.5 x 30 x 28.5cm clear of walls	89dB 28Hz (in room)		110
<b>Bose 901 MK6</b> £1650	Good Average	Still controversial after all these years, the pre-equalised multi-driver 901 is cleverly engineered to deliver exceptional loudness.	33 x 54 x 32cm rigid stands in free space	(9dB midband) 28Hz (in room)		86
<b>Bose Interaudio 3000XL</b> £160	Average Average -	Lots of perceived value and well enough balanced, but low cost cabinet and driver engineering results in a crude and unsubtle sound	46.5 x 29 x 23cm stands in free space	89dB 45Hz		71
<b>Boston A120</b> £349	Average + Good -	Ugly but cleverly engineered, the 120 combines a tiny main driver with much larger ABR to give a generous, bighaired and lively sound despite little bass	62.5 x 31.5 x 25cm stands in free space	89dB 48Hz	R	86
<b>Boston A40II</b> £120	Average Average -	Competent performance for size and price but below average relative to the UK competition	34 X 21 x 20cm on stands near wall	88dB 63Hz		41
<b>Boston Acoustics T830</b> £399	Good Good	A lot of speaker for the money, the T830 is a smooth and accomplished performer with a big and easy - or alternatively a lazy and laid back - sound	82.5 x 25.5 x 24cm floor, away from wal	87dB 30Hz (in room)	R	82
<b>Boston HD5</b> £115	Average Average	Tiny and prettily shaped miniature has an attractive lack of boxiness, but is a little short of drama and dynamic drive	25 x 16 x 18.5cm close to wall	86dB 30Hz (in room)		110
<b>Brinkmann Endymion</b> £395	Average- Average+	Omnidirectional design with rococo styled urn-shaped ceramic enclosure. Distinctly bass light, but sounds impressively coherent and solid	48 x 29 (diam)cm stands in free space	85dB 50/150Hz (in room)		106
<b>C-J Synthesis LM210</b> £895	Good Good+	Elegant compact US floorstander is eminently relaxing and listenable, with open and coherent midband, if a bit short on welly and drive	90 x 26 x 27cm 28Hz (in room)	86dB clear of walls	R	106
<b>Cabasse Bisquine</b> £600	Good+ Good+	Classy French large bookshelf speaker has great coherence and dynamic grip, but a rather mid-forward overall character	48 x 26 x 30.5cm 20-30cm from wall	91dB 30Hz (in room)	R	110
<b>Cambridge SoundWorks Ambianc</b>	Average Poor	Attractively styled sub-miniature sacrifices sensitivity in the interests of bass extension, but manages to lose dynamics along the way too	28 x 18 x 14cm close to wall	83dB 45Hz (in room)		94
<b>Canon S-50</b> £349	Average Average+	Though only a small cone miniature at heart, the fascinating styling and extended stereo listening area feature make it utterly original and unique.	30x24(diam)cm stands in free space	84dB 48Hz (in room)	R	102
<b>Castle Chester</b> £599	Good Very Good	A brilliant throwback, using horn-type approach to provide startling midrange dynamics and coherence.	94 x 23 x 27cm floor, experiment	87dB 45Hz	BB	98
<b>Castle Durham</b> £259	Average + Average	Listening results were encouraging, well engineered and finished, but lean on treble and a bit weak on bass; still recommended	41 x 21.5 x 25cm near rear wall	89dB 67Hz	R	46
<b>Castle SG Trent</b> £129	Average Average	The grey paint finish looks much more modern than black vinyl woodprint, and this miniature wall-mount sounds lively and engaging, if a bit rough at the top.	33.5x18x20cm stands close to wall	88dB 50Hz (in room)	R	102
<b>Castle Warwick</b> £229	Good Average -	Excellent presentation and fine engineering with overload protection, but a sonic disappointment in bass and dynamic qualities	46.5 x 25 x 23cm stands 1ft from rear	88dB 50Hz		66
<b>Castle Winchester</b> £1400	Very Good Very Good	This unconventional and beautifully crafted model is physically large for its bass extension but is engagingly agile and sounds attractively open and airy	114 x 24 x 47cm in free space	87dB 25Hz	R	90
<b>Castle York</b> £340	Good Average+	Pretty little real wood compact has an engaging transparency, good balance and fine timing, but could do with more authority and welly	43 x 22 x 26cm clear of walls	86dB 30Hz (in room)		110
<b>Celestion 3</b> £115	Average + Average	This attractive little wall-mount gives good balance and stereo imagery, with a character which leans more towards inoffensiveness than excitement	31 x 18.5 x 21cm high stands against wall	86dB 55Hz (in room)	R	78
<b>Celestion 5</b> £155	Good Average	Cunningly conceived and balanced, the 5 may be a little slow for some tastes, but is well suited to CD-oriented budget systems	35 x 20.5 x 26cm heavy stands close to wall	89dB 30Hz		90
<b>Celestion 6000</b> £1510	Very Good Very Good	A genuine fullrange audiophile quality speaker system — with Star Wars styling to suit a high tech environment	Complex, on floor in free space	82dB	R	60
<b>Celestion 7</b> £200	Average Average+	Good value, good looking large bookshelf size wall-mount has lively up front presentation. Can sound a bit coarse and stand selection is critical.	45 x 24.5 x 32cm heavy stands close to wall	87dB 30Hz (in room)	R	98
<b>Celestion 9</b> £249	Good Average	Nicely presented and fair material value, with impressively flat bass-to-mid balance, the 9 doesn't really make a convincing case for the return of the three-way.	49.5x20.5x24cm stands clear of wall	89dB 30Hz (in room)		102
<b>Celestion DL8 Series II</b> £205	Very Good Good	A refined middle market speaker has a smooth but slightly dull quality, with good definition and deep, if slightly boxy bass	50 x 27.5 x 27.8cm open, stands	87dB 60Hz	R	59
<b>Celestion SL12Si</b> £615	Average Average	Careful setting up does reveal elements of fine sound quality, but this 'grown up' SL6 variation has a lumpy response alongside its improved power handling	53 x 20 x 27cm matching stands clea	85dB 50Hz		66
<b>Celestion SL600Si</b> £820	Good + Good	This Aerolam high tech miniature has certain remarkable qualities that some will find irresistible, but needs careful system and room matching	27 x 20 x 23cm free air on tall stands	82dB 52Hz		68
<b>Celestion SL6Si</b> £409	Average+ Average+	This stereotype luxury compact can sound a bit dull and congested, but really opens up on Slate Audio stands; favours CD	37.5 x 20 x 25cm stands 1-2ft from wa	86dB 30Hz (in room)		94
<b>Creek CLS20</b> £120	Good Average -	Looks good material value, but sound is distinctly over-rich and thick in the mid-bass region; maybe the box is a little too large.	49 x 24.5 x 24cm open frame stands, free	88dB 30Hz		90
<b>Dali 700</b> £600	Very Good Average	Good material value and fine bass extension for size and price, but overall sound is disappointing, perhaps due to complexity of driver array	110 x 28 x 35cm clear of walls	88dB 20Hz		90
<b>Diamond Acoustics Ref III</b> £895	Average Good+	Lovely freestander suffers from indifferent bass alignment, but is fast, coherent, solid and very informative indeed.	87 x 27.5 x 28cm well clear of walls	90dB 30Hz (in room)	R	106

## LOUDSPEAKERS

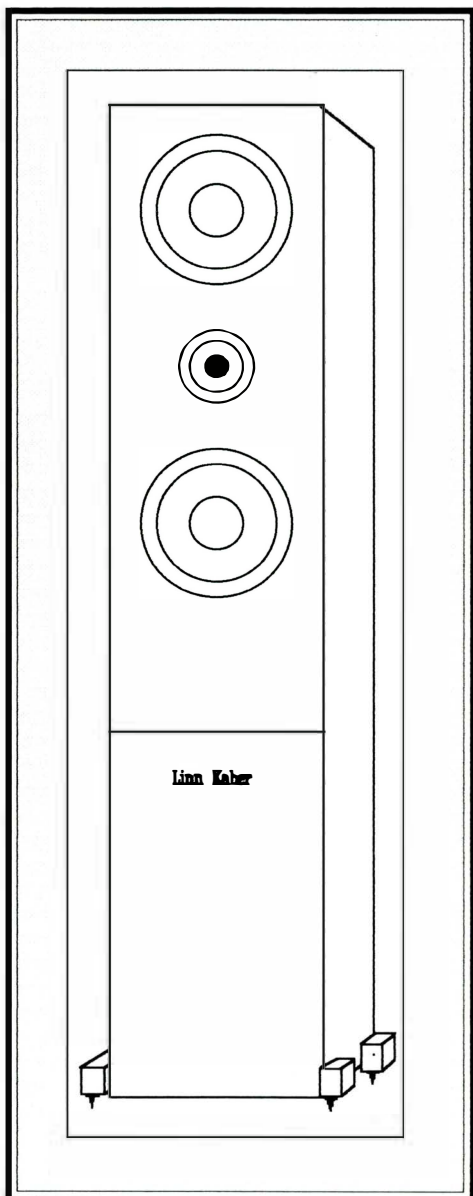
MODEL PRICE	LAB SOUND	COMMENTS	SIZE PLACEMENT	SENSITIVITY BASS FROM	VALUE	ISSUE
<b>Eltax Linear Response 8</b> £399	Average- Average+	Good material value Danish floorstander suffers from 'loudness contour' balance due to twin main drivers, but nevertheless has pleasing coherence	97 x 21 x 33cm floor, free space	88dB 22Hz		98
<b>Epos ES11</b> £330	Good Good+	Pretty luxury compact uses integral baffle/driver to give a remarkable combination of low coloration, transparency and speed; bass is a bit shy	37.5 x 20 x 25cm stands 1ft from wall	86dB 45Hz (in room)	BB	94
<b>Epos ES14</b> £485	Good Very Good	Substantial stand mount model delivers delightful midrange focus and delicacy with good bass control. Tends to be system sensitive	49 x 22.5 x 29cm own stands 1-2ft from wa	85dB 25Hz (in room)	R	98
<b>Faraday FS5</b> £589	Good Good	Priced and ugly, but with its own sonic charm nonetheless, thanks to the substantial (largely positive) influence of the concrete enclosure has upon the sound	46x27x26cm stands in free space	90dB 28Hz (in room)		102
<b>Faraday Siren</b> £330 (d)	Average- Average-	Interesting if ugly high mass concrete cabinet is let down by imbalance of ageing driver combination	46 x 27 x 27cm stands, free space	87dB 48Hz (in room)		94
<b>Genexxa SE100</b> £150	Average Average	Pretty little Tandy-stocked miniature is attractively lively, coherent and communicative, but could do with more grunt and welly and lower coloration	28 x 15.5 x 19cm close to wall	84dB 50Hz (in room)		110
<b>Goodmans B-Max/Maxim 2</b> £100/£9	Poor Average -	Stick with the Maxims on their own until you can afford some real grown up loudspeakers	60 x 21 x 26 see above, suck and see	89dB 55Hz (in room)		78
<b>Goodmans M100</b> £80	Average + Average -	Effectively a Maxim on the cheap, the M100 measures more smoothly but sounds somehow less involving than its more famous stablemate.	20 x 17 x 26cm close to rear wall	85dB 50Hz (in room)	R	86
<b>Goodmans M300</b> £110	Average Average -	Conveying much of the charm and life which has made the Maxim 2 so popular, the M300 is sensitive, bu hampered by upper bass cabinet coloration	38.5 x 21.5 x 17cm stands close to rear	89dB 50Hz (in room)	R	82
<b>Goodmans M500</b> £130	Average Average-	Large 'bookshelf' size means plenty of speaker for the money plus good sensitivity. let down by unruly mid/bass performance and indifferent build	47 x 24.5 x 21.5cm stands, free space	89dB 50Hz (in room)		94
<b>Goodmans Maxim 3</b> £110	Good Average	Smooth and accomplished wall-mount miniature makes a worthy replacement for the bestselling Maxim 2	26 x 17 x 21cm stands against wall	85dB 50Hz (in room)	R	106
<b>Harbeth HL Compact</b> £584	Very Good Average	The clean and neutral sound lacks resolution and gives rather unsubtle though well differentiated stereo. Can be bi-wired to advantage	52 x 27.2 x 28.1cm open space, on high	87dB 65Hz		59
<b>Harbeth LS3/5A</b> £379	Good Average	Still a classic miniature, though not to every taste, and none the better for the recent update under our listening conditions. Limited dynamic range	30.5 x 19 x 16cm stands in free space	81dB 60Hz		66
<b>Heco Presto Superior 750</b> £600	Good+ Average	Tall slim and attractive floorstander delivers a fine, even in-room balance but lacks transparency, coherence and dynamic drive	95 x 24 x 27cm clear of walls	87dB 22Hz (in room)		106
<b>Heco Reflex 10</b> £160	Average+ Average	This nicely balanced and well mannered small bookshelf wall-mount is a competent rather than exceptional package for the price, thanks to indifferent build.	32x21x23cm stands up to 1ft fro	90dB 30Hz (in room)		102
<b>Heco Superior 740</b> £599	Good Good -	A similar sonic package to the cheaper Interior 530, these Superior clothes are very pretty indeed, though spikes are still awaited	84.5 x 22 x 25cm on floor in free space	88dB 30Hz (in room)		78
<b>Heco Superior 940</b> £999	Good Good	This large and beautifully finished floorstander has an impressively smooth and transparent midband. Bass is well extended but follows rather than drives the music	110 x 26 x 31.5cm free space	88dB 20Hz		86
<b>Heybrook HB1 S3</b> £250	Average+ Good	Latest version of long established favourite delivers good liveliness and fine coherence for the price, even though the shape looks a bit dated	47 x 29 x 24cm HBS1 stands close(ish) to	88dB 30Hz (z in room)	BB	98
<b>Heybrook HB100</b> £300	Average + Good	Well matched for wall siting, the HB100 is a lively and informative performer in the tradition of the popular HB1	47 x 26 x 28cm stands near rear wall	86dB 50Hz	BB	66
<b>Heybrook Prima</b> £120	Average+ Average+	Neat and discreet miniature delivers fine coherence, pace and timing, though balance is a trifle forward and bass a bit light	29 x 19.5 x 18cm close to wall	86dB 50Hz (in room)	R	110
<b>Heybrook Sextet</b> £1079	Good Very Good	Elegant floorstanding 3-way is engagingly coherent and a highly analytical, partly due to distinct and not always comfortable upper-mid forwardness.	96x27x20cm close to wall	85dB 25Hz (in room)	R	102
<b>Heybrook Solo</b> £159	Average + Average +	Discreetly styled wallmount sounds a little untidy in both bass and treble but handles complex rhythmic material much better than most	36 x 23 x 22cm HBS1 stands close to wall	87dB 28Hz	R	90
<b>Infinity Kappa 6</b> £795	Good Good	Interestingly styled US loudspeaker has unusual high tech drivers and good neutrality, but the sound seriously lacks excitement	63 x 38 x 24cm stands, free space	85dB 35Hz		66
<b>Infinity Kappa 8</b> £1850	n/a Very Good	Very nicely made and unobtrusive but large four-way speakers which have a tendency to sound bass heavy unless used with solid core cables	118 x 51.5 x 17.5cm floor standing, open	89dB 33Hz		72
<b>Infinity Modulus</b> £695	Good Average +	Luxury high-tech miniature, carefully conceived and beautifully built. Undeniably attractive in the mid and treble, it failed to handle the bass as successfully	30 x 18 x 26cm high stands 1ft from wall	84dB 45Hz (in room)		86
<b>Infinity RS2001</b> £180	Average Average +	A little coloured and unruly in the treble, the 2001 nevertheless retains the lively dynamic bounce of its predecessor; pity the price has gone up	36.5 x 22.5 x 20cm lightweight stands	87dB 50Hz (in room)	R	78
<b>Infinity Reference 10</b> £149	Average Average	Follows the Infinity tradition in providing an engaging and lively sound from a prettily finished and substantial small bookshelf size model	36 x 23 x 23cm stands in free space	87dB 50Hz (in room)	R	98
<b>Infinity Reference 20</b> £220	Good Average	Large bookshelf size model is well presented and balanced with good bass control, but somehow lacks convincing cohesion and agility; build was slightly suspect too.	46x27x24cm stands 1-2ft from wa	88dB 27Hz (in room)		102
<b>Infinity Reference 30</b> £330	Good Good	Drivers from Ref 20 in box from Ref 50 creates a well balanced and extended floorstander at a very competitive price	85 x 26.5 x 25cm clear of walls	87dB 25Hz (in room)	R	106
<b>Infinity Reference 50</b> £499	Average Average-	Despite hi-tech drivers, attractive presentation, good bass extension and sensitivity, this three-way floorstander suffers from a forward, coloured sound	86 x 26.5 x 25cm floor in free space	89dB 25Hz (in room)		98
<b>JBL Control 1 Plus</b> £206	Average Average	Sub-miniature with forward midrange and no real bass; highish price partly justified by cute, near-indestructible Pro styling and build	23 x 15.5 x 14cm close to rear wall	89dB 50Hz		90
<b>JBL LX33</b> £270	Average + Good	A bit of a cheat, but a lot of speaker for the money, which manages a better room balance than many 'large bookshelf' rivals, and delivers a fine acoustic	80 x 25 x 21cm floor, 1ft from wall	89dB 48Hz	R	82
<b>JBL LX44</b> £350	Good - Average	This generously built model offers good power handling, bass extension and dynamic range, but suffers from the 'three-way syndrome', with middle muddle	58.5 x 30 x 29cm stands in free space	89dB 40Hz		71
<b>JBL LX55</b> £400	Good Average	This big bluff three-way provides lots of speaker, bandwidth and loudness for the asking price, but is ultimately a bit of a dinosaur	66x34.5x29cm stands clear of wall	91dB below 20Hz (in room)		102
<b>JBL XE2</b> £160	Average- Average-	Budget Danish-built 'bookshelf' model has anomalous 'laid back' balance and lacks the genuine JBL spirit	38 x 23 x 23cm stands in free space	88dB 48Hz (in room)		98
<b>JPW AP2</b> £180	Good Average	Good size bookshelf model offers real wood veneer at a bargain price; performance is cleaner but broadly comparable to P1 Vinyl overall	43.5 x 25.5 x 26cm stands in free space	86dB 45Hz (in room)	R	106
<b>JPW AP3</b> £225	Good Average +	Pretty good stereo and well balanced overall it had its own character which is well suited to vinyl replay	52 x 25 x 29.5cm near wall on stands	90dB 57Hz	R	46
<b>JPW Minim</b> £79	Average + Average -	Very civilised but dynamically limited, the Minim is well suited to the smaller room and where limited loudness is acceptable	27.5 x 18 x 19.5cm stands against wall	85dB 28Hz (in room)	R	82
<b>JPW P1</b> £155	Good Average +	Honest and basically articulate if not very sophisticated, resolution is good but it can sound a little wearing in bright systems	44 x 25.9 x 26.1cm free space on stands	89dB 60Hz	R	59
<b>JPW P1 Vinyl</b> £135	Good Average	Not particularly pretty, this is still a lot of highly competent loudspeaker for the price, with a safe and middle-of-the-road sound that's unlikely to disappoint.	43.5x25.5x26cm stands 1-2ft from wall	87dB 32Hz (in room)	BB	102
<b>JPW Sonata</b> £115	Good Average +	Well balanced and integrated, this near-miniature offers fine sound if limited bass and dynamic range, plus real tree wood at a nearly silly price	32 x 23 x 20cm stands near rear wall	86dB 55Hz	BB	71
<b>JPW Sonata Plus</b> £135	Average Average -	This luxury variation on the redoubtable Sonata theme features a metal dome tweeter, and is not the better for it	32 x 23 x 21cm about 1ft from wall	87dB 30Hz		90

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## LOUDSPEAKERS

MODEL PRICE	LAB SOUND	COMMENTS	SIZE PLACEMENT	SENSITIVITY BASS FROM	VALUE	ISSUE
<b>JRT AD1</b> £500 (s)	Average + Good +	A most auspicious Choice debut for relative newcomers JRT. A fair share of cosmetic deficiencies do little to spoil the impressive coherence and timing	59.5 x 28 x 36cm own stands close to rear	86dB 28Hz (in room)	R	86
<b>JRT AD1 Micro</b> £389	Average Good	Beautiful bijou miniature has delightful life and coherence and gives surprising impression of scale; some aggressive tendencies but very open to system tuning	28 x 17 x 21cm stands against wall	87dB 50Hz (in room)	R	94
<b>Jamo Concert II</b> £300	Good Average -	A thoroughly respectable "bookshelf" performer that needs free space sitting but includes attractive cabinetwork and a neat grille	41 x 24 x 25cm stands in free space	85dB 48Hz		66
<b>Jamo Concert V</b> £500	Average Average	Compact, solid, nicely finished floorstander delivers unusually extended bass at the expense of lowish sensitivity; midband is smooth but laid back	86x24x28cm well clear of walls	85dB below 20Hz (in room)		102
<b>Jamo Concert VII</b> £800	Average+ Average	Beautifully built large floorstander uses unusual double reflex bass system, unsuccessfully as far as low frequency resolution is concerned	96 x 28 x 31.5cm floor, free standing	87dB 25Hz (in room)		94
<b>Jamo Cornet 40</b> £110	Average- Average	Pretty little Danish-built miniature with respectable rather than exceptional sound quality for the price	32 x 20 x 22cm stands 1-2ft from wall	86dB 48Hz (in room)		98
<b>Jamo Cornet 50</b> £150	Average Average+	Good value bookshelf size speaker has a rough and ready sound but good heart, engaging liveliness and fair timing	42 x 23 x 22.5cm away from wall	87dB 28Hz (in room)	R	110
<b>Jordan JH400</b> £504	Average- Average+	Beautiful piano finish hexagon has single full range driver and controversial sound, with uneven balance but delightful mid coherence	33 x 24 x 30.5cm 1-2ft from wall	83dB 50Hz (in room)	R	106
<b>KEF 104/2</b> £1,295	Very Good Very Good	A reference point for dynamics, preferred without KUBE, suited to many rooms. Good stereo, high sound level	90 x 28 x 41.5cm floor standing in free spa	92dB 50Hz	R	60
<b>KEF K120</b> £159	Good Average	Physically pretty and sonically competent but undistinguished medium bookshelf size model has good sensitivity but limited extension	34 x 20.5 x 26cm 1ft from wall	87dB 45Hz (in room)		106
<b>KEF Q60</b> £379	Good Good	Uni-Q co-axial driver provides fine imaging and mid coherence, while magnet decoupling reduces cabinet coloration. Bass not entirely convincing	48x25x27cm stands close to wall	90dB 25Hz (in room)	R	102
<b>KEF Q80</b> £499	Good Average+	Uni-Q floorstander has good stereo and fine midband coherence, but bass lacks extension, drive and resolution	85 x 24.5 x 26.5cm free space	87dB 45Hz (in room)		106
<b>Kammerzelt Reference Mini Monitor</b>	Average+ Good	Lovely miniature has a beguilingly sweet sound with good pace and drive, but scale is restricted and presence a little dulled considering the high price	27x17x24cm stands 1-2ft from wa	85dB 50Hz (in room)		94
<b>Kenwood LS-770E</b> £260	Good Good	Impressively communicative made-in-Japan large bookshelf size model has fine vigour, scale and dynamics, if not the smoothest sound around	48 x 27 x 25cm stands in free space	89dB 25Hz (in room)	R	106
<b>Lindley New Age</b> £1100	Average - Average +	Attractively different presentation with classy finish, this tall cylindrical floorstander has fine bass extension but a rather uneven overall balance	105 x 23 x 23cm clear of walls	86dB 25Hz		90
<b>Linn Helix II</b> £357 (s)	Good Good+	Ku-Stone supported, this is one of the best 'large bookshelf' size models around. Dry, controlled bass and very open, if slightly aggressive balance.	57x24x30cm KuStones 1-2ft from	88dB 33Hz (in room)	R	102
<b>Linn Index II/KuStone</b> £110	Good Good	Stand and speaker looks and sounds very good for the price, good bass extension and control, fine dynamic range. Clean, clear if a shade slow	44 x 21 x 23.5cm (box only) close to rear	86dB 28Hz	BB	90
<b>Linn Kaber LS500</b> £1198	Average Good +	Wall-mount package trades sensitivity for fine bass extension and midbass performance; little relentless but has prodigious dynamic capabilities	93 x 19 x 28cm floor against rear wall	86dB 28Hz (in room)	R	82
<b>Linn Kan II</b> £495	Average + Average +	A niche product for those prepared to tolerate its strong character for the sake of its fine bass performance and near invisibility	30.5 x 18.5 x 16.5cm Kan stands against	82dB 35Hz (in room)		78
<b>Linn Nexus LS250</b> £458	Good Average	Good features include a solid, meaty bass plus good imagery and tonal balance. The catch is that Nexus lacks resolution and timing	49 x 23.5 x 30.4cm near rear wall	89dB 60Hz		59
<b>Magneplanar MG1.4</b> £1090	Good + Good +	Replaces the stalwart MG1c with a revised panel layout. Offers a very crisp and articulate sound, particularly revealing of upper mid vocal details	155 x 8 x 57cm open space	88dB 40Hz	R	72
<b>Magneplanar SMGa</b> £688	Average - Average	Tonally 'rich', in the right room it proved a satisfactory musical experience	122 x 48 x 4.5cm on floor clear of wall	85dB 56Hz		46
<b>Marantz LD-50DMS</b> £230	Very Good Good	Well behaved larger two-way has fine balance, stereo and integration with good bass extension, albeit with mild boxy, chesty and fizzy effects	106 x 22 x 32cm floor, free space	88dB 30Hz (in room)	R	71
<b>Martin Logan CLS II</b> £3998	n/a Very Good	Much improved high resolution design, fussy about system set-up and demanding of ancillaries and software alike. It rewards the efforts though	60 x 28 x 7.5cm open space	86dB 45Hz	R	72
<b>Meridian Argent 1</b> £995	Good+ Good+	Beautifully built, finished and shaped but pricey compact has fine bass extension and virtual absence of 'boxiness'; needs a big amplifier	33 x 27(max) x 27(max)cm Slate stan	83dB 28Hz (in room)		98
<b>Meridian Argent 2</b> £875	Good+ Good	Beautiful but pricey high-tech 'large compact' delivers extended, smooth and neutral sound with 'fair speed'. Slate Audio stands are almost essential	48.5 x 21 x 29.5cm stands free space	85dB 23Hz (in room)		94
<b>Meridian M30</b> £950	Average + Average	Pricey but easy on the ears and worth considering especially where space is at a premium	38.5 x 18 x 32cm free space on stands	AcdB 40Hz		46
<b>Mission 760i</b> £120	Average+ Average+	Attractively styled little wall-mount miniature has livelier dynamics and bass drive than most of its type, but sounds as little shut in	29.5 x 18 x 20cm close to wall	87dB 48Hz	R	110
<b>Mission 761i</b> £170	Good Average	760 theme adds an extra main driver for easier amp loading and power handling. Sound judged slightly inferior to its simpler, cheaper stablemate.	38x19x24cm stands close to wall	88dB 48Hz (in room)		102
<b>Mission 762</b> £230	Average Average -	Mission's 'bookshelf middleweight' offers high sensitivity and loudness capability, but at the expense of a somewhat untidy and rather 'heavy' sound	50 x 25 x 27cm stand, experiment advised	91dB 55Hz		66
<b>Mission 763</b> £350	Average + Average +	A very artful combination of generous volume and good bass extension at a modest price. Works well in the listening room despite a few rough edges	77 x 25 x 32cm near rear wall	86dB 40Hz	BB	68
<b>Mission 764i</b> £450	Good Average	Despite improvements, this large floorstander still lacks low frequency authority, which is probably a function of its comparatively modest price	88.5x25x32.5 1ft from wall	87dB 20Hz		94
<b>Mission 765i</b> £700	Good Average+	Big heavyweight floorstander has good sensitivity and bandwidth, but somehow lacks agility, authority and dynamic grip	102 x 25 x 33cm clear of walls	91dB 22Hz		110
<b>Mission Cyrus 780</b> £180	Good Average +	Pricey but very pretty miniature based on Mission 760 but with beefed up box and crossover network to enhance sound quality still further	29 x 18 x 26cm light stands close to wall	88dB 50Hz	R	90
<b>Mission Cyrus 781</b> £250	Average + Good	Properly run in, the pretty little 781 delivers a fast, dynamic and informative sound which more than justifies its price.	43 x 22.5 x 28cm matching stands 1ft	88dB 28Hz (in room)	R	86
<b>Mission Cyrus 782</b> £350 (s)	Good - Good -	Lively, articulate and beautifully finished, this compact wall-mount model with twin main drivers has good integration but a rather rich, 'Loudness' balance	50 x 25 x 32.5cm Cyrus stands near wall	90dB 50Hz		71
<b>Monitor Audio MA700 Gold</b> £400	Good Average	Lovely luxury compact does a good job of voice reproduction, but sounds a bit lazy and off the tempo with faster, busier material	35 x 21.5 x 25cm clear of walls	85dB 50Hz		110
<b>Monitor Audio MA1800</b> £1400	Good Average +	Attractive and beautifully finished, even when ballasted with lead shot the 1800 inclines towards upper bass richness and lacks genuine extension	106 x 22 x 32cm floor, free space	88dB 30Hz (in room)		81
<b>Monitor Audio Monitor 11</b> £330	Average Good	This tall and slim and attractive free space compact has an extra driver to help out in the bass, giving extra urge at some price in delicacy	52 x 20 x 24cm stands free space	87dB 48Hz (in room)	R	94
<b>Monitor Audio Monitor 14</b> £400	Average Average	Floorstanding version of M11 suffers from excess upper bass, giving a thick, chesty coloration beneath a quite lively and well focused mid and treble	78 x 20 x 24cm floor well clear of walls	86dB 30Hz (in room)		98
<b>Monitor Audio Monitor 7</b> £180	Average - Average	This lively and punchy near-miniature looks pretty enough and is good value but is let down by an unruly and indifferently integrated tweeter	34 x 16.5 x 17cm stands 1ft from wall	84dB 70Hz		74

## LOUDSPEAKERS

MODEL PRICE	LAB SOUND	COMMENTS	SIZE PLACEMENT	SENSITIVITY BASS FROM	VALUE	ISSUE
<b>Monitor Audio Monitor 9</b> £220	Good Average	Despite a much better treble balance than the 7, the Monitor 9 is less engaging and lively at low frequencies than its smaller sibling	37 x 20 x 21cm high stands near wall	85dB 30Hz		78
<b>Monitor Audio Monitor One</b> £150ewoo	Average+ Average+	Pricy but very cute little micro-miniature just about gets away with it sonically, though performance envelope is inevitably limited	24 x 15 x 16cm stands against wall	85dB 55Hz (in room)	R	106
<b>Monitor Audio Studio 10</b> £1200	Average Average +	Expensive, luxury build/finish and all-metal driver diaphragms provide engagingly transparent midrange and treble, spoilt by over-strong mid-bass.	40 x 20 x 25cm heavy stands clear of wall	87dB 45Hz		90
<b>Monitor Audio Studio 15</b> £1,600	Average+ Good	A little slow and lazy but better balanced than the smaller Studio models, the midband coherence and focus is superb, but it aint cheap	51x20x26cm free space	87dB 45Hz (in room)	R	102
<b>Monitor Audio Studio 5</b> £700	Average+ Average+	All metal diaphragm luxury miniature has splendid presence coherence but sound can be aggressive and lacks welly.	32 x 18 x 20cm stands close to wall	83dB 28Hz (in room)		98
<b>Mordaunt-Short 5.10</b> £119	Good Average	Plenty of well engineered speaker for the money, and smoother than most of the competition, but lacks timing and enthusiasm	30.5 x 18.5 x 21.5cm c20cm from wall	85dB 50Hz		110
<b>Mordaunt-Short 5.30</b> £200	Average+ Average-	Good hi-tech material value for money, but a disappointingly dull and rather bland sound. Safe but uninspiring.	42.5 x 25 x 28cm stands clear of walls	86dB 28Hz (in room)		106
<b>Mordaunt-Short 5.40</b> £299	Average+ Good	Elegant near-floorstander has an even balance that makes it very easy on the ears, yet also inviting and informative	64 x 21.5 x 26.5cm low stand clear of walls	85dB 28Hz	R	110
<b>Mordaunt-Short Classic 20</b> £395	Average+ Average+	Luxuriously finished compact delivers beguiling mid transparency but bass is altogether less convincing — one for the carpet slippers generation perhaps	37x22x27cm stands in free space	86dB 45Hz (in room)		102
<b>NAD 8100</b> £300	Average+ Average+	Floorstanding variation on attractive 8225 miniature adds some half convincing extra bass thump and saves the price of stands - very cost effective	75 x 20 x 25cm floor clear of walls	88dB 25Hz (in room)	R	98
<b>NAD 8225</b> £150	Good Average +	Notwithstanding lacklustre styling and an unprepossessing appearance, this NAD miniature has a smooth and even midband plus an appealing overall jauntiness.	34 x 20 x 18cm stands close to wall	87dB 45Hz (in room)	R	86
<b>NVA Cube 1</b> £600 (s)	Good - Good +	Attractive, cube-shaped semi-omni is very sturdily built, and gives an idiosyncratic but unusually open, spacious and informative sound	33 x 32 x 32cm own stands c0.5m from wa	85dB 52Hz	R	71
<b>NVA Cube 2</b> £380	Average Good	A rude but exciting miniature, with unusually accomplished bass capabilities for its size	28.5 x 27 x 28.5cm NVA stands against wall	85dB 48Hz (in room)	R	82
<b>NVA Cubix</b> £1100	Average Good	Too idiosyncratic for formal recommendation, the Cubix possesses remarkable bass extension for its size, but is tricky to optimise	60 x 32.5 x 32.5cm	84dB 28Hz (in room)		78
<b>Naim NA IBL</b> £798	Average+ Good	This tiny floorstanding wall mount delivers outstanding dynamics, speed and detail, marred by pronounced upper mid forwardness	80x18x15-20 against wall	84dB 30Hz		94
<b>Naim SBL</b> £1475	Good Very Good	Impressive scale full bandwidth coheren an attractively discrete floor standing wall-mount coloured midband very well balanced and agile with it.	88x26.5x17-27cm close to wall	86dB 25Hz (in room)	R	102
<b>Neat Petite</b> £525	Average Good+	Pricy and far from perfect, this near miniature is nevertheless one of the most entertaining and enjoyable speakers around, colorations notwithstanding.	30.5x20x18cm stands close to wall	86dB 33Hz (in room)	R	102
<b>Nobis DM7</b> £560	Average+ Good	Pretty but pricy US bookshelf size model has more than enough speed, timing and coherence to make up for a measure of coloration	38 x 21.5 x 28.5cm 30-60cm from wall	85dB 25Hz		110
<b>Opus 3 Capella</b> £599	Good Good	The sound of this Scandinavian curiosity certainly benefits from the crushed marble enclosure, though presentation is strictly DIY	32 x 40.5 x 26(ave)cm amongst books in	86dB 45Hz		66
<b>Opus 3 Credo</b> £399	Average Average	Credo's odd-shaped silicate-based cabinet confers good box and bass performance, but the sound could be more neutral for the price	32 x 28 x 32cm stands in free space	88dB 65Hz		74
<b>Origin Live OL1</b> £499	Very Good Good	Luxury miniature has very good overall balance, sacrificing sensitivity to achieve remarkable bass extension for the box size	30.5 x 19 x 21cm stands close to wall	82dB 25Hz (in room)		106
<b>Pearl &amp; Oakley Victoria 200</b> £1099	Average - Average -	Extraordinary — and to many very attractive — 'ginger jar' presentation in Staffordshire ceramics, but let down by need for further acoustic development	93 x 33 x 33cm on floor in free space	87dB 30Hz (in room)		78
<b>Philips FB820</b> £470	Good Average	Big-but-less-than-beautiful three-way is well enough balanced but lacks communication skills in the time domain	86 x 27 x 35cm floor clear of walls	87dB 28Hz (in room)		98
<b>Philips FB825</b> £700	Good Good	Generous sounding and impressively uncongested for the type, loudness and bass extension don't quite match the large and rather plasticky box	110 x 29 x 41cm on cones clear of walls	88dB 25Hz	R	90
<b>Professional Monitor Co LB1</b> £998	Good+ Good+	Delightful smoothness and transparency distinguishes this classy compact, though bass extension and sensitivity are both limited	53.5 x 18 x 26cm high stand well clea	86dB 33Hz	R	110
<b>QLN Model One</b> £700	Good Average	Similar to Signature at two thirds the price, Model One exaggerates the latter's rich and heavy midbass and lacks its velvet smoothness	35 x (16-25) x (21-27)cm pillar	85dB 28Hz (in room)		82
<b>QLN Signature</b> £1100	Good Good	Beautiful but expensive luxury compact has a rather laid back and 'heavy' sound, but coloration is low and stereo imaging very good	37 x 18 x 36cm heavy stands in free space	83dB 30Hz (in room)		78
<b>Quad ESL-63</b> £2072	Good + Very Good	With its unusual but subtle characteristics this classic electrostatic may not be punchy in the bass, but has strengths that some cannot live without	92 x 66 x 27cm open stand well clear of	84dB 34Hz	R	60
<b>RAM Hermes</b> £425	Average- Average+	Slim small floorstander is a bit tall for its footprint. Good sensitivity is combined with an attractively lively sound, but it's uneven and not truly coherent	70 x 21.5 x 23cm floor, freestanding	91dB 45Hz (in room)		94
<b>RCF Mytho 3</b> £1,395	Average Average+	Undoubtedly very attractive and well built, incorporating a number of unusual and interesting ideas, the highish price isn't really justified by the performance.	100x21.5x30cm away from walls	88dB 25Hz (in room)		102
<b>Rega ELA</b> £405	Average+ Good	Very compact floorstander with integral stand has serious coherence and dynamics, but a measure of brightness and untidiness	84.5 x 20 x 30cm c20cm from wall	86dB 30Hz	R	110
<b>Richard Allan CD5</b> £176	Average - Average -	This neatly presented small reflex design can sound engagingly communicative, but is flawed sonically and technically and quite expensive too	38 x 19 x 23cm on rigid stands	88dB 80Hz		68
<b>Rogers LS2a/2</b> £220	Good+ Good	Balance is a bit warm and rich but 2a/2 has delightful mid-to-treble coherence and transparency, and more welly than Mk1	35.5 x 23 x 22cm stands clear of walls	84dB 30Hz (in room)	BB	106
<b>Rogers LS4a/2</b> £300	Good Average+	Very civilised but a trifle lazy with it, this large bookshelf size model hasn't quite the timing or agility to be particularly engrossing or exciting	43 x 25.5 x 25.5cm clear of walls	86dB 25Hz		110
<b>Rogers LS8a</b> £450	Average + Average +	This modestly priced floorstander is a mixed bag, with plenty of scale and welly but lacking the subtlety, clarity and agility delivered by some rivals	89x25.5x25cm clear of walls	91dB 48Hz (in room)		102
<b>Rogers Studio 1a</b> £599	Very Good Good -	The classic BBC monitor style sound sensitively updated — transparent and natural with fine stereo, but a touch 'heavy' in balance	63.5 x 30.5 x 30.5cm stands in free space	87dB 36Hz	R	66
<b>Roksan Darius</b> £1569 (	Good Very Good	Now totally realigned, the current Darius provides an exceptionally impressive combination of transparency and delicacy with fine information retrieval and speed	47 x 27 x 40cm own stands angled in spa	82dB 20Hz	R	86
<b>Royd A14 II</b> £199	Average Good	Not the smoothest or prettiest around, this is still an informative if sometimes aggressive large bookshelf model, with plenty of welly for the price	40 x 26 x 23cm stands 1ft from wall	87dB 30Hz (in room)	R	94
<b>Royd A7 Series 11</b> £115	Average + Average	Lively clear sound; good upper bass and dynamics, but treble "ramp" made vocals sound shut in. Try before you buy	31 x 20 x 17cm shelf or 50cm stands near	86dB 75Hz	R	53
<b>Royd Apex</b> £500	Average + Good	Not the smoothest sound around, it more than compensates with an impressively communicative and informative musical presentation	85.5 x 20 x 30cm on floor close to wall	87dB 33Hz (in room)	R	78
<b>Royd Eden</b> £245	Average Average +	Delightful mid/treble speed and transparency but determinedly bass light, this oddball miniature threatens cult status but could use a sweeter tweeter	31 x 20.5 x 18.5cm stands close to wall	87dB 85Hz	R	66



## LOUDSPEAKERS

MODEL PRICE	LAB SOUND	COMMENTS	SIZE PLACEMENT	SENSITIVITY BASS FRDM	VALUE	ISSUE
<b>Royd Sapphire</b> £200	Average+ Good-	Neat little miniature sounds a touch cold and thin but unusual main driver delivers remarkable speed and coherence for such a reasonably priced model	30.5 x 20.5 x 21cm frame stands 1ft fro	88dB 28Hz (in room)	R	98
<b>Royd Sintra</b> £330	Average + Good	Balance is bass light and a little bright, but superb dynamics, speed and timing make this luxury miniature musically very informative and satisfying	30.5 x 20.5 x 19cm stands close to wall	88dB 50Hz	R	90
<b>Ruark Swordsman</b> £219	Good Average	Very attractively styled and finished, the Swordsman is a well built 'small bookshelf' model that delivered better test than listening results	38.5 x 20 x 27.5cm stands 0.5m from wal	84dB 50Hz		71
<b>Ruark Swordsman Plus</b> £269	Good Average	This real wood variation on the established Swordsman theme looks and measures rather better than it sounds, probably due to rather prosaic drivers	38 x 20 x 28cm stands 1-2ft from wall	84dB 27Hz (in room)		98
<b>Ruark Talisman</b> £629	Average Good	Clever and beautifully finished compact floorstander has some coloration but is impressively informative and communicative, with fine pace and timing	83.5 x 21.5 x 31 (max) cm close to rear wal	86dB 30Hz	R	90
<b>SD Acoustics DBS</b> £865]	Average Good	Recent changes have added some refinement to a seductive midrange, good timing and fine sensitivity, though bass extension is limited and coloration obvious	102 x 35 x 25cm floor, angled, away from	92dB 30Hz (in room)	R	82
<b>SD Acoustics Ribbon</b> £2295	Average Good +	A little underdeveloped and rather amplifier sensitive, Ribbon is a lively and loud hybrid marred by some colorations; some like it, others don't	152 x 30 x (15-30)cm floor, angled, away	91dB 30Hz (in room)		81
<b>SD Acoustics SD1</b> £1650	Average Very Good	A large scale, airy and unusually detailed system with excellent dynamics. Current model has more civilised top-end and warmer balance than original model	123.5 x 38.2 x 31.9cm free space	90dB 50Hz	R	60
<b>SD Acoustics SD3</b> £399	Good Good	Port firmly blocked, the new SD3 has the agility and charm of a quality miniature, with good bass extension but low sensitivity	38 x 19.5 x 29cm stands 1ft from wall	83dB 25Hz (in room)	R	106
<b>Seventh Veil System IV</b> £1290 (	Average Good +	Lacks welly and loudness but delivers astonishing results with female vocals in particular. Antithesis of the 'good allrounder'	72 x 44 x 21 x 29cm own-stands close to	84dB 28Hz (in room)	R	86
<b>Shahinian Arc</b> £1062	Average Good	Unusual and occasionally wonderful small floorstanding omni; too bright but exceptionally coherent and revealing	69 x 35 x 25cm well clear of walls	85dB 24Hz		110
<b>Shan Shimna</b> £315	Average+ Good-	Pretty little miniature with resin-based enclosure has a bright, thin but sweet and communicative sound; loudness and welly are both limited	31 x 21 x 17cm own stands 1ft from wall	84dB 48Hz (in room)	R	98
<b>Sony APM-101ES</b> £100	Good Average	Big hearted sound from small bookshelf successor to BB '10ES, sounds a little untidy at frequency extremes, so suits CD better than vinyl	39.5 x 22.5 x 23.5cm stands, free space	86dB 52Hz	R	71
<b>Sony APM-121ES</b> £150	Average Average -	Good perceived high tech value, but the balance has an artificial 'loudness' character, too rich in the bass and too strong in the treble	43 x 25 x 28cm stands, free space	86dB 25Hz (in room)		86
<b>Sony APM-141ES</b> £200	Average Average	A great deal of loudspeaker for the money, the rich sounding '141 needs a big room and still shows significant 'loudness' (boom'n'tizz) tendencies	61.5 x 26 x 32cm stands in plenty of	88dB 30Hz (in room)	R	78
<b>Sony APM-181ES</b> £300	Very Good Average	Big and beefy but equally fat and bass heavy, this well engineered 3-way has notable strengths but lacks transparency and sounds better at lower levels	57.5 x 29 x 36cm low stands, free space	87dB 40Hz		71
<b>Spendor S20</b> £510	Very Good Good	This solid and elegant luxury compact maintains Spendor's tradition for peerless mid-to-treble coherence and perspectives. Bass is rather unconvincing.	38x22x26cm stands 1-2ft from wa	83dB 25Hz (in room)	R	102
<b>Spica Angelus</b> £1295	Good Average	A little bass shy and soft in the bass and lower mid, the free standing Angelus is otherwise tidy, extremely lively and fluid, if uneven overall	116.8 x 53.3 x 26cm away from walls	86dB 50Hz		60
<b>Spica TC50</b> £599	Good - Good	This triangular-profile 'grown up' miniature is a shade boxy and laid back but has good rhythmic and musical integrity	40.5 x 33 x 29cm stands in open space	88dB 55Hz		71
<b>Spica TC50SE</b> £799	Good - Good	A heavily UK-modified TC50, the SE sounds less boxy and more spacious, but lacks some of the urgency of the standard model	40.5 x 33 x 29cm stands in open space	88dB 55Hz		71
<b>Studio Power DMS100</b> £249	Average + Average +	Close to a BB rating, and in many respects remarkable value for money. Delivers an impressively smooth and large sound, but sheer ugliness will limit its appeal	51 x 26 x 32cm open stands 1ft from wall	86dB 25Hz (in room)	R	82
<b>TDL Monitor</b> £1999	Very Good Very Good	Fine solidity and good accuracy, with enough bass extension to satisfy even organ freaks. Needs a big room and can sound a bit lazy and a shade tinkly	118.5 x 30 x 47cm 0.5m from walls	85dB 28Hz	R	66
<b>TDL Studio 0.5</b> £450	Average Good	This tiny floorstanding transmission line has good agility but doesn't provide the coherence or even balance of the slightly bigger Studio 1	55 x 20 x 30cm own stand, free space	85dB 40Hz (in room)		94
<b>TDL Studio 1</b> £650	Average + Good	Delivering genuinely extended bass from a compact floorstanding enclosure, the Studio is very detailed but a shade clinical and detached in presentation	76 x 23 x 33cm Free space	84dB 25Hz (in room)	R	78
<b>Tannoy 603</b> £120	Average+ Average+	Pretty hexagonal cabinet miniature is optimised for free space siting and delivers fine imaging with little boxiness, but little in the way of welly and power either.	33.5x22(max)x16cm high stands in free	85dB 45Hz (in room)	R	102
<b>Tannoy 605</b> £150	Good Average+	Largish bookshelf size hexagon is potentially fine performer, though unusual stand sensitivity makes optimisation difficult	40 x 27.5 x 18cm stands 1-2ft from wall	85dB 25Hz (in room)	R	106
<b>Tannoy 609</b> £250	Good Good	Distinctive hexagonal cabinet reduces box colorations, and new dual concentric driver is sweeter than its predecessors, making this one very superior speaker	50x32(max)x22cm stands clear of wall	90dB 25Hz (in room)	BB	102
<b>Tannoy 611</b> £399	Good Average	This compact floorstander would seem to have plenty going for it, but somehow failed to gel musically under our listening conditions	72 x 32 x 24cm clear of walls	92dB 25Hz		110
<b>Tannoy Westminster</b> £3600	n/a Good +	These awesome horn loaded speakers are remarkably controlled and impressive, if only suited to a few pockets and rooms	Huge, flat against rear wall, away from	96dB	R	Coll '87
<b>Technics SB-EX2</b> £180	Average- Average	Nicely presented, well built and decent size enclosure sounds solid but somewhat dull, thanks presumably to rather ordinary, low cost drivers	48 x 23.5 x 27cm stands clear of wall	86dB 20Hz (in room)		98
<b>Technics SB-RX50</b> £650	Very Good Average +	With its unique coaxial drive unit the RX50 proved a smooth and well balanced loudspeaker, its minor weakness being a mildly excessive low bass	48 x 30 x 26cm free space on 40cm stands	86dB 40Hz	R	46
<b>Townshend Glastonbury IIS*</b> £1700	n/a Very Good	What? No bass? Actually, like the KEF 107, Glastonbury II goes down so low you might not notice how good it is. A truly remarkable performer. Superb	91.5 x 28 x 4.6 free standing in room	88dB 27Hz	R	65
<b>Townshend Glastonbury Tor</b> £1495	Average - Very Good	Prodigious bass extension, stunning stereo focus and low cabinet coloration, but limited loudness from low sensitivity and power handling	99 x 26.5 x 33cm well clear of walls	82dB below 20Hz	R	90
<b>Vandersteen Model One</b> £1000	Average + Average +	This compact American floorstander's elegant staggered baffle arrangement contributes to a refreshing freedom from boxiness, but the price is quite high	100 x 30.7 x 25.6cm floor clear of walls	87dB 23Hz (in room)		86
<b>Vecteur Premiere</b> £695	Average Good	Expensive for its material content, this pretty French compact nevertheless has a beguiling sound quality that indicates painstaking development	34 x 19.5 x 25cm light stands clear of wall	88dB 48Hz (in room)		98
<b>Videotone Minimax 2</b> £80	Poor Average -	Cheap in build and QC as well as price, but cheerful (if coarse) with it – if a little too cheerful after extended listening	27.5 x 17 x 20cm near rear wall	84dB 90Hz	R	74
<b>Visonik David 6001</b> £173	Average - Poor	Sharp styling a classy looking miniature makes, but the complex grillwork worsens a sound which starts off with too much top and not enough bottom	20 x 12 x 13cm against rear wall	87dB 130Hz		74
<b>Wharfedale 410</b> £130	Good Average-	One step up from the Diamond, this attractive and sensitive small bookshelf model sounds smoother but is also rather bland and uninvolving	34.5 x 22 x 22.5cm stand against wall	89dB 45Hz (in room)		94
<b>Wharfedale 505.2M</b> £260	Average+ Good-	Luxury red mahogany finish version of 505.2, confirms that this well balanced design remains fully competitive nearly three years after the original	44 x 25.5 x 25.5cm stands in free space	87dB 45Hz (in room)	R	98
<b>Wharfedale 505/2</b> £190	Average Good	This lively Wharfedale provides plenty of speaker with unusual refinement for the money, and should be fairly tolerant of room siting	44 x 25.5 x 24cm stands 1ft from wall	86dB 55Hz	BB	66
<b>Wharfedale 515</b> £260	Good Good	Effectively a technical update on the continuing 505 theme, this is still more evenhanded, with better bass extension and smoother treble.	40 x 25.5 x 30cm stands clear of walls	85dB 28Hz (in room)	R	106

## LOUDSPEAKERS

MODEL PRICE	LAB SOUND	COMMENTS	SIZE PLACEMENT	SENSITIVITY BASS FROM	VALUE	ISSUE
<b>Wharfedale 517</b> £400	Good Average	Similar to the 515 but half as big again, the hefty 517 should offer an improvement, but somehow has a less effective overall subjective balance	53 x 26.5 x 34 stands clear of wall	86dB 25Hz		110
<b>Wharfedale Coleridge C</b> £600	Good Good	Very prettily dressed and sounds pretty good as well, though whether enough to justify the £600 pricetag is open to debate. Well balanced, smooth and a little dull.	48x25.5x25.5cm stands clear of wall	86dB 30Hz (in room)		102
<b>Wharfedale Delta 30.2</b> £100	Average- Average	This hundred pounder has a bigger main driver than many of its rivals, and so packs a bit more welly and loudness. Coloration is rather obvious, but timing is good	38 x 22 x 17cm stands close to wall	88dB 48Hz (in room)	BB	98
<b>Wharfedale Diamond IV</b> £109	Good Average +	Thanks to a new metal dome tweeter, the new Diamond is much more civilised than its predecessors, with an attractive lively bounce but some boxiness	27 x 18 x 18.5cm stands close to wall	86dB 48Hz	R	90
<b>Yamaha NS 1000M</b> £900	Good Good +	Living up to its monitor label, and tonally well suited to digital material, the NS 1000M is superbly crafted and capable of high levels	67.5 x 37.5 x 32.5cm 30cm from wall, stan	90dB 40Hz	R	46
<b>Zyp A1</b> £199	Average Average+	Cute metal cased micro-miniature is quite coloured but great fun, with surprising dynamics and fine wall-loaded room balance	22.5 x 14.5 x 13 close to wall	85dB 30Hz	R	110

## LOUDSPEAKERS - SATELLITE AND SUBWOOFER SYSTEMS

Satellite and subwoofer systems, sometimes referred to as three way systems, consist of a small pair of speakers (the satellites) and an extra box (or two) to handle the low frequencies.

Most systems use a single sub-woofer to supply low bass output, although stereo sub-woofer systems are available. By freeing the main speakers of the necessity of generating deep bass they can be made much smaller than a standard design and as a result sat and

sub systems are usually visually unobtrusive.

Positioning of the sub-woofer is usually not as critical as the positioning of a conventional speaker and as a result the largest part of the system can be hidden away entirely, although please refer to the placement notes below as this does not apply to every system.

In general the sonic performance of these systems will fall below the performance of a good, comparably priced, conventional speaker. The value ratings given below are judged in the

context of sat and sub woofer systems only and are not judged by the same criteria as the main speakers, thus a Recommended sat and sub system probably won't sound as good as a Recommended traditional speaker.

If you are prepared to compromise slightly in terms of sound quality then a satellite and sub-woofer system might represent a good solution for those situations where the loudspeaker should be heard but not seen.

## LOUDSPEAKERS - SATELLITE AND SUBWOOFER SYSTEMS

MODEL PRICE	LAB SOUND	COMMENTS	SIZE (cm) PLACEMENT	SENSITIVITY BASS FROM	VALUE	ISSUE
<b>Allison MS 205</b> £420	Average Good -	Tasty high quality satellites give this quite pricey 3-box system a touch of class. Subwoofer is very compact and only slightly boomy.	25.5x14.5x15 + 29x 29x36 stands close to wall	86dB 30Hz	R	104
<b>Bose Acoustimass AM3</b> £289	Average Average	Ultra compact 3-box is well balanced though limited in loudness and bass. Tiny satellites are a bit fierce, and grilles unhelpful	9x11x11 + 20x37x19 close to wall	85dB 48Hz		104
<b>Bose Acoustimass AM5</b> £569	Average + Average +	Pricey but cleverly engineered 3-box system is well balanced and uses tiny twin-driver satellites to good effect	16x7.7x12 + 36x19x48 sats at wall, sub 2ft from wall	85dB 40Hz	R	104
<b>Heco Libero</b> £375	Average Average	Attractive 3-box package uses neat metal satellites with versatile mounting accessories, but subwoofer is boomy in the midbass	18x11x12 + 21x55x 31.5 uncritical	85dB 45Hz		104
<b>Jamo SW/SAT300</b> £300	Average Average	Attractively finished 3-box package has 'tunable' subwoofer that allows boom to be minimised and a good balance achieved	21x15x8 + 21x48x34.5 uncritical	85dB 40Hz	R	104
<b>RSS Solid/Bass Station</b> £550	Average Average	Multi-driver macho subwoofer adds mucho muscle to Solid satellites, but it's much more midbass than serious extension	24x12x12 + 47x 4& x 20 sub at wall, sats in free space	91dB 45Hz		104
<b>Wharfedale 2130</b> £300	Average Average +	3-box system marred by indifferent boomy subwoofer but rescued by novel wide-dispersion satellites that give an open sound	14x24x11 + 19x32x 50 sub away from wall	86dB 48Hz	R	104

## PERSONAL STEREOS

Whilst not exactly hi-fi components, personal stereos probably play more music to more ears than all manner of domestic systems and as such demand some attention.

Now that personal CD players have joined the ubiquitous Walkman in the market, the variety and standard of sound quality is huge, with obscurely named cassette players practically falling out of your cornflakes packet and the top Discmen going for £300 or more.

Despite their diminutive size personals attempt to incorporate as many gimmicks and features as possible, cassette players often incorporating tuners, Dolby noise reduction or

even graphic equalisers.

CD players are don't tend to vary that much on the features front, rather the amount and quality of accessories differs. Rechargeable batteries are extremely useful and increasingly popular, some can now be recharged within the unit and charge capacities are also being increased. Most models come with a mains adaptor, which in some cases doubles as a battery charger and some include a wired remote control. A few are now appearing with infra-red remote control.

Sound quality on the cassette front seems to have a proportional relationship to price and

integrity of construction – wow and flutter being quite obvious on the cheaper models.

CD players become less noisy as they get dearer and also reduce in size; one drawback of the latter seems to be that immunity to shock suffers as a consequence, although newer models are starting to buck this trend. Cassette players do, on the whole, seem better suited to the outdoor life than their digital counterparts, as does the software. Bear in mind that the sound and lab ratings given below cannot realistically be compared to those in other categories or between cassette and CD personals

## PERSONAL CASSETTES

MODEL PRICE	SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Aiwa HS P505MkII</b> £70	Good	Very good clutch of features and accessories plus good sound at a reasonable price. Could be more user friendly	Remote control, rechargeable battery and charger	BB	102
<b>Aiwa HS-PL707</b> £135	Very Good	Has a precise, attractive sound, if a little clinical and cold. This player might be ideal for the user who will listen to mostly classical music. Somewhat fiddly to use	Remote control, BBE sound enhancer, charger & battery	R	102
<b>Aiwa HS-JX705</b> £220	Good	Rather expensive radio-equipped player. Sound quality on tape playback didn't match up to the Aiwa HS-PL707	FM/AM tuner, recording mic remote control, charger		102
<b>Panasonic RQS15</b> £85	Good	Considerable power and immediacy to the music though with some raggedness. Good features and accessories. Well designed and easy to use	Remote control, rechargeable battery and charger	R	102
<b>Panasonic RQV520</b> £100	Good	Features an onboard radio without sacrificing sound quality on tape playback. You lose out on accessories, though (no battery charger)	Radio, remote control, bass enhancer		102
<b>Panasonic RQS65</b> £130	Good+	Solid, warm sound plus a good selection of features and accessories all combined in a stylish and very user friendly package. Comes with one of the better remote controls	Remote control, rechargeable battery and charger	R	102
<b>Sanyo MGR401D</b> £40	Average-	Easy to use budget model with a radio and some useful features (including a simplified remote control). Sound quality on tape isn't great but is helped by the bass enhancer	Radio, remote control, bass enhancer with graphic equaliser		102

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## PERSONAL CASSETTES

MODEL PRICE	SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Sanyo MGR580</b> £50	Poor	A more sophisticated radio than on Sanyo's 401D but the feature count is low and the tape playback unexceptional	Radio 'digital tuner', auto reverse		102
<b>Sanyo SPT1000</b> £40	Average	Despite outlandish colourful trim and features completely unrelated to audio enjoyment (a 'Pedometer' for monitoring jogging) this has a better basic sound than the other Sanyos	Bass enhancer		102
<b>Sharp JC-510</b> £30	Average	Serviceable sound quality and some decent features at a low price	Radio, bass enhancer, auto reverse		102
<b>Sharp JC-K99</b> £160	Good-	Sharp's 'extremely lightweight' model. Well made, elegant and it certainly doesn't weigh a lot. Pleasant sound, marred on the test sample by some distortion	Remote, rechargeable battery and charger, bass enhancer		102
<b>Sony WM DD33</b> £90	Good-	Well built and resistant to vibration on the move but comes with very limited features and accessories for the price	Bass enhancer		102
<b>Sony WM EX80</b> £150	Good	User friendly Sony with a good remote control and high quality, accurate sound. Comes with all the extras	Remote control, rechargeable battery and charger	R	102
<b>Sony WM DD99</b> £240	Good-	Mixed bag of accessories (nice headphone storage system, but no remote control) with variable sound quality at a steep price. But it does have Dolby B&C, good build quality and ergonomics	Dolby B&C, rechargeable battery and charger, auto reverse		102
<b>Sony Walkman Pro</b> £249	Very Good	One of the finest sounding cassette decks on the market today. A mandatory Best Buy, it takes other personals to the cleaners (except on weight and power consumption)	Dolby B, C, types I, II & IV, record, line in/out, varispeed	BB	52/56

## PERSONAL CDS

MODEL PRICE	SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Aiwa XP-6</b> £150	Good	Punchy sound both via headphones and when used in a system but transport lets the side down a bit - not one to take out jogging	Digital output, mains adaptor, remote, headphones	R	106
<b>Denon DCP-100</b> £250	Good	Solidly constructed and nicely finished in the slightly impractical Velvex, almost walkable, competent if uninspiring sound quality	Remote, mains adaptor, no earphones, rechargeable batts		94 Supp.
<b>Denon DCP-50</b> £180	Average +	Not very walkable, but lightweight and nicely finished in a nextel like grey. Sound through a system is a tad unexciting but not too bad	No headphones, remote, mains adaptor		94 Supp.
<b>Goodmans GCD-10</b> £120	Average -	Cheap, flashy and not short on accessories, the GCD-10 is a rather noisy player that left a lot to be desired on the sound quality front	Mains adaptor, headphones		66
<b>Kenwood DPC-41</b> £130	Average -	Lightweight, not very walkable but nice control layout. Sound through the phones is on the thin side, through the line output it's pretty average for a portable	Mains adaptor, rechargeable batts headphones		94 Supp.
<b>Kenwood DPC-81</b> £200	Good +	Chunky metal cased player that makes pretty confident sounds through a system but sounds dry via earphones and ain't exactly walkable	Remote control, mains charger and batts, digital output		94 Supp.
<b>Philips AZ6897</b> £200	Good +	Unusually designed and equipped with a radio the Philips is almost joggable, it sounds remarkably good via a system and a little cautious through the phones	Mains adaptor with built in plug, wired remote, clock, headphones	BB	94 Supp.
<b>Philips AZ6819</b> £300	Excellent	Unusual looking machine with interesting radio headphones. Excellent sound quality but not one to walk with, superb styling	Radio headphones, rechargeables, plinth, infra-red remote	BB	106
<b>Samsung MY-CD2</b> £110	Poor	Cheap and not particularly cheerful, minimum of facilities and naff sound quality, could suit those on a very tight budget	Headphones, mains adaptor		106
<b>Sanyo CP-12</b> £260	Good +	Sonically amongst the more enjoyable CD players and capable of revealing the musical aspects of a disc in an interesting and entertaining fashion	Wired remote, headphones main adaptor	R	66
<b>Sony D-11</b> £135	Average -	Chunky player with old fashioned styling, a rather lightweight sound and limited dynamic range.	Headphones, AC adaptor bass boost		106
<b>Sony D-202</b> £160	Average +	Good sound quality twinned with relatively good portability accounts for the recommendation, can also sound OK in a main system. Nice entry level machine	Headphones, AC adaptor rechargeables, remote, digital out	R	106
<b>Sony D-303</b> £280	Excellent	Tidy design with adequate features but not as cluttered as the D-350. Excellent sound quality and will even serve as a CD transport	Headphones, AC adaptor rechargeables, remote, digital out	BB	106
<b>Sony D-350</b> £300	Good	More buttons and widgets than any of the others but not the sound quality or walkability to go with it	Mains adaptor, clock, rechargeable batteries		94 Supp.
<b>Sony D-66</b> £180	Average +	One of the few walkable CD players on the market, sound quality is a little muddled but not offensive	Mains adaptor, rechargeable battery pack	R	94 Supp.
<b>Technics SL-XP1</b> £140	Good +	Remarkably competent and enjoyable player that you can actually use on the move and sounds enthusiastic through a domestic system	Rechargeable batts, mains adaptor/charger, headphones	BB	94 Supp.
<b>Technics SL-XP505</b> £180	Average -	Excellent transport makes this one of the most stable players on the market and the infra-red remote control is a nice bonus. Sound quality leaves a little to be desired	Headphones, AC adaptor rechargeables, infra-red remote		106
<b>Technics SL-XPS900</b> £280	Excellent	Great sound quality both via phones and in the home backed up with an impressive array of accessories. Transport is not up to use on the move	Headphones, AC adaptor rechargeables, infra-red remote	R	106

## TUNERS

The radio medium operates at a much lower profile than TV, but in areas outside pop music the BBC service is the envy of the world. Live Prom concerts can rival all other sources from a hi-fi perspective.

Only the FM (VHF) bands give stereo hi-fi sound, though AM (MW & LW) are useful for certain transmissions in the UK.

Something of a hi-fi afterthought, tuners are often selected merely to match a chosen amplifier

cosmetically. However, the task they carry out is far from simple (or cheap), 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. For more information on choosing and aerial see the feature in issue 108

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 hold many station positions in pre-set memories. (The Lab and Sound results for models tested in issue No. 65 refer to FM only. For AM results see under Comments.)

## TUNERS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Aiwa XT-003</b> £105	Average	Economically designed and built in the UK, but trade-offs have a marked influence on FM and AM sound quality.	FM/AM digital, 30 presets, no signal strength meters.		93 Supp.
<b>Akai AT-56L</b> £170	Good	Listenable, but not exciting, was the overall verdict - it had no gross flaws but failed to capture the imagination	FM/MW/LW digital, 20 presets, 2 aerial sockets, switchable IF bandwidth		108
<b>Akai AT-93L</b> £250	Good +	By AM standards presentable (good) while FM delivers the goods	All bands, aerial switch	R	65

## TUNERS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Arcam Alpha 2</b> £185	Good Average+	Re-styled to blend in with the Alpha system, Arcam's cheapest tuner makes up for its lack of features with a sensitive front-end and mellow sound.	FM/AM analogue, no presets, manual tuning + AFC	R	93 Supp.
<b>Arcam Delta 80</b> £340	Very Good Very Good	Hi-fi sound on FM, good on AM, a dependable British all-rounder	6AM, 6FM presets. FM/MW/ LW display, manual tune	BB	55
<b>Aura TU-50</b> £230	Good Good	Tonally neutral, but with rather poor imaging and a certain woodenness to the sound.	FM digital, 16 presets		109
<b>Creek T40s3</b> £220	Average+ Average	Creek's FM-only analogue tuner is now in series 3 form, though the aesthetics remain unchanged. Ours was hampered by an obvious bass 'hump' though production units are said to be cured.	FM-only analogue, no presets, manual tuning + AFC		93 Supp.
<b>Denon TU-260L</b> £100	Very Good Good+	A new cheapie from Denon with the bare minimum of features. Careful designwork promises a surprisingly open and vivacious sound, so don't overlook it!	FM/AM digital, 20 presets, manual and auto tuning.	BB	93 Supp.
<b>Denon TU-660L</b> £190	Good Good	Not so successful under 'ideal' conditions, the '660 nevertheless made a fair fist of real reception, if a little muddled and lacking life.	FM/MW/LW digital, 30 presets, switchable IF bandwidth, remote	R	108
<b>Harman Kardon Citation 23</b> £600	Good Very Good	Fine performance, interesting features and ease of use are this tuner's forte, and the sound quality is top notch	FM/AM seek/manual adjustment muting 16 presets remote control	R	60
<b>Harman Kardon TU9200</b> £170	Average Average	The listening panel appreciated its liveliness, but found it a little muddled. Excessive pilot tone breakthrough may be distressing to listeners under 30 and indicates some design slip-up.	FM/MW digital, 16 + 16 presets		109
<b>Harman Kardon TU9400</b> £250	Good Very Good	Striking in appearance and with a sound to match, this new digital tuner comfortably exceeded our expectations. On stereo FM it's HK's best yet.	FM/AM digital, 24 presets, auto-tuning, signal strength meter	R	93 Supp.
<b>Harman Kardon TU9600</b> £299	Average Good	Good bass and detail, and good - perhaps slightly 'enhanced' - dynamics, but measured performance is odd in normal mode and poor in 'Active Tracking' mode.	FM/MW digital, remote control, 24 presets, 2 aerial sockets		109
<b>Linx Theta</b> £475	Good Very Good	A Magnum Dynalab on the cheap with the hallmark styling of this small British newcomer. Some of the best midrange from any tuner	Manual analogue tuning, no presets, signal strength meter	R	72
<b>Magnum Dynalab FT101</b> £599	Good Very Good	Although expensive for its fairly minimum set of facilities, its excellent sound makes up for what it lacks elsewhere	Analogue manual tuning, no presets, signal strength meter	R	72
<b>Marantz ST-40L</b> £140	Average + Good	A little slow to tune but once accomplished it provides a meaty and dynamic sound on FM. AM too has a little extra bite to its performance	FM/AM digital, 30 presets, manual/auto tuning	R	93 Supp.
<b>Meridian 204</b> £660	Good + Good	Pleasant sounding with a fine finish but does not make the grade at this price	FM only, auto scan, digital, remote, timer		55
<b>Naim NAT 01</b> £1377	Very Good Excellent	There may be better sounding tuners in the world, but we have yet to hear one	No presets. Two box, flywheel tuning, FM only, Analogue	R	50
<b>NAD 4225</b> £160	Good Good ++	Slightly edgy at times and a tad coloured too, but the sound is so free and open that the tuner must be regarded as one of the most enjoyable models of its type.	FM/MW digital, 14 presets.	BB	108
<b>Nakamichi Tuner 2</b> £350	Good Good +	Generally a believable sound with good detail in complex music, but imaging is not 100%. The price seems rather high for the performance offered.	FM digital, 30 presets, switchable IF bandwidth		109
<b>Nakamichi ST-7E</b> £765	Good + Good +	Exceptionally good for weak-signal areas, and good all round	16 AM/FM presets, auto time digital		55
<b>Pioneer F-676</b> £200	Good + Good ++	Pioneer's extensive homework on the design seems to have paid off in a tuner that's detailed and clean-sounding. Perhaps a little bright, but not unpleasant.	FM/MW digital, 36 presets, switchable IF bandwidth, 2 aerial sockets	R	108
<b>Pioneer F91</b> £360	Excellent Good +	Easy to use, this model has excellent RF performance and scored very high ratings on the listening tests	FM/AM 24 presets	R	60
<b>Quad FM4</b> £399	Very Good Good +	Fine sound, excellent ease of use, good build and finish and a more than satisfactory technical performance	7 presets. Digital	R	50
<b>Revox B260</b> £1120	Excellent Very Good	Sophisticated and expensive, the B260 is ideally suited to the rest of the Revox range and should also work well in other systems	FM - virtually everything	R	60
<b>Rotel RT-930AX</b> £150	Good Good -	A competent rather than exciting performer, with low audible interference though slightly compressed and muddled sound.	FM/MW/LW digital, 20 presets	R	108
<b>SAE T-102</b> £449	Good + Good +	Expensive for all the radio you get, but sounds interesting. AM - poor	FM/MW only	R	65
<b>Sony ST-S530ES</b> £200	Good+ Good	The cheaper version of Sony's revered '730 certainly looks and feels the part but its sound is, well, less startling. Civilised, yes, but lacks much enthusiasm.	FM/AM digital, 30 presets, hi-blend + Cal tone + manual/auto tuning.		93 Supp.
<b>Sony ST-S570ES</b> £200	Good Average	A host of features, but the sound is muddled, compressed and lacking in frequency extremes.	FM/MW/LW digital, 30 presets, RDS, switchable IF bandwidth		109
<b>Technics ST-G70L</b> £200	Good+ Good+	Another very polite and refined-sounding tuner but one that does retain just enough sparkle to keep your interest. Plenty of widgets to play with too...	FM/AM digital, 39 presets, selectable RF/IF + fine tuning, signal str. mtr.	R	93 Supp.
<b>Yamaha TX-950</b> £260	Good + Good +	Very clean and civilised - a bit too much so for one listener. But tonal balance, detail and clarity are all very good; lots of useful features add to its value.	FM/MW digital, up to 40 presets, switchable IF bandwidth, 2 aerial sockets	R	108

## TURNTABLES - CARTRIDGES

Very much the 'slave' of turntable and tonearm and to some extent undermined by the supply of free 'starter' cartridges on many turntables, the cartridge is still worth taking seriously. The quality of both the stylus itself and the cartridge's tracking performance are important in preserving that most important part of the hi-fi system - the records - and the cartridge also plays a significant role in determining the system balance.

Cartridges fall into two groups: high output models, capable of working directly into any amplifier, and more expensive low output models. 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. Most under-£150 amplifiers and many valve designs need either an extra head amp or

transformer to cope with the low output

Cartridge/amplifier interfacing can be very subtle, but even basic high output MM designs benefit in overall balance from optimised amplifier capacitance loading. Still more important, the mechanical cartridge characteristic of cantilever compliance ('springiness') needs to be considered in the light of the effective mass of the tonearm.

## TURNTABLES - CARTRIDGES

MODEL PRICE	LAB SOUND	COMMENTS	ARM EFFECTIVE MASS OUTPUT/TYPE	VALUE	ISSUE
<b>Arcam C77</b> £22	Average + Average +	A sensible moving magnet package with good bounce at a competitive price	6-16g Normal, MM	BB	48
<b>Arcam C77Mg</b> £30	Average - Average	Punchy sound quality with plenty of extra energy to liven things up. The solid body seems well worth the extra £10	4-8g Normal, MM	BB	67
<b>Arcam E77Mg</b> £50	Average Average	Our sample had a disappointing stylus, but gave a coherent, rich and laid back sound, with good 'scale'	3-8gN Normal, MM	R	48
<b>Arcam P77Mg</b> £60	Average + Average +	Cautiously recommended, the P77Mg was preferred to its cheaper partner by virtue of a better tip. Channel balance could have been better	4-9g Normal, MM	R	48
<b>Arcam PMX10</b> £100	Good + Very Good	Not the very clearest in complex high-frequency sounds, but lively and exciting, good transients	5-11g Low, MC	R	85

# The Directory

## TURNTABLES - CARTRIDGES

MODEL PRICE	LAB SOUND	COMMENTS	ARM EFFECTIVE MASS OUTPUT/TYPE	VALUE	ISSUE
<b>Audio Note IO2VDH</b> £1295	Good Very Good	One of the best, giving 'an extraordinarily relaxing midrange clarity', needs a transformer	8-18g Very low, MC	R	43
<b>Audio-Technica ART1</b> £800	Good + Very Good	This is a delicate and very fluid-sounding MC that tracks well, offers very low distortion and exceptionally good stereo separation	9-18g Low, MC	R	72
<b>Audio-Technica AT-420E</b> £35	Average Average	Better suited to pop recordings, this MM bears some of the sonic hallmarks of the Linn K5	7-14g (damp) Normal, MM	R	67
<b>Audio-Technica AT-95E</b> £19	Average - Average	Clear, dynamic if richly balanced, the magnetic '95E is a definite Best Buy	8-14g Normal, MM	BB	48
<b>Audio-Technica OC-10</b> £307	Good + Good +	Good treble and good detail too, but some congestion and coloration reduces its informativeness.	4-12g Low/MC	R	103
<b>Audio-Technica OC-5</b> £123	Good + Good	For the price, it's unusually effortless and detailed, but it tends to become rather relentless and tiring after a while.	5-14g Low/MC	R	103
<b>Audioquest AQ 404i-L</b> £400	Very Good Good +	Slight harshness detracted from the performance of this otherwise clear-sounding and detailed cartridge	8-16g Low, MC		84
<b>Audioquest AQ 7000</b> £1200	Good Good +	Stunning stereo imaging and good detail at low levels are spoiled by less-than-perfect tracking and high sensitivity to arms.	6-20g Low, MC		91
<b>Audioquest MC5</b> £220	Average Average	Offers high-output benefits but the drooping frequency response and severe VTA error preclude recommendation	10-20g Normal, MC		54
<b>Cello Chorale</b> £750	Average + Good	Now available through a new distributor at a saving of some £300, the Chorale is still blessed with a delicate but highly detailed treble. Arm matching is a problem	3-9g Low, MC		72
<b>Denon DL103</b> £99	Good Average +	An oldie but in many ways a goodie, the 103's good performance in bass and general 'life' is seriously let down by its spherical stylus which kills subtle details.	9-22g Low/MC		103
<b>Denon DL110</b> £69	Good Good	Firmly recommended as a fine all-rounder, this high-output moving coil model is likely to perform well in nearly all circumstances	6-16g Normal, MC	BB	48
<b>Denon DL160</b> £89	Average + Good	Although listeners just preferred the 110, its brother here proved a twin in lab tests and is still "thoroughly competent"	6-16g Normal, MC		43
<b>Denon DL304</b> £200	Very Good Excellent	Uncoloured, detailed, neutral, superb tracking; top notch altogether, and a top notch bargain too.	4-12g Low/MC	R	103
<b>Dynavector 17D2</b> £280	Very Good Very Good	Clear, detailed, neutral and generally very informative - excellent .	6-18g Low, MC	R	91
<b>Dynavector DV-50X</b> £99	Good Average	A high-output MC model with impressive lab performance, but whose tip and sound quality both disappointed	6-14g Normal, MC	R	48
<b>Dynavector DV10X IV</b> £125	Average Average +	Fine sounding and realistically priced, damping is recommended to ensure successful tracking ability	8-18g (damping) Normal, MC	R	48
<b>Dynavector DV23RS</b> £230	Average + Good	Sound quality was described as "shut-in", lacking energy and sparkle but with some "edginess" in high frequencies	10-22g Low, MC		28
<b>Dynavector XX-1</b> £680	Very Good Good +	Good, but not immensely competitive at the price, and not helped by comparison with the low output version	7-15g Normal, MC		84
<b>Dynavector XX-1L</b> £680	Very Good Very Good	Very clear, very detailed, no troubles with tracking; response lift around 20kHz seems to do no harm	7-13g Low, MC	R	84
<b>Empire Benz Micro MC-Gold</b> £130	Good + Good	Nothing is obviously wrong, but nothing is stunningly right either and tracking isn't perfect. Safe, but perhaps a little too safe	7-17g Low/MC		103
<b>Empire Benz Micro MC-Silver</b> £130	Good Good	High output MC that though ultimately not the peer of the MCGold is more appropriate to the sort of equipment it's likely to be partnered with	8-18g Normal/MC	R	103
<b>Empire Benz-Micro MC-2</b> £699	Average Good +	Similar to both the Empire MC1000 and vdH MC2 in design, the Benz offers a warmer and very transparent account of the music. Its tracking prowess is slightly limited	5-12g Low, MC	R	72
<b>Glanz GMC-10EH</b> £50	Good Good	The rising HF trend of this high o/p MC may cause problems in certain systems but with a favourable wind its seductive qualities will win out	8-14g Normal, MC	R	67
<b>Glanz GMC-10LX</b> £80	Average + Average +	Bearing some of the hallmarks of the '10EH, the '10LX is still less competitive in the sonic stakes	7-15g Low, MC		67
<b>Glanz GMC-20E</b> £129	Good + Good +	Very good tracking, smooth sound and good detail. Very slight surface noise enhancement	5-10g Low, MC	R	91
<b>Glanz MFG-110EX</b> £25	Average Average	A little bright but giving detailed bass and clear treble, this was competitive at the price	6-16g Normal, MM	R	43
<b>Glanz MFG-310LX</b> £50	Good + Very Good	Detail and treble outstanding for sub-£100 cartridge. Slight coloration may be due to body resonance	6-10g Normal, MF	BB	85
<b>Glanz MFG-610LX</b> £90	Good + Good +	Similar to cheaper '310 but slightly clearer transients and bass. Benefits from lowish impedance loading	3-10g Normal, MF	R	85
<b>Goldmund Clearaudio</b> £1500	Average + Very Good	Something of a mixed bag overall, its sonic character bears a strong resemblance to the Pradikat though it shares some of the hallmarks of the more expensive Accurate	5-12g Low, MC		60
<b>Goldring 1012</b> £50	Good + Good	Slightly harsh sound but plenty of life and quite good detail. Some very high frequency coloration apparent	6-12g Normal, MM	R	85
<b>Goldring 1022</b> £70	Good + Good	As with 1012, a touch harsh; detail and transient purity improved, though, and it goes well with electric guitar!	5-11g Normal, MM	R	85
<b>Goldring 1042</b> £90	Good + Good	Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively, though	7-12g Normal, MM		91
<b>Goldring Elan</b> £20	Average + Average	A lightweight and frisky-sounding MM that appears to be based upon the same body as the Nagaoka mm4	7-15g Normal, MM	R	67
<b>Goldring Elite</b> £200	Good + Good	The basics are right, and the Elite will cheerfully tackle any source material, but its sound possesses a certain dirtiness which can irritate.	8-18g Low/MC		103
<b>Goldring Epic II</b> £32	Average Average +	An excellent budget choice though the limitations of the stylus are rather obvious at higher frequencies	5-12g Normal, MM	R	67
<b>Goldring Eroica H</b> £105	Good Good -	More confused and coloured than its low-output sibling - high output less of an issue in these days of cheap MC-compatible amplifiers	8-15g Normal, MC		84
<b>Goldring Eroica LX</b> £120	Good + Good	Not the most subtle cartridge in the world; can sound edgy at times, but lively and informative	8-14g Low, MC	R	84
<b>Goldring Excel</b> £549	Average + Good	Goldring's most expensive cartridge to date errs on the warm and heavy side of neutral. Strong bass lines are its forte though its ability to resolve subtle treble details is weaker	6-13g Low, MC		72
<b>Goldring Excel GS</b> £600	Very Good Good +	The Excel has some true high end quality in its lack of annoying colorations, but tracking seems indifferent and high levels tend to sound rough and edgy.	9-20g Low/MC		103
<b>Grado ZF3E + *</b> £47.50	Average - Average	Downtilting balance disguises the brightness of this cartridge; bit of a mixed bag at this price	9-20g (damping) Normal, MM		54
<b>Grado ZTE +1</b> £26.50	Average - Average	Bass and treble are a trifle coloured but the midband proved highly enjoyable. Ideal for budget systems	6-13g (damping) Normal, MM	R	54

## TURNTABLES - CARTRIDGES

MODEL PRICE	LAB SOUND	COMMENTS	ARM EFFECTIVE MASS OUTPUT/TYPE	VALUE	ISSUE
<b>Kiseki Blackheart</b> £1795	Good Good	This cartridge demonstrated refined poise and a delicate but at once potent security, however, the price did seem a little on the high side compared to other Kisekis	6-16g Low, MC		60
<b>Kiseki Blue Goldspot</b> £450	Very Good Good +	Good bass and imaging, but hints of spit and coloration let the side down slightly	8-15g Low, MC		84
<b>Kiseki Lapis Lazuli</b> £4000	Good Very Good	Combining very sensible design concepts at a silly price, the Lapis Lazuli is best thought of as combining the detail of the MC3000 and the fluidity of the Clearaudios	4-12g Low, MC		60
<b>Kiseki Purpleheart Sapphire</b> £799	Good + Good +	Rare, beautiful to look at and sweet to listen to, our review of this high-flyer conjured up images of Japanese art	5-14g Low, MC		48
<b>Koetsu Black S</b> £612	Average Good +	The S is an OEM design built to Koetsu's blueprint. It features a sturdier fixing plate and offers a brighter, faster and more tactile sound than the earlier K	8-15g Low, MC	R	72
<b>Linn Asaka</b> £373	Good + Good +	Disciples of Linn who are trying to realise their true "Karma" may find that saving money is not a short cut to heaven	9-18g Low, MC	R	Coll. '86
<b>Linn K5</b> £39	Average Average +	Not as crisply focused as the costlier Linn magnetics, the K5 offers a smoother presentation	7-16g Normal, MM	R	67
<b>Linn K9</b> £89	Average Good	Linn threw this model into the leading pack by beefing up the Basik's bodywork, adding a super stylus, and keeping the price fair	6-15g Normal, MM	BB	Coll. '86
<b>Linn Karma</b> £564	Very Good Very Good	A specialist which is strongly recommended for Linn-based systems; results may be less predictable in more general application	9-18g Low, MC	R	Coll. '86
<b>Linn Troika</b> £798	Very Good Good +	Good all-rounder, but still some hint of unhappiness at very high levels. Good imaging and bass.	6-18g Low, MC		91
<b>London Maroon</b> £149	Average Average +	Now manufactured under the London brandname this Decca cartridge is as iconoclastic as ever	9-20g (damping) Normal, MM		67
<b>London Super Gold</b> £300	Poor Average -	Immediate and (in the midrange at least) detailed, but very coloured, very nonlinear and questionable effect on records. Devotees swear by it	9-15g (damping) Normal, fixed stylus MM		84
<b>Milltek Aurora</b> £249	Good + Good +	An overall feeling of relaxed ease characterised this clear and atmospheric Kiseki-built cartridge	8-16g Normal, MC	R	Coll. '86
<b>Milltek Olympia</b> £349	Average + Good +	Warm and detailed sound - packs the punch of the best MCs with high output as a bonus	12-20g, (damping) Normal, MC	R	54
<b>Nagaoka MP10</b> £18	Average Average	High frequencies sounded "shut-in" with this spherical-stylus model, but mid and mass were energetic, bouncy and punchy	5-13g Normal, MM	R	48
<b>Nagaoka MP11 Boron</b> £40	Average Average +	Responding well overall in PM's equipment and listening room, this model was mildly criticised for low level and dynamic limitations	5-13g Normal, MM	BB	48
<b>Nagaoka MP11 Gold</b> £47	Average - Average +	There were mild criticisms directed at most areas, but in general the sound was clear, open and even	3-8g Normal, MM	R	48
<b>Ortofon 510</b> £30	Good Good +	For the price, a good blend of virtues - weight, clarity and neutrality.	3-11g Normal, MM	BB	85
<b>Ortofon 520</b> £50	Average Average +	Very sensitive to load capacitance this new Ortofon maintains the company tradition for a lively, effervescent SQ	7-16g Normal, MM	R	67
<b>Ortofon 530</b> £80	Good + Good +	Very clean and assured sound; transients not quite perfectly pure but plenty of detail.	4-11g Normal, MM	R	85
<b>Ortofon 540</b> £100	Average - Average	Graced with an advanced FGII stylus our sample possessed too high a compliance for broad arm matching. It could also sound a little unforgiving	3-8g Normal, MM		67
<b>Ortofon MC10 Super</b> £70	Average Good	"What a delightfully sweet-sounding cartridge this is..." we said	5-15g Low, MC	BB	48
<b>Ortofon MC15 Super</b> £100	Good + Very Good	A good all-rounder, with outstanding performance in detail retrieval, even if it can be very slightly bright and close-up at times.	10-24g Low/MC	BB	103
<b>Ortofon MC20 Super</b> £200	Average + Good +	An "inviting" sound quality; polite rather than exciting it approaches much more expensive models, but does not better them	6-15g Low, MC	R	Coll. '86
<b>Ortofon MC3 Turbo</b> £100	Average + Good	Not terribly subtle, but it obviously doesn't aim at that. The 3 Turbo is bright, cheerful and bouncy - take it as it comes!	10-24g Normal/MC	R	103
<b>Ortofon MC30 Super</b> £270	Very Good Good +	Beautifully engineered and well-balanced, it was slightly criticised as bland, though some may appreciate the lack of rough edges	5-14g Low, MC		Coll. '87
<b>Ortofon MC3000 MkII</b> £850	Very Good Excellent	Low levels of body resonance are a real ear-opener. Nothing to criticise elsewhere; one of the very best	9-16g Low, MC	R	84
<b>Ortofon MC5000</b> £1500	Good + Good +	Review sample could not be fully run-in, which might explain limited tracking ability and bright and forward sound, though imaging is excellent. Fussy about s.	12-20g Low, MC		91
<b>Ortofon Quartz</b> £120	Good + Good	Lively, quite detailed, and a touch bright, the Quartz has many qualities of the much dearer Quasar	3-12g Low, MC	R	91
<b>Ortofon Quasar</b> £300	Very Good Very Good	Many of the qualities of the MC3000, although a touch bright. Good detail and delicacy	8-15g Low, MC	R	84
<b>Ortofon Quattro</b> £200	Good + Good +	Undoubtedly a competent performer, the Quattro however seems a less obvious choice than the other Qs. Generally neutral, but can be edgy and bright in loud passages.	6-18g Low/MC		103
<b>RATA RP20</b> £22	Average - Average	Good integration, a clear dynamic midrange and the beginnings of fine stereo imagery merits clear recommendation	6-14g Normal, MM	R	48
<b>RATA RP40</b> £44	Average Average +	The '40 did a good job of sorting out the layers and complexity of the mix, with good focus, excellent stereo spread and fine scale	6-15g Normal, MM	R	48
<b>RATA RP70</b> £77*	Average Average +	Clearer and sweeter than the '40 this also seemed heavier and less lively. For £99 you can have a van den Hul stylus	6-14g Normal, MM		43
<b>Rega Bias</b> £34	Average Average +	Difficult to mount in some arms due to its shallow build, the bias offers a gentle, refined SQ that certainly makes it worthy of audition	4-10g Normal, MM		67
<b>Rega Elys</b> £74	Good Good	Clearly superior to the Bias, despite their common heritage, the Elys is both more detailed, accurate and musically convincing	8-15g Normal, MM	R	67
<b>Revolver</b> £20	Average + Average	This modified AT-95E enjoys a very lively mid and treble even if the bass is somewhat 'slower' in comparison. A firm budget buy	8-16g Normal, MM	BB	67
<b>Roksan Corus Black</b> £110	Good + Good	Recognisably related to Corus Blue, but distinctly more civilised and smoother.	7-12g Normal, MM	R	91
<b>Roksan Corus Blue</b> £65	Good + Good	Roksan-specified modified Goldring 1012; slight harshness detracts from otherwise good sound.	7-11g Normal, MM		91
<b>Shure M104E</b> £36	Average - Average	Capable in many ways, but giving no substantial improvement over the 92E in our view	5-15g Normal, MM		38
<b>Shure M105E</b> £49	Average Average -	A slightly 'spitty' sound lacking deep bass and dynamic contrast, but can be used in virtually every system where it will perform "unobtrusively"	5-12g Normal, MM		38 Summ

## TURNTABLES - CARTRIDGES

MODEL PRICE	LAB SOUND	COMMENTS	ARM EFFECTIVE MASS OUTPUT/TYPE	VALUE	ISSUE
<b>Shure M110HE</b> £60	Average	Sound quality was thought eminently presentable, but not exciting; smooth clear high frequencies, but a loss of bass definition	5-10g Normal, MM		38 Summ
<b>Shure M111HE</b> £72	Average	Early reviews of this cartridge complained principally of the price - which has since come down	5-10g Normal, MM		38 Summ
<b>Shure M92E</b> £17	Average -	Though lacking depth, the overall sound quality was competent, but treble was not its forte	10-15g Normal, MM		43
<b>Shure M99E</b> £29	Average -	Sister to the 92E this is a solid but not particularly exciting cartridge	5-10g Normal, MM		38 Summ
<b>Shure ME75ED</b> £26.50	Average	Rather bright and splashy in the high frequencies but nevertheless a competent model	5-10g Normal, MM		38
<b>Shure ME97HE</b> £49	Average	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	8-20g Normal, MM	R	48
<b>Shure ML120HE</b> £95	Average +	Quite decent sound quality and a generally fine balanced performance	6-18g Normal, MM		48
<b>Shure ML140HE</b> £120	Average +	Qualitatively the treble of this well-balanced moving magnet model was a match for many moving coil cartridges	6-16g Normal, MM		43
<b>Shure Ultra 500</b> £499	Good	There was no doubting the accomplishments of what could well be the finest moving magnet cartridge around	6-14g Normal, MM		48
<b>Shure V15 VMR</b> £215	Good	Initial listening gave promising results, but extended familiarity gave the feeling of a lack of energy and a "shut-in" sound	5-12g Normal, MM		38
<b>Shure VST V</b> £173	Very Good	Quite exceptional assurance with difficult material; very stable and clear sound. One of the best. Dynamic Stabilizer actually works!	4-11g Normal, MM	R	85
<b>van den Hul MC One</b> £699	Good	This extended all the positive qualities of the '10 but added greater authority and scale - worth it for the extra money	6-12g Low, MC	R	60
<b>van den Hul MC Two</b> £899	Good	Connected directly to any standard MM input the vdH MC Two rewards with a highly detailed yet fluid and musically convincing portrayal	6-13g Normal, MC	R	72
<b>van den Hul MC1 Super</b> £799	Very Good	Slight softening effect on transients was the only real flaw, but it didn't quite seem to have that special touch one expects for the money	8-15g Low, MC		84
<b>van den Hul MC10</b> £599	Good	A neutral balanced performer giving transparent midrange, fine depth and focus with firm extended bass. Gosh!	5-10g Low, MC	R	60
<b>van den Hul MM1</b> £200	Good +	If its wooden-sounding midrange coloration could be tamed, the excellent imaging and admirable all-round security of the MM1 would make it an excellent performer.	7-15g Low/MC	R	103

## TURNTABLES

The schizophrenic split between consumer electronics and 'real hi-fi' is most obvious amongst turntables. The former are supplied simply as a means of playing vinyl in a system context. Cheaply manufactured in the Far East, these are complete 'record players' with a variety of automatic facilities, sometimes tied into a system remote control. But engineering compromises usually severely limit sound quality, cartridge choice may be P-mount restricted, and nowadays such machines are rarely stocked by specialist hi-fi dealers.

Specialist turntables offer big sound quality improvements, but lack so-called convenience features (that practised users often find irksome). Such 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 'naturally sympathetic' combinations exist, and a good dealer can help. Listed separately as integrated players and

as motor units and tonearms, our sound quality rating is based on results achieved using a high quality system - but in point of fact the deck is usually the limiting factor soundwise in any system.

Lab performance rating summarises the speed stability, vibration generation and environmental isolation of turntables, along with the friction, alignment and adjustment of tonearms. The tonearm's physical characteristics also define a range of compatible cartridges.

## TURNTABLES - INTEGRATED

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES ARM EFF. MASS	VALUE	ISSUE
<b>Acoustic Research EB-101</b> £230	Good	This genuine high fidelity product offers an impressive package at a competitive price	Subchassis, manual, 13.5g	BB	48
<b>Alphason Sonata/HR-100S</b> MCS/Atlas £835/£550/£400	Very Good	Good sound in all areas - bass, clarity and neutrality all in the top class and bettered by very few decks. Atlas PSU expensive but worthwhile	Belt drive, suspended, optional PSU, 13g	R	79
<b>Ariston Pro</b> £160	Good	Remarkably clear and detailed for the price, very neutral. Benefits from cartridge upgrade	Manual, belt drive, 12g, cart.	BB	91
<b>Ariston Pro Maxim/RB250</b> £210	Average	Warm, full sound with a deep bass and solidity is partly offset by lack of fine detail in mid and top. On a suitable surface, with a crisp sounding cartridge, it easily qualifies for shortlisting	Solid plinth, belt drive, manual, 11.5g		103
<b>Ariston Q-Deck</b> £180	Good	Well engineered and good sounding low cost package which is both easy to set up and to use	Semi-auto, belt drive, solid, inc. cart	BB	67
<b>Dual CS-505-4</b> £170	Average	Easy to set up and to use, this is a consistent sounding and well isolated turntable with a long pedigree. It is slightly lacking in balls, but compensates with a consistently unmuddled presentation and good stereo focus perspectives.	Auto-armlift, interlocked cueing, 2 speed, pitch control	R	103
<b>Dual CS-750</b> £300	Average-	Attractive but lazy performance from a deck with many good ideas and which is a pleasure to use. Cartridge is past it's sell by date. Has 78rpm facility	Solid plinth, belt drive, cart. 3-speed, quartz referenced, auto lift		103
<b>Dual CS430</b> £100	Average	Ragged, sometimes unpleasant cartridge mixes with a modest pleasing player in a very sharply priced package	Belt drive, with cartridge, auto return, 5g	R	67
<b>Dual CS5000</b> £230	Average	The rare 78 facility may give grandma's collection a new lease of life but the player did not merit recommendation on price vs sound	Electronic, belt drive, subchassis, 10g		48
<b>Dual CS-503-2</b> £145	Good -	Not wholly inspiring; generally coarse and woolly sound is at least not offensive, but easily bettered by the CS505-4. Good value in material terms	Semi auto, belt drive, 10g	R	91
<b>Goldmund ST4</b> £4589	Very Good	The Studio turntable takes on a cheaper tonearm than the T3F, yet provides a similar reference standard performance at £2,000 less, in a neatly integrated though bulky package	Solid subchassis, direct drive, parallel arm, detachable h/shell	R	60
<b>Goldring Excelda 1</b> £160	Poor	Untidy, resonant sound, narrow effective dynamic range and lack of tracking security. The cartridge (the only authentic Goldring part) is quite nice	Manual integrated arm, synchronous motor, auto-start/stop		103
<b>Heybrook TT2 turntable &amp; arm</b> £469/£269	Average	A gradual process of informed evolution and a sensibly designed arm combine to make this a good sounding middle of the road package. Well supported by dealers	Manual subchassis motor with arm, R belt drive, 14g		67
<b>JVC AL-FQ555</b> £170	Average -	Clear midband sound but woolly bass and crude treble. Ease of use however ranks highly, and there's little to go out of adjustment	Auto, direct drive, 5.5g		67

## TURNTABLES - INTEGRATED

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES ARM EFF. MASS	VALUE	ISSUE
<b>Kuzma Stabi/Stogi Reference</b> £995/£899	Very Good Very Good	Beautifully made in a solid oak plinth, the Stabi also sounds very clear, detailed and extended. Stogi Reference is also most capable.	Manual, belt drive, subchassis.12g	R	91
<b>Linn Axis/Akito</b> £443	Good - Average +	A neat, attractive and well-made package which delivers a rather harsh sound with a 'one-note' effect in the bass, but it's well suited to mid market systems	Belt drive, semi-suspended, electronic PSU, 10g		79
<b>Linn Basik</b> £250	Good Average+	Strong midband analysis and imagery, clean if sharp treble is matched to a good if occasionally wooden bass. Good at the price, and requires no complex setting up or fine tuning in service	Solid plinth, inc cartridge, manual speed change	R	103
<b>Linn LP12 Basik/Akito</b> £599/£137	Very Good Good	Familiar Linn virtues and vices - plenty of the former though and few of the latter. Trails the full LP12 significantly, but pace, rhythm, timing etc. still in top class, and bass lauter than of old	Suspended subchassis, belt drive, single speed, 45rpm adaptor	R	103
<b>Linn LP12-Lingo/Ekos/Troika</b> £1168/£1097/£798	Good + Good +	The classic reference is improved (at a price) by the Lingo but character remains the same - not as detailed or neutral as the best. Ekos arm, though pricey, is well made and suited to many decks	Manual, subchassis, belt drive, 9g	R	91
<b>Manticore Mantra/Musician</b> £340/£170	Good + Good +	Well engineered deck with satisfying sound. The arm is particularly fine and very good value	Belt drive, suspended, 15g	R	79
<b>NAD 5120</b> £90	Average Average	A number of running improvements have given this player a range and tautness denied its lazier sounding antecedents.	Semi-auto belt drive, detachable armtube/weight, 9g	BB	67
<b>Opus 3 Continuo/Decca London International</b> (Revise) £599/£99	Poor Good	Heavyweight motor unit with many fine properties, but which needs further development. The idiosyncratic arm is a suitable (though not ideal) platform for the Decca cartridge. For all its faults though, the whole transcends the sum of the parts	Belt-drive manual, damped unipivot arm, 12g		67
<b>Rational Audio Aura 01</b> £189	Poor Good	Poor lab results reflect bad rumble, but midrange and treble are very pure and clean; idiosyncratic sound and styling should be tried!	Manual, belt drive, linear tracking arm10g	R	91
<b>Rega Planar 2</b> £185	Average + Good	A remarkable product at the price, surprisingly articulate and confident	Manual, 11.5g	BB	48
<b>Rega Planar 3</b> £250	Good Good	A long time leader in its price category, the '3 (with its excellent RB300 arm) sounded nicely 'musical' in a balanced and coherent manner	Manual, 11.5g	BB	48
<b>Revolver Rebel</b> £185	Average Good -	Quite lively and detailed but not the strongest on subtlety, with slightly lumpy bass. Motor breakthrough audible, and watch for bent motor shaft on delivery!	Manual, belt drive, semi-suspended 12g	R	91
<b>Revox B291 *</b> £892	Average - Average -	Sound quality ranks as below average. Subjective bandwidth is narrow and the music lacks grace and energy. Ease of use however is unrivalled	Automatic, remote controllable, direct drive parallel arm, cart		55
<b>Roksan Radius/Tabriz zi</b> £635	Good Good	Truly modern turntable in appearance. The design is subtle, refined and easy on the eye. Musically it offers exceptional performance with a minimum of setting up and operational fuss	Semi-suspended, belt drive, mains plug PSU.	R	103
<b>Roksan Xerxes 33/Tabriz zi</b> £550/£255	Good Good	Good but not exceptional sound quality from expensive package. At its optimum with a relatively inexpensive arm/cartridge unless upgrade to full Xerxes is contemplated. XPSII PSU adds 45rpm and much to sound quality	Semi-suspended, belt drive, 33rpm only, mains plug PSU, one piece arm tube, 'intelligent' counterweight		103
<b>Roksan Xerxes/Artemiz /Artaxerxes</b> £785/£655/£559	Excellent Excellent	Superb though costly record playing hardware, highly integrated and synergistic in nature, but suitable for use with any good MC cartridge. Will not suit all tastes, however	Semi-suspended, belt drive, quartz locked 2 speed PSU	R	103
<b>Rotel RP-855</b> £200	Good Good	Great sound for the money - detailed and clear with good bass and no irritating nasties	Belt drive, solid, speed adjust, 9g	BB	79
<b>Systemdek 1/900</b> £188	Poor Average-	The motor unit is derivative of the Rega Planar 2, but sounds inferior by virtue of insufficient structural integrity. Pitch stability is also far from acceptable	Solid plinth, manual speed change, no cartridge		103
<b>Technics SL-DD33</b> £120	Average Average	As with the QD33 though better value	Automatic, direct drive, solid plinth, 7.5g, P-mount	BB	48
<b>Technics SL-L20</b> £120	Poor Average -	A rather lightweight parallel tracker achieving a poor overall rating, with little to recommend it unless you dig facilities	Electronic, solid plinth, 5g, P-mount		48
<b>Technics SL-QD33</b> £150	Average Average	The quartz speed controlled version of the DD is short on sound quality but not features. But it did have fair focus and some depth	Automatic, Quartz, direct drive, solid plinth, 7.5g, P-mount	R	48
<b>Technics SLBD-22</b> £100	Average - Average -	Not bad for the price and a great improvement on the L20, it performs reasonably when not stretched	Semi automatic, solid plinth, electronic, 6g P-mount	R	48
<b>Thorens TD 166 Mk V</b> £240	Good Good	Classic suspended-subchassis deck with clear, stable sound of no particular character. Unlikely to make enemies	Belt drive, suspended, 12g	BB	79
<b>Thorens TD 280 Mk II</b> £190	Good - Good -	Legendary Thorens build quality on the cheap - slightly unsubtle sound but eminently liveable-with and very good value	Belt drive, solid, electronic PSU, 12g	BB	79
<b>Thorens TD 316 Mk II</b> £250	Good Good -	Very solid deck with neat split-chassis construction. Sound is a bit insecure in the bass, but it could suit classical music lovers well	Belt drive, suspended, electronic PSU, 12g	R	79
<b>Thorens TD-3001/TP90SF</b> £850	Very Good Good	Excellent middle ranking esoterica, with strong all round abilities rather than excellence in particular areas. Engineering content is particularly high	Suspended subchassis, belt drive, available w/o arm	R	103
<b>Thorens TD166 VI/UK/RB250</b> £270	Good Average-	Refined and articulate sound with well focused imagery, suitable for use with good MM and budget MC cartridges. The Rega arm is the best at its price, a good purist deck	Manual, belt drive, suspended, 11.5g	BB	103
<b>Thorens TD2001</b> £650	Good Good -	Similar to TD320 but much dearer - why? Sound is comfortable but not very detailed	Semi-auto, belt drive, subchassis 15g		91
<b>Thorens TD280 II/UK</b> £189	Average Average	Excellent value for money from a built to last player which is also easy to use. Will benefit from a cartridge upgrade in due course, but has an energetic and detailed sound	Solid plinth 2-speed player, inc cartridge	BB	103
<b>Thorens TD320 Mk II</b> £400	Good Good	Good, consistent sounding deck with much improved (but not ideal) arm. A little expensive for performance offered	Semi-auto two speed belt drive, 14g		67
<b>Townshend Rock Reference/Excalibur</b> £2295/£745	Excellent Excellent	Overall the closest reproduction to master tape we've yet heard, with stunning real bass and excellent neutrality. Front end damping trough improves LF detail significantly	Belt drive, suspended, electronic PSU, front-end damping, 12g	R	79
<b>Voyd Reference/Helios Cyalene</b> £5414/£1350	n/a Excellent	Voyd's flagship is equipped with three of the biggest motors in the business, a Lexan platter and a real brute of a power supply (it dwarfs most power amps!). A strong contender for best turntable in the known universe	Belt drive, 3 motors, subchassis, outboard PSU, 12/14g	R	Coll. '90
<b>Well Tempered WTAT</b> £1690	Average Very Good	Intriguing and challenging design. Musically it is not ideal, but it has a limp quality and a lack of artificiality that sets standards as well as turning the ear, though it's not completely uncoloured. A charmer yet mainstream enough in its virtues to be viable	Manual 2-speed, damped, suspended arm, 7.5g	R	67
<b>Zarathustra S4/Pluto 5A</b> Prestige/PSU £1500/£2500/£500	n/a Excellent	The very well made and finished heavy platter S4 with the superb Pluto arm make a devastating combination ranking up there with the very best	Subchassis, manual, available without PSU	R	72

## MOTOR UNITS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>CEC ST930</b> £599	Good Very Good	A rarity - a serious hi-fi product that loses nothing to budget rivals in finish or convenience. Good clean sound, very stable and assured	Belt drive, external PSU, 78 speed inc.	R	79
<b>CS Audio Resan kit for Rega</b> £90	Good - Good	After-market kit to convert Rega 2 or 3 to semi-suspended subchassis style. Looks good and sounds tidier than original. Feedback is much reduced	Conversion kit, all work reversible	R	79



# The Directory

## MOTOR UNITS

MODEL PRICE	LAB SOUND	COMMENTS	FEATURES	VALUE	ISSUE
<b>Michell Gyrodec</b> £595	Good Good	Sweet and natural sounding player, well exploited by the Rega RB300 arm. Aesthetics, and the acres of acrylic, are unique	Manual, belt drive, suspended motor unit		55
<b>Michell Syncro</b> £265	Good Good	A happy blend of qualities endows the Synchro with a blend of subtlety and force - the mailed fist in the velvet glove. Easy on the ear in the best sense.	Manual, belt drive, suspended motor unit	R	67
<b>Oracle Paris</b> £695	Good - Average	Looks good but sounds coarse, confused and uneven, with bass liable to thump	Belt drive, semi-suspended, electronic		91
<b>Origin Live Oasis A</b> £495	Good - Average	Rather coarse sound with lack of detail resolution - but lively presentation may appeal. Appearance is industrial	Belt drive, external mains filter, 33rpm only, suspended		79
<b>Origin Live Oasis B</b> £199	Average Average +	Aesthetics are not its strong point, but its lively and articulate - if idiosyncratic - sound will please some tastes. Highly resonant construction is very sensitive to feedback	Belt drive, 33Gy1/3Gyrpm only, solid plinth/subchassis		79
<b>Oxford Acoustics Crystal Reference</b> £2495	Very Good Excellent	This big, open and powerful sounding turntable works beautifully with Airtangent arm to give superb 3-D imagery. Recently updated to mk II form	Manual, belt drive, subchassis, stand	R	60
<b>Pink Triangle Anniversary</b> £1175	Excellent Excellent	Possibly the most detailed, clear, neutral and therefore accurate deck around. Likeness to master tape is almost uncanny	Suspended, belt drive, electronic, motor on subchassis	R	91
<b>Pink Triangle Export</b> £676	Very Good Excellent	Basically a PT T00 with built-in power supply. Retains features of great transparency and neutrality. Review sample had highish motor noise - presumed untypical	Suspended, belt drive, electronic	R	91
<b>Pink Triangle Little Pink Thing</b> £392	Good + Very Good	Leads the field for clarity and neutrality at this price or a good bit more. It also looks very smart! Excellent value. Arm cut-out suits Rega or Linn style	Belt drive, semi-suspended, electronic PSU	R	79
<b>Revolver</b> £150	Average Average	Nicely balanced, but unimpressive timing and lightweight bass made this deck rather average for the price. Manufacturer has since made several changes, but not re-submitted for review	Manual, belt drive, solid plinth		48
<b>Systemdek IIX/900</b> £200	Good Good	The Systemdek IIX is a high performance, low cost turntable which is particularly strong in the areas of fine detail resolution and imagery. Tested with Rega RB250	Suspended subchassis, metal armboard, glass platter, 2 speed	BB	103
<b>Systemdek IIXE/900AP</b> £358	Good Good+	A development of the IIXE/900, with a comparably detailed sound reinforced by better frequency extremes, timing etc. Needs careful setting up	Suspended subchassis, metal armboard, acrylic platter, PSU	R	103
<b>Systemdek IV</b> £495	Good Very Good	The level of wow is a theoretical concern at least, but elsewhere this player shines, combining euphony, information and imaging in a polished, untemperamental package	Two-speed manual belt drive	R	67
<b>Voyd 0.5</b> £3062	n/a Excellent	Based on the standard 3-motor Voyd but with upgrade options (better bearing, platter, etc) which take it half way to a Voyd Reference. Superb build and finish; colourful, dramatic performance.	Belt drive, 3 motors, subchassis, outboard PSU	R	72
<b>Voyd Valdi</b> £868	Good - Very Good	Recent power supply upgrade has resulted in alround improvements. This Perspex plattered, two motor deck is remarkably competent, revealing and neutral	Belt drive, suspended subchassis, electronic PSU		79
<b>VPI HW-19Mk3</b> £1600	Very Good Very Good	Built to accommodate parallel tracking arms, this large but elegant deck produced clean, smooth sound when fitted with an SME arm. Good bass	Belt drive, suspended subchassis	R	79

## TONEARMS

MODEL PRICE	LAB SOUND	COMMENTS	ARM EFF, MAS	VALUE	ISSUE
<b>Airtangent 1B</b> £1990	n/a Excellent	A complex but superbly built arm for high quality systems, giving excellent stereo and resolution	7.5g (vertical)	R	60
<b>Alphason Delta</b> £230	Good Average +	A highly competent design from Alphason gives good sound quality but with slight blurring and treble fizz	16g	R	48
<b>Alphason HR100S</b> £490	Very Good Very Good	This S-shaped arm sounds smooth, but nevertheless reproduces transients with fine attack	10g	R	Coll. '86
<b>Alphason Xenon</b> £285	Good Good +	A trimmed down HR100S, the Xenon has inferior bearings and a simpler finish, but sounds crisp and coherent. Fits any Linn cutout	12.75g	R	55
<b>Audio-Technica AT-1130</b> £186	Good Good	Well suited to most cartridges including high compliance ones, the AT is smooth and tonally neutral, if slightly lacking in 'balls'	8.5g	R	67
<b>Decca London International</b> £49	Average + Average +	This uni-pivot design gives a rather rich tonal balance and some bass muddling. Could be good with Decca cartridges, but not well built	12g		48 Summ
<b>Eminent Technology</b> £1000	Good + Very Good	One of the best sounding tonearms around, the linear tracking Eminent delivers impressive stereo imagery, focus and transparent sound	9g (vertical)	R	Coll. '86
<b>Goldmund T3F arm</b> £4400	Excellent Excellent	This complex parallel tracker created an "ear-opening" experience when tested with a (since updated) Goldmund Studio turntable	16.5g	R	Coll. '87
<b>Kuzma Stogi Reference</b> £899	Very Good Very Good	A large, solid and well-made arm that holds the cartridge firmly, giving exceptionally clear sound with just a hint of brightness	12g	R	79
<b>Linn Ekos</b> £1097	Very Good Very Good	Superb, state of the art design which builds significantly on Ittok's strengths	9g	R	67
<b>Moth Arm</b> £95	Good Good +	The ultimate budget arm? Refined, detailed, sweet and natural - performance improves in line with the rest of the system	12g	BB	60
<b>Naim Aro</b> £752	Good Good -	Designed for use on the Linn LP12 turntable and Troika cartridge, the Aro is a little bright and congested.	10.5g		91
<b>Rega RB300</b> £139	Very Good Very Good	Despite its modest price this sets exceptional performance standards and could be used on a number of high-quality turntables	10-11g	BB	60
<b>Roksan Artemiz</b> £655	Average Good	Interesting design which works a treat on the Xerxes deck. Fits Rega cut-out.	8g		67
<b>Roksan Tabriz</b> £165	Good Good +	Though obviously targetted at Roksan's own Xerxes, it is also a good alternative to the Rega arms in many applications. A trifle bright.	9g	R	91
<b>SME 3009 Series III</b> £253	Good Average +	Comprehensively adjustable and very well made, suited to MM and high compliance MC cartridges	5g		48
<b>SME 3009 Series IIIS</b> £182	Good Average +	A simplified less flexible (as regards adjustment) Series III with a similarly 'soft' sonic character	5g		48
<b>SME 3009R</b> £335	Average + Average +	A higher mass version of the Series III designed for low compliance MC cartridges	12g		48
<b>SME 309</b> £568	Very Good Very Good	Beautifully made, finished and presented, this arm is fully and easily adjustable and a highly neutral performer	10g	R	79
<b>SME Series IV</b> £828	Excellent Very Good	Superb engineering and finish with a finely balanced sound giving impressive stereo focus and low coloration	10.5g	R	60
<b>SME Series V</b> £1232	Excellent Very Good	Excellent in terms of design engineering and sound quality, this arm arguably sets a new reference standard regardless of price	10.5g	R	60

# Personal Messages

**R**eviewing loudspeakers for *Hi-Fi Choice* is not quite a full time occupation, even if it does sometimes feel that way. Since each group test takes around ten weeks from start to finish, and since there are three such tests each year, there's not a lot of time left in-between, especially when a small group or one-off also has to be fitted in. But in order to keep half an eye on what's going on elsewhere in the chain, I do spend a fair amount of time messing around with amplifiers and sources, even if the results may never make it into print.

During '92, I spent time with at least half a dozen power amps (and as many pickup cartridges) from the mildly to the exceptionally exotic. The easy way to check the amps out was to plug them into my system in place of the Naim *NAP135* monoblocks in daily use, with the result that they tended not to do particularly well, at least in terms of the vital overall homogeneity and coherence of the sound, even though the tinkly bits often sounded better.

But start digging deeper and the dangers of over-simplification become apparent. One certain reason why the two *135s* so often came through singing was

## **Casting an eye over amps Paul Messenger pleads a case for a revival of interest in passive preamps with all mod cons.**

that they were being fed from a Naim *NAC52* preamp. It's a very good preamp, exceptionally convenient to use and quite the best I've ever owned. But it was of course designed with driving *135s* in mind, so it's hardly surprising they work very felicitously together. Indeed, rather more than most contemporaries, Naim positively discourages using its power amps apart from its preamps, which makes a great deal of sense for the customer, even though it makes life complicated for reviewers.

I've gone on about this system synergy thing far too many times in the past to repeat it again here, but there's no avoiding the need to treat an amplifier as an entity, no matter how many different boxes it may be broken down into. I could easily have misjudged a whole series of power amps by jumping to conclusions over their performance via the *NAC52*, whereas changing at one point to a passive preamp system gave quite different conclusions.

Almost exactly the same series of doubts and uncertainties have arisen over the half dozen or so state-of-the-art cartridges I've tried out these past few months. A cartridge's performance is partly at the mercy of the turntable and tonearm, but classy moving coil models in particular are also crucially affected by the interface between cartridge and amplifier, with often fickle and unpredictable results.

One cartridge I've held in high esteem for more than a decade is the Audio Note *IO*, but its exceptionally low output and coil resistance is a recipe for interface difficulties. The step-up transformer is the usual solution; it seems to work fine in a valve amp based system, but I've struggled to get good results in

a transistor-with-active-step-up amplifier context. Certainly neither the standard *S* nor *K* boards of the *NAC52* phono stage did the trick.

Then I came across the NVA *Phono 2*, a two- or three-box moving coil cartridge amplifier that happens to suit the *IO* rather well, in most respects. The inherent background noise remains high — too high for some listeners I suspect — but that hasn't stopped me deriving a great deal of pleasure over the last few weeks from what would seem superficially an unlikely combination.

Quite what makes one power amp prefer an active preamp and another a passive feed, or why one cartridge works better with one input stage than another, are imponderables to which I don't have any glib answers. But one thing the episode has done is focus my attention upon the whole issue of audiophile amplifier architecture.

We hi-fi nuts are a conservative lot. We expect any serious amplifier to come packaged in two halves, the preamp and power amp(s) (give or take an outboard power supply or two). Whether such an arrangement is still as rational in this CD and AV age as it was when vinyl ruled must, however, be a moot point.

## **The case for being passive**

From an audiophile perspective the concept of a purely passive preamp with just input and output sockets, switching circuitry and a quality volume potentiometer is very attractive. In the pursuit of transparency at least, the elimination of a great deal of componentry in the signal path makes sense.

The CD player, video recorder and most tuners have plenty of signal output to withstand passive operation without suffering from undue noise, especially with the latest high gain/sensitivity power amps that have been cropping up. The only source that needs special treatment is the record player, which is where such devices as the NVA (and various other) phono stages come in, providing the vinyl enthusiast with something flexible and upgradeable, which the CD user doesn't have to pay for.

Much as I enjoyed the transparency of passive preamps (from the Mod Squad and NVA), there's a little matter of (in)convenience to contend with. Having lived with remote control for more than a year, it's a real pain to go back to full hands-on operation. (And no accident that major British amp makers like Quad, Naim and Linn have all gone the remote control route.) Why doesn't someone make a remote controlled passive preamp, for enthusiasts like myself who want the quality without enduring the hair-shirt trappings of audiophile credibility?

I asked QED'S Bob Abrahams the same question, only to discover that he was about launch just such a product, called *Vector*. Bob pointed out he wasn't really aiming at the high-end enthusiast with this £250 device, and admitted that the need to use a motorised potentiometer involves some purist compromise. I haven't tried *Vector* yet, so don't know how it will match up to hands-on passive preamps like the NVA *P50*. But one hopes it might sufficiently stimulate the whole passive concept to encourage more upmarket remote alternatives.

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Hi-Fi NEWS JANUARY 1992

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# The Critic's Choice

AMPLIFIERS

## Rotel RA-930AX

Gamepath, 25 Heathfield, Stacey Bushes, Milton Keynes  
MK12 6HR. Tel: (0908) 317 707



If you had an award-winning budget amp on your books and the time came to update the range, would you junk a successful design? Of course not and neither has Rotel. So when the popular RA-820AX had run its course it simply re-arranged the fascia and tinkered with the circuit layout before re-launching it as the RA-930AX!

The style of this amp compliments Rotel's other 900 Series separates with its centralised volume control and new, luxurious finish. Yet like the RA-820AX it caters for MM disc, CD, tuner, aux and tape inputs with both switchable tone controls and a second set of speaker outlets. Nothing ostentatious, then, but perfectly adequate for the keen listener.

Inside there is the same series-feedback RIAA stage with its Signetics op-amp and traditional Sanyo-based power amp. However the layout of the PCB is now wholly symmetrical, a change known to improve upon the breadth and depth of stereo soundstaging, while star-earthing and Rhoderstein signal-path resistors complete the evolution. All this with an increase of just £10 since we reviewed the RA-820AX in issue 80. Not bad, huh?

### Lab report

By way of recompense the power output has edged up from 47W to 53W (8ohm) and 69W to 77W (4ohm) though the headroom and peak current are quite unchanged. Stereo separation, channel balance and the low 0.006ohm output impedance have all taken a turn for the better while the DC offset is still too high!

Rotel has obviously changed the feedback operating about the power amp, for the overall sensitivity is reduced while distortion has increased from 0.0013 to 0.007 per cent at two-thirds output - just compare the 3D plot with that in issue 80. The disc response is identical, by the way.

### Sound quality

This was one of just two or three amps that gave us the distinct impression of playing louder than usual, despite the outputs of all contenders being matched at precisely the same level. Both vinyl and CD inputs were similarly influenced, pulling up low-level detail from a deathly silent background - detail that was often masked elsewhere.

This prompted a slight split in opinion. Some were mildly aggravated by the immediacy and 'loudness' of its presentation yet were bound to acknowledge its biting clarity and insight. Larger-than-life, the panel suggested - a truly surrealistic performance! Ordinarily, of course, they would have reduced the volume a notch or two.

Meanwhile the remainder of the panel were captivated by the clean, even-handed and thoroughly involving sound. The sort of sound that enhanced the femininity of Julia Fordham's voice while exposing percussive and string detail from both pop and classical discs with exquisite clarity. Notes grew and faded with realistic presence, a trait, along with the sheer vibrancy and tension of the music, that prompted one listener to correctly identify this as a Rotel amp. Not once, I might add, but in two consecutive blind listening sessions.

### Conclusion

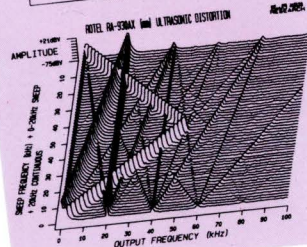
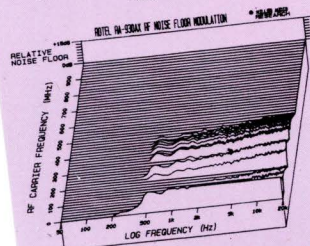
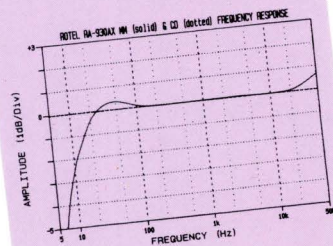
'A real scorcher' was the overwhelming response of the *Choice* listening panel. But so it should have been. After all these were the same people that voted its predecessor - the RA-820AX - a Best Buy exactly two years ago! In common with this classic, the RA-930AX bundles across a wealth of busy, intriguing musical detail with bags of enthusiasm.

Indeed, it was voted second only to the Lescon for its ability to invoke powerful, emotive music. This, plus its technical competence and reliability, maintains the family tradition for Best Buys.

### TEST RESULTS

	20Hz	1kHz	20kHz
Maximum Continuous Power Output,			
8ohms	47.5W	52.5W	50.4W
4ohms	66.6W	76.7W	74.9W
Dynamic Headroom (1HF)+1.36dB (72.0W)			
Peak Current (5msec, 1% THD)+12.5A			
Output Impedance 0.0058ohm			
Damping Factor 1391.3			

	CD/Aux	MM
Stereo Separation (1kHz)	81.8dB	80.5dB
Channel Balance (1kHz, -20dBV)	0.21dB	0.27dB
Total Harmonic Dist. (0dBW)	-82.3dB	-85.7dB
CCIR Intermod. Dist. (2/3 power)	-87.8dB	-76.7dB
A-wtd Noise (0dBW)	-86.3dB	-79.8dB
Residual noise (unwtd)	-72.0dB	-72.0dB
Input Sensitivity (for full output)	27.6mV	450µV
Disc Overload (1kHz)	201.6mV	3.29mV
Tape Output/Impedance	11.2V (disc) / 2.0kohm	181.1mV / 1660mV
Input loading	30kohm/125pF	47kohm/180pF
DC offset, left/right	+75.5mV/+78.5mV	3175mV
Retail Price		£160



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